

COASTAL GASLINK PIPELINE PROJECT

ASSESSMENT REPORT

With Respect to
the Application by Coastal GasLink Pipeline Ltd.
for an Environmental Assessment Certificate
pursuant to the *Environmental Assessment Act*, S.B.C. 2002, c.43

Prepared by:

Environmental Assessment Office

October 2014



Preface

The Environmental Assessment Office (EAO) manages the assessment of proposed major projects in British Columbia, as required by the *Environmental Assessment Act* (Act). The process includes:

- opportunities for the involvement of all interested parties;
- consultation with Aboriginal Groups;
- technical studies to identify and examine potential significant adverse effects;
- strategies to prevent or reduce adverse effects; and
- comprehensive reports summarizing input and findings.

At the conclusion of each environmental assessment, EAO provides a comprehensive assessment (Assessment Report), and makes recommendations to the Minister of Environment and, for proposed natural gas projects, to the Minister of Natural Gas Development. The Ministers may decide to certify a project, decline to certify a project, or require further assessment.

This Assessment Report considers the potential for the Coastal GasLink Project (proposed Project) to cause significant adverse environmental, economic, social, heritage and health effects. It identifies measures to prevent or reduce adverse effects, and sets out EAO's analysis and conclusions. It also summarizes the work undertaken by EAO to consult and accommodate Aboriginal Groups and treaty nations, in keeping with the Supreme Court of Canada's direction in *Haida v. Minister of Forests* and related case law.

Information and records relating to environmental assessments are available on the EAO website at www.eao.gov.bc.ca. Questions or comments can be directed to:

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Acronyms Used in the Report

AAC:	annual allowable cut
AAQOs:	Ambient Air Quality Objectives
ABCPF:	Association of British Columbia Professional Foresters
AIA:	Archaeological Impact Assessment
AIR:	Application Information Requirements
ALR:	Agricultural Land Reserve
AOA:	Archaeological Overview Assessment
ARCRP:	Acid Rock Construction Response Plan
ARD:	acid rock drainage
ATK:	Aboriginal Traditional Knowledge
BA:	Benefits Agreement
BC:	British Columbia
BCTS:	British Columbia Timber Sales
CACs:	criteria area contaminants
CCME:	Canadian Council of Ministers of the Environment
CEAA:	Canadian Environmental Assessment Agency
CMP:	Compliance Management Plan
CMT:	culturally modified trees
COFI:	Council of Forest Industries
COSEWIC:	Committee on the Status of Endangered Wildlife in Canada
CPD:	Certified Project Description
CTS:	Culture and Traditions Study
CWS:	Canadian Wildlife Service
DFO:	Fisheries and Oceans Canada
EAC:	Environmental Assessment Certificate
EAO:	Environmental Assessment Office
EMP:	Environmental Management Plan
EPA:	Environmental Protection Agency
FLNR:	Ministry of Forests, Lands, and Natural Resource Operations
FRPA:	<i>Forest and Range Practices Act</i>
GHG:	Greenhouse Gas
HCA:	<i>Heritage Conservation Act</i>
HDD:	horizontal directional drilling
IPCC:	Intergovernmental Panel on Climate Change
IUP:	Investigative Use Permit
LNG:	liquefied natural gas
LSA:	Local Study Area
MAMP:	Monitoring and Adaptive Management Plan
MCSCD:	Ministry of Community, Sport and Cultural Development
MOE:	Ministry of Environment
MOU:	Memoranda of Understanding
OGC:	Oil and Gas Commission
ROW:	right-of-way
RSA:	Regional Study Area
RTA:	Rio Tinto Alcan
SARA:	<i>Species at Risk Act</i>

SCADA:	Supervisory Control and Data Acquisition
SEEMP:	Socio-Economic Effects Management Plan
TAC:	Technical Advisory Committee
TEK:	Traditional Ecological Knowledge
TEM:	Terrestrial Ecosystem Mapping
THLB:	timber harvesting land base
TOC:	Table of Conditions
TSA:	Timber Supply Area
TUS:	Traditional Use Study
UWR:	Ungulate Winter Range
VOCs	Volatile Organic Compounds
VQO:	Visual Quality Objectives
WHA:	Wildlife Habitat Area
WHO:	World Health Organization
WMU:	Wildlife Management Unit
WTRA:	Wildlife Tree Retention Areas
ZOI:	Zone of Influence

PART A – INTRODUCTION AND BACKGROUND

1. Purpose of the Report

The purpose of this report is to summarize the procedures and findings of the Environmental Assessment conducted on the Application by the Proponent for an Environmental Assessment Certificate (EAC) for the proposed Project.

EAO is required to prepare this report for provincial Ministers who are responsible for making a decision on the proposed Project under section 17 of BC's *Environmental Assessment Act*. For natural gas pipeline projects, the deciding Ministers are the Minister of Environment and the Minister of Natural Gas Development.

The report:

- describes the proposed Project, provincial environmental assessment process, and consultations undertaken during the environmental assessment;
- documents work undertaken by EAO to consult and accommodate Aboriginal Groups in keeping with the Supreme Court of Canada's direction in *Haida v. Minister of Forests* and related case law;
- identifies the potential environmental, economic, social, heritage and health effects of the proposed Project and how the Proponent proposes to mitigate effects;
- identifies the residual effects after mitigation;
- identifies the conditions proposed by EAO; and
- sets out conclusions based on the proposed Project's potential for significant adverse residual effects.

In keeping with the Act, the Environmental Assessment is focused on specific environment, economic, social, health and heritage Valued Components considered important to assess in order to understand the potential for significant adverse effects of the proposed Project.

The Valued Components assessed in the Proponent's Application for an EAC for the proposed Project are set out below:

<p>Assessment of Environmental Effects:</p> <ul style="list-style-type: none"> • Acoustic Environment • Air Quality • Greenhouse Gas Emissions • Soil Capability • Terrain Integrity • Fish and Fish Habitat¹ • Surface Water² • Groundwater • Wetland Function • Wildlife and Wildlife Habitat • Ecological Species of Concern • Plant Species of Concern <p>Assessment of Economic Effects:</p> <ul style="list-style-type: none"> • Economy • Employment and Labour Force 	<p>Assessment of Social Effects</p> <ul style="list-style-type: none"> • Current Use of Land and Resources • Domestic Water Supply • Community Utilities and Services • Transportation Infrastructure and Services • Community Quality of Life • Current Use of Land and Resources for Traditional Purposes • Cultural Sites <p>Assessment of Heritage Effects</p> <ul style="list-style-type: none"> • Archaeological sites • Historic Sites • Architectural Sites • Paleontological Sites <p>Assessment of Health Effects</p> <ul style="list-style-type: none"> • Human Health • Ecological Health
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This report does not replicate the content presented in the Application. The Application and supplemental information provided by the Proponent, Working Group comments on the Application and supplemental information and other material, and other information received by during the Environmental Assessment process from Working Group members, Aboriginal Groups, and members of the public have all be considered in the preparation of this report and are posted to EAO’s electronic Project Information Centre (ePIC).

¹ The Valued Components assessed in the Application were Protection of Recreationally, Commercially and/or Culturally Important Fish and Fish Habitat, and Species of Conservation Concern.

² Includes the assessed Valued Component for Acid Rock Drainage.

2. Project Overview

2.1 Proponent Description

The proposed Project would be designed, owned and operated by Coastal GasLink Pipeline Ltd. (Coastal GasLink), a wholly owned subsidiary of TransCanada Pipelines Limited (TransCanada). Coastal GasLink is the general partner and acts on behalf of each of Coastal GasLink Pipeline East BC Limited Partnership (East LP) and Coastal GasLink Pipeline West BC Limited Partnership (West LP). The general partner, Coastal GasLink, would legally own and operate the proposed Project assets for the benefit of the two limited partnerships.

TransCanada operates a network of about 65,000 km of wholly owned, and 11,500 km of partially owned, natural gas pipelines in North America and transports 15 billion ft³ (bcf) of natural gas per day, which is about 20% of the natural gas consumed in North America.

2.2 Project Description and Scope

2.2.1 Project Description and Location

The proposed Project would involve the construction and operation of an approximately 675 km, 48-inch (1,219 mm) diameter sweet natural gas transmission pipeline from an area near the community of Groundbirch (approximately 40 km west of Dawson Creek, BC) to the proposed LNG Canada export facility in the District of Kitimat, BC (Figure 2-1). TransCanada has entered into an agreement with Shell Energy Ltd. (Shell) to design, build, own and operate the proposed Project with the purpose of transporting natural gas to Shell's proposed LNG Canada export facility.

The location of the proposed Project is outlined in the Proponent's Application for an Environmental Assessment Certificate (EAC) (submitted March 11, 2014). A number of route amendments were also submitted and assessed during Application Review (March 2014, May 2014, June 2014, and July 2014).

The proposed Project would include up to eight new compressor stations (see Table 2-1) and the installation of associated above-ground facilities, including mainline valves at specific locations within the designated right-of-way (ROW), meter stations, cathodic protection measures to protect the pipeline, and launchers and receivers to enable pipeline inspection with inline tools. To construct the proposed Project, ancillary sites,

such as access roads, temporary bridges, storage areas for equipment and pipe, as well as construction camps to house workers, would also be required.

The proposed Project would have an initial capacity of approximately 2 to 3 billion cubic feet/day (bcf/d) (56 million cubic metres per day [mmcm/d] to 85 mmcm/d), with the potential for expansion up to approximately 5 bcf/d

If an EAC is issued, and other regulatory approvals are received, construction of the proposed Project would be scheduled to start in 2015 through 2016. Based on current construction planning, the proposed Project would be constructed in eight sections as determined by factors such as terrain, access and seasonal conditions. Construction activity would occur during winter or summer in each of the sections. The proposed Project would be expected to be commissioned by the end of the decade.

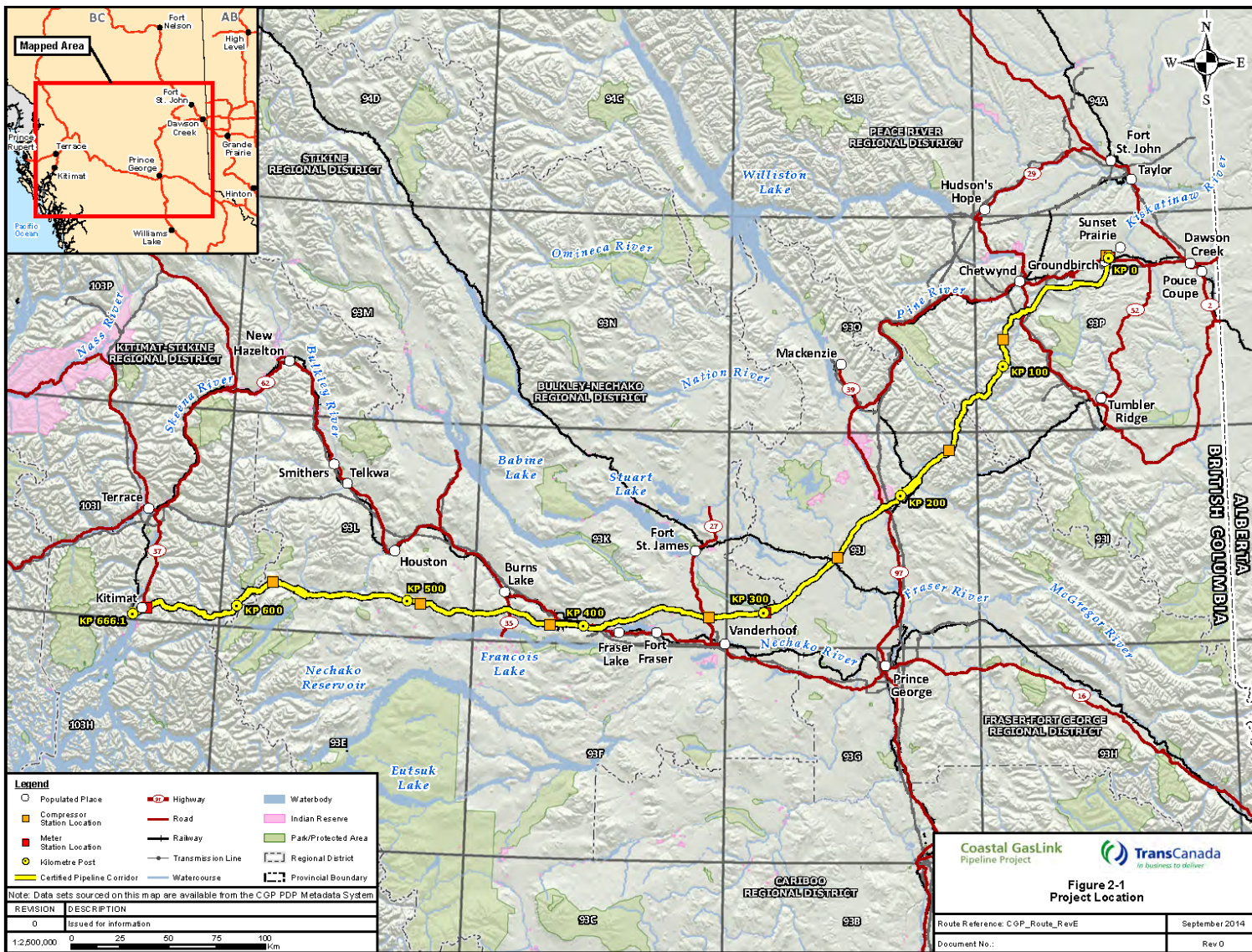


Figure 2-1: Description and location of the Coastal GasLink Project.

2.2.2 Project Components

Pipeline Right-of-Way

Dimensions of the pipeline construction ROW would vary depending on ownership, terrain, construction techniques, access and the extent and nature of existing ROWs being paralleled.

The construction ROW on level, flat terrain would be about 50–60 m wide to accommodate the proposed pipeline activities, construction materials and equipment. Additional temporary construction workspace would be required at certain locations to facilitate construction, and the width would vary. At some locations where temporary workspace is necessary, the width may extend more than 100 m, although these wider locations would be limited. Note that the Certified Project Description maps set out corridor widths in which the ROW would be. The pipeline would be fully buried to a typical depth of 0.9 m, with the exception of pipeline within compressor and meter station yards.

During pipeline operation the Proponent would retain an approximately 32 m ROW, and larger grasses and other smaller vegetation would be allowed to grow over top of the pipeline. The ROW would be clearly marked with sign and post markings at public roads, railroad and navigable water crossings, and other areas, as required, to reduce the possibility of damage or interference resulting from the activities of third parties. Figure 2-2 details a typical pipeline construction footprint.

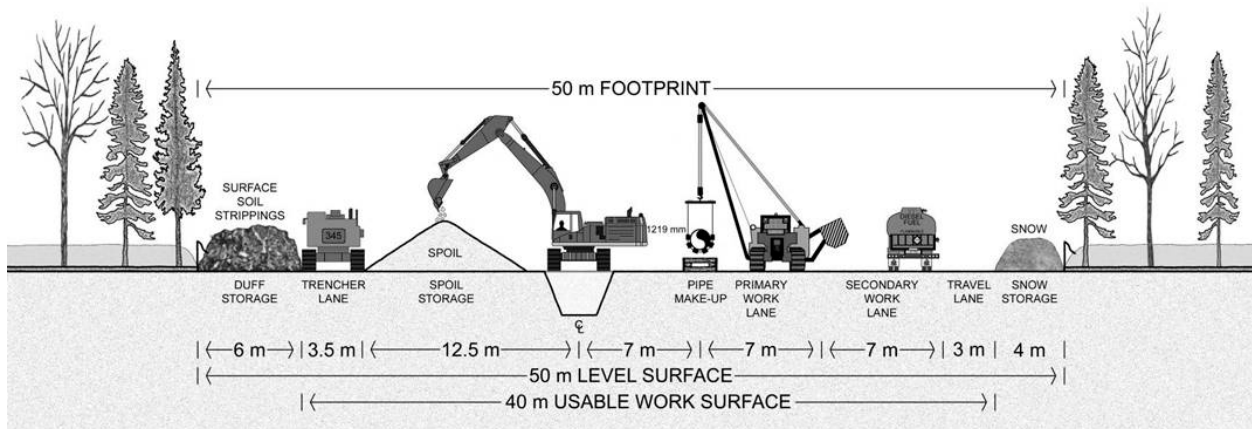


Figure 2-2: Typical pipeline construction footprint.

Compressor Stations

Compressor stations increase the pressure of, or compress, the natural gas, allowing it to move through the pipeline. They are placed at relatively even intervals along a pipeline to maintain consistent compression. The proposed Project would include the installation of compressor stations at up to eight locations, each of which would include several 30–34 megawatt (MW) natural gas powered compressor units and would require new permanent all-season access roads.

Compressor stations would be located within a fenced area of about 10 ha with the exception of the compressor station at KP 0 which would have a fenced area of approximately 16 ha to accommodate the potential for up to six turbo-compressor units, and would include an office. All other compressor stations would be a standard design and layout, requiring about 10 ha of land to accommodate three to four turbo-compressor units at full build-out. Approximately 17–19 ha of land would be cleared for the construction of each compressor station with the exception of the first proposed compressor station at KP 0, which requires 63 ha of cleared land. Figure 2-3 shows a typical compressor unit building.

The location, components, present land use and ancillary site requirements for each proposed station are identified in Table 2-1.

Table 2-1: Proposed compressor station locations

Proposed Compressor Station Location (approximate)	Number of Compressor Units	Land Use and Land Requirements
Wilde Lake (KP 0.0)	Initial: build 3; Full build-out: additional 3 units to total 6	Approximately 63 ha of clearing (fenced area approx. 16ha) on ALR land.
Sukunka Falls (KP 83.4)	Full build-out: 4	Approximately 17 ha of clearing (fenced area approx. 10 ha) on a Resource Management Zone under the Dawson Creek LRMP.
Mount Bracey (KP 163.0)	Full build-out: 4	Approximately 19 ha (fenced area approx. 10 ha) in the Regional District of Fraser-Fort George (RDFFG) on land zoned for agriculture and resource.
Racoon Lake (KP 249.3)	Full build-out: 4	Approximately 17 ha of clearing (fenced area approx. 10 ha) in the RDFFG on land zoned for agriculture and resource.
Clear Creek (KP 329.9)	Full build-out: 3	Approximately 17 ha of clearing (fenced area approx. 10 ha) on a Resource Management Zone.

Proposed Compressor Station Location (approximate)	Number of Compressor Units	Land Use and Land Requirements
Segundo Lake (KP 417.5)	Full build-out: 4	Approximately 19 ha of clearing (fenced area approx. 10 ha) on a General Resource Management Zone (Intensive Timber Management Areas).
Goosly Falls (KP 492.8)	Full build-out: 4	Approximately 19 ha of clearing (fenced area approx. 10 ha) on an Area Specific Management Zone under the Morice LRMP.
Titanium Peak (KP 574.0)	Full build-out: 3	Approximately 19 ha of clearing (fenced area approx. 10 ha) on an Area Specific Management Zone under the Morice LRMP.



Figure 2-3: Typical compressor unit building.

Meter Stations

Meter stations measure would measure the volume of all natural gas entering or exiting the natural gas system. The proposed Project is designed to include meter facilities at three locations:

- near Groundbirch (approximately KP 0.0), requiring up to 4 ha;
- near Vanderhoof (approximately KP 299.0), requiring up to 10 ha; and
- near the end point of the pipeline at the proposed LNG Canada export facility (approximately KP 656.5), requiring up to 10 ha.

Construction of meter stations is expected to be concurrent with the relevant pipeline section. Figure 2-4 shows a typical meter station site.



Figure 2-4: Typical meter station site

Other Facilities

To enable isolation of pipeline sections and to facilitate system safety, operations and maintenance, mainline valves would be installed within the footprint of the meter stations, compressor stations and at other locations along the pipeline ROW route, as necessary, in accordance with CSA Z662-11. Mainline valves allow pipeline sections to be isolated and facilitate system operations.

In-line inspection facilities would be installed at compressor stations and meter station locations. The facilities generally consist of valves, piping and, depending on the location, launchers or receivers.

Cathodic protection would be used to protect the pipeline and facilities from electrochemical corrosion. A Supervisory Control and Data Acquisition (SCADA) system would be installed to link pipeline and compressor facilities to the existing TransCanada Operations Control Centre in Calgary, AB. The pipeline control system would remotely monitor and control pipeline flows, pressures, temperatures and equipment status on a continuous basis. The SCADA system would alert the control centre operator of significant operational changes in the pipeline system.

The proposed Project would include communication links to service compressor stations, the meter station and other pipeline facilities. The exact number and location of

the communication towers has not been determined. In some cases, electrical power would be supplied by third-party power providers. Where commercial power is not available, the facilities would generate sufficient electrical power with natural gas fueled generators to meet the station loads for pumps, fans, instrumentation and lights. To the greatest extent possible they would be located within the Project footprint.

Construction Camps

The Proponent proposes to operate up to 18 construction camps to support pipeline construction and facilities construction. Smaller pioneer camps would be needed along the construction corridor at specific locations requiring smaller specialized crews with particular skillsets, such as trenchless watercourse crossing installation sites and mountainous areas. Camps increase worker safety by minimizing travel and reducing potential interaction with local communities and pressure on local infrastructure.

The main camps would range in size, accommodating about 200 and 1,200 workers. Approximate site sizes are expected to range between 5 ha and 25 ha and would be in operation for between 4 and 36 months. Pioneer camps would be in operation for between 4 and 18 months. These pioneer camps would range in size from 1.5 ha to 4 ha and could accommodate between 20 and 200 workers.

Table 2-2 notes the preliminary construction camps for the proposed Project and expected overlap with Aboriginal Group territories, Regional Districts and nearest communities. EAO notes that the locations are preliminary and subject to change. Additional information on proposed construction camps can be found in section 7.2 of this Assessment Report, as well as Figure 2-5.

Table 2-2: Preliminary construction camp locations

Construction Section	Site Name	Aboriginal Group) Territory	Regional District	Nearest Community
1	Wilde Lake	Blueberry River First Nations, Treaty 8 Zone A & B, McLeod Lake Indian Band, Saulneau First Nations, Halfway River First Nation, West Moberly First Nations	Peace River	Dawson Creek
1	Benke	Blueberry River First Nations, Halfway River First Nation, McLeod Lake Indian Band, Saulneau First Nations, Treaty 8 Zone A & B, West Moberly First Nations	Peace River	Chetwynd
1	Main #1B	Halfway River First Nation, McLeod Lake Indian Band, Saulneau First Nations, Treaty 8 Zone A & B, West Moberly First Nations	Peace River	Chetwynd

Construction Section	Site Name	Aboriginal Group) Territory	Regional District	Nearest Community
2	Main #2B	Halfway River First Nation, McLeod Lake Indian Band, Sauteau First Nations, Treaty 8 Zone A & B, West Moberly First Nations	Peace River	Tumbler Ridge
2	Main #4A	Halfway River First Nation, McLeod Lake Indian Band, Sauteau First Nations, Treaty 8 Zone B, West Moberly First Nations	Fraser-Fort George	Mackenzie
3	Main #5B	Lheidli T'enneh First Nation, Nak'azdli Band	Fraser-Fort George	Prince George
3	Global Winton	Treaty 8 Zone B, McLeod Lake Indian Band, Sauteau First Nations, West Moberly First Nations	Fraser-Fort George	Prince George
4	Main #6A	Nak'azdli Band, Carrier Sekani Tribal Council	Bulkley-Nechako	Vanderhoof
5	Main #7 or Lejac	Nadleh Whut'en First Nation, Stelat'en First Nation, Yekooche First Nation, Carrier Sekani Tribal Council	Bulkley-Nechako	Fraser Lake
6	Pioneer #5	Nee-Tahi-Buhn Band, Office of Wet'suwet'en, Skin Tye Nation, Stelat'en First Nation, Wet'suwet'en First Nation, Burns Lake Band, Carrier Sekani Tribal Council, Yekooche First Nation	Bulkley-Nechako	Burns Lake
6/7	Main #8 or Jellett	Nee-Tahi-Buhn Band, Office of Wet'suwet'en, Skin Tye Nation, Wet'suwet'en First Nation, Carrier Sekani Tribal Council	Bulkley-Nechako	Houston
7	Main #9	Nee-Tahi-Buhn Band, Office of Wet'suwet'en, Skin Tye Nation, Wet'suwet'en First Nation, Carrier Sekani Tribal Council	Bulkley-Nechako	Houston
8	Main #9A	Office of Wet'suwet'en, Skin Tye Nation, Wet'suwet'en First Nation, Carrier Sekani Tribal Council	Bulkley-Nechako	Kitimat
8	Pioneer #2	Office of Wet'suwet'en, Skin Tye Nation, Wet'suwet'en First Nation, Carrier Sekani Tribal Council	Kitimat-Stikine	Kitimat
8	Pioneer #3	Haisla Nation, Kitselas First Nation	Kitimat-Stikine	Kitimat
8	Pioneer #4	Haisla Nation, Kitselas First Nation	Kitimat-Stikine	Kitimat
8	Main #10A	Haisla Nation, Kitselas First Nation	Kitimat-Stikine	Kitimat
8	Main #11	Kitselas First Nation, Lax Kw'alaams Nation, Metlakatla First Nation	Kitimat-Stikine	Terrace

Start-up of a camp would involve site preparation and mobilization of supplies and material. About six months would be required to prepare the land and to supply and fully construct a camp. Identification of water sources, power supply and waste disposal requirements for camps would be finalized during construction planning.

The largest element of campsite operations would be catering and housekeeping for camp residents. Other activities would include:

- maintenance of the camp;
- restocking of fuel and supplies by truck; and
- daily transport of personnel between the camp, muster areas and worksites by multi-passenger vehicles.

Each camp would have medical facilities and personnel available to handle medical problems if they arise. Security would be onsite to ensure orderly conduct.

Access

The Application notes that existing infrastructure, such as existing forest service roads, would be used to the extent practical to access the proposed Project during construction. Access may be improved by the Proponent along existing roads during construction, where necessary, by widening, and/or improving bridge infrastructure. Some deactivated roads might be reactivated, and existing resource roads would be used wherever possible to reduce disturbance. Roads to compressor stations and meter stations would be permanent, while roads developed for construction would be decommissioned and reclaimed. In addition to access roads, tote roads (shoo-flies) would need to be constructed to allow for work around impassable areas or features in the land that relate to a steep slope, such as deeply incised valleys or gullies or drainages, and some mountainous terrain or large hills that cannot be safely travelled on the ROW.

Identification of roads that would be required to support the proposed Project would be finalized during detailed design and subject to permitting by OGC. The Application classified the requirements for 1,330–1,745 km of required construction access roads, and identified that approximately 400–500 km of access roads still required additional review. About 25–55 km of new access roads would be needed during construction of the proposed Project, while 275–400 km would require upgrade. At present, 355–465 km of access roads have been identified as requiring no additional work. The Application identified the need to construct 95–125 km of tote roads (shoo-flies).

Access road requirements for borrow sites have not been finalized.

Existing bridges would be used, where feasible, by construction vehicles and equipment. In the absence of existing bridges, other techniques, such as snow bridges, timber mats, culverts and temporary clear-span bridges would be used to cross any watercourses with defined banks that may be encountered along the travel lane. The crossing method would be assessed and determined in the field and would reflect the conditions at the time of construction. Appropriate permits and authorizations would be required for all crossings.

Existing airports and railways would also be used for the transportation of equipment, materials and workers from supply locations to the ROW throughout the proposed Project.

All construction access would be managed in accordance with the traffic control management plan. Existing disturbed areas or areas already designated for such activities would be used whenever practical and reclamation of disturbed areas would begin as soon as practical following construction.

Disposal Sites

Disposal sites would be required for excess grade spoil material, primarily consisting of rock. These sites would be located in previously disturbed areas along the proposed route and within existing and new borrow sites that have been excavated for the proposed Project.

Disposal sites for drilling mud excavated from trenchless watercourse crossings would either be located in existing disturbances on the proposed routes and other temporary workspace or hauled away to suitable disposal sites.

Temporary Storage Areas

In addition to the pipeline ROW and associated temporary workspace, land would be needed for temporary sites, including:

- staging and stockpile sites;
- rail sidings;
- contractor storage yards;
- laydown areas;
- construction office sites;
- work areas to set up and operate equipment for trenchless watercourse crossing construction; and
- borrow sites.

Wherever practical, these temporary facilities would be located within previously disturbed areas to reduce overall Project-related disturbance. General site selection criteria for temporary ancillary sites are similar to those for camp sites.

Stockpile sites are required for the storage of pipe during construction of the proposed Project. The number of stockpile sites and their specific locations would be finalized during detailed engineering. Each site would be approximately 25 ha in size, and it is anticipated that approximately 12 sites would be located in non-mountainous areas and approximately eight sites would be located in mountainous areas.

Contractor storage yards are typically located at or near camp sites. They may provide a contractor warehouse, equipment storage, maintenance and mechanics shops, fuel storage for all vehicles and some equipment, fabrication facilities and storage of Contractor and company supplied materials. It is anticipated that there would be eight contractor storage yards (i.e., one for each of the eight construction sections), and these would be approximately 20 ha in size.

Laydown areas are used for storage of equipment near the construction footprint. Construction of the proposed Project would require about 40 laydown areas, each of which would have an approximately 4-ha footprint. Approximately 26 of the sites are anticipated in non-mountainous terrain, and 14 sites are anticipated in mountainous areas. The complex construction activities near the Kitimat River may require a staging area of approximately 20–30 ha.

Borrow sites would be needed to produce gravel, sand, road crush and rock for various purposes during construction. Borrow site locations would be dependent on the amount and type of material available. These sites could be pre-existing, owned and operated by others or completely new developments.

Based on the needs of the proposed Project, approximately 100 borrow sites are anticipated, including existing operations and new developments. Borrow sites would be approximately 10–20 ha in size. A majority of the borrow material would be supplied from borrow sites that are off the ROW. Where the terrain and footprint allow, the proposed Project anticipates creating borrow material on the ROW by means of mechanical separation or mechanical crushing.

Hydrostatic Test Fill Lines

Hydrostatic test fill lines would be required to move water from water sources to the construction ROW for the hydrostatic pressure testing process. The fill lines would be placed in temporary ROWs approximately 1,000 m long and 15 m wide, with a pump

and equipment pad that is approximately 50 m by 50 m. Specific locations for the hydrostatic test fill lines have not yet been finalized. The water would be discharged back to the appropriate environment in accordance with applicable requirements. EAO acknowledges that applicable approvals would be in place and that hydrostatic testing activities would be conducted in accordance with applicable regulatory requirements.

2.2.3 Project Activities

Construction – Terrestrial

Construction of compressor stations and meter stations is expected to be concurrent with pipeline construction and to take about 12 months for compressor stations and five months for the meter stations, depending on, among other variables, scope, land use and construction techniques for each facility.

Construction of the proposed Project and facilities would last three to four years. The main pipeline construction work would be divided into eight pipeline construction sections, with multiple construction crews carrying out construction activities in parallel at multiple locations along the construction ROW. Each section would be about 80 km in length. The construction activity for each section would range from about 5–19 months, with three of the eight sections expected to be constructed during winter months and five constructed during summer months.

The general sequence of pipeline construction activities is illustrated in Figure 2-6. It shows the following steps and durations:

- Surveying (step 1);
- Site preparation (steps 2–5) – approximately one year;
- Pipeline installation (steps 6–17) – about 4–6 months per spread;
- Pressure testing (step 18); and
- Clean-up and reclamation (step 19) – begins immediately following construction and continues over the first two growing seasons.

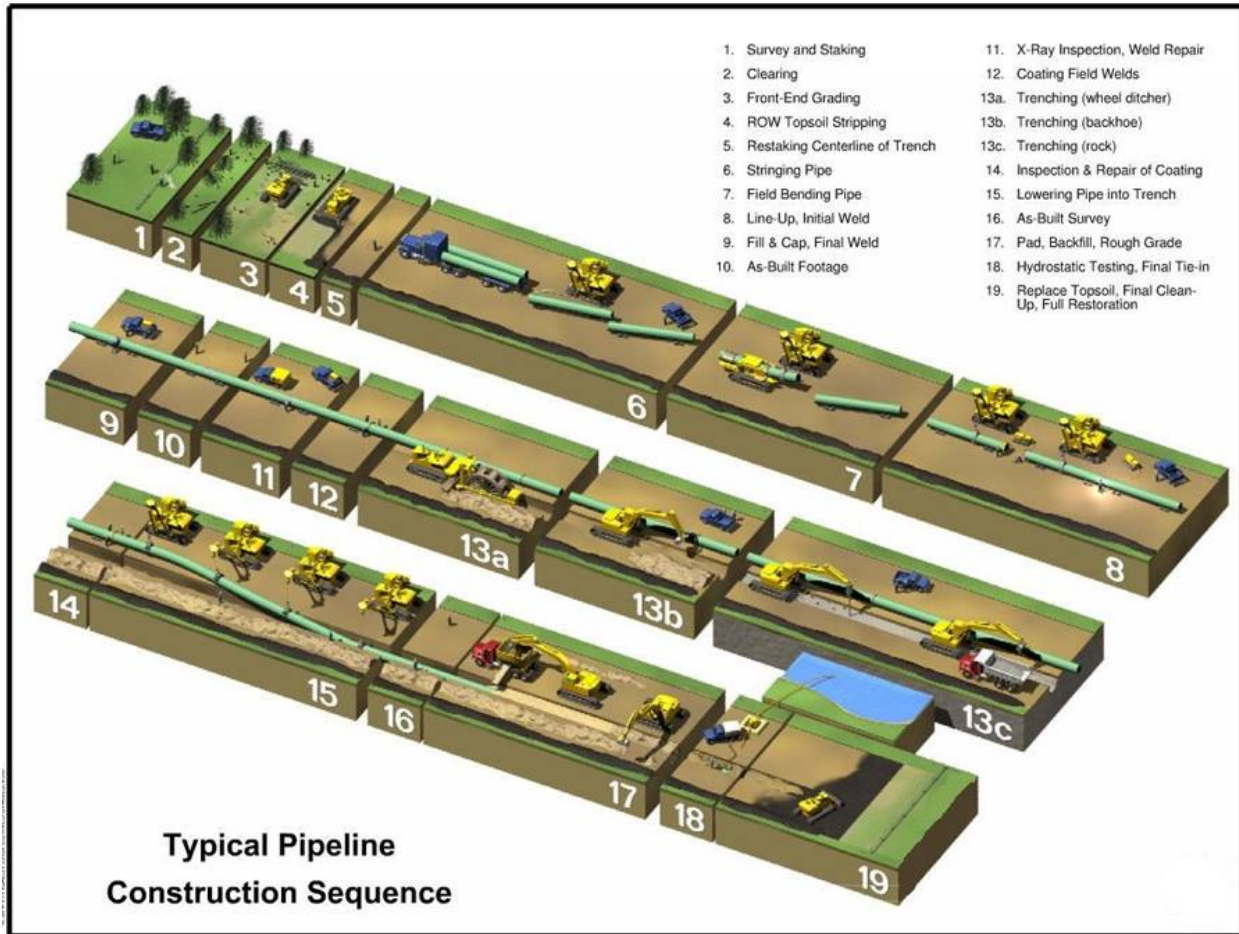


Figure 2-6: Typical pipeline construction sequence.

Construction – Watercourses

The proposed Project would cross approximately 1,085 watercourses, most of which are minor unnamed tributaries. The majority of the watercourses are either known or assumed to be fish-bearing. Watercourse crossings involve either digging a trench to bury the pipeline below the bed of the watercourse (“trenched”), or a trenchless method. Options for trenchless crossings include, underground crossings (e.g., horizontal directional drill [HDD], directional micro-tunnel or bore). Aerial crossings are also considered to be trenchless crossings, but are not likely to be used on the Project.

Streams and rivers with narrow channels and lower flow rates may be suitable for trenched crossings. In certain conditions, trenched techniques can also be applied to larger river crossings. An isolated crossing method establishes a dry construction area for trench excavation within a watercourse by isolating it from the natural stream flow. Isolation methods are proposed for small to medium sized flowing watercourses, unless they have technical considerations that preclude this method or at some watercourses

where high fish and fish habitat sensitivity has been identified. The stream bed is then stabilized, and stream flow is allowed to return to the bed of the watercourse. The two main methods of diverting stream flow during an isolation type crossing are to:

- isolate the crossing location and convey the water across the work site by pumping; and
- isolate the crossing and install a culvert (flume).

The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method with mitigation measures to avoid and minimize potential effects to fish and fish habitat

An open cut crossing method allows for excavation of the pipeline trench without isolation of the instream workspace from the rest of the channel. Open cut installations are selected for situations where the stream is dry or frozen, or the conditions do not allow for an isolation to be installed.

HDD is a widely used underground trenchless installation technique that uses specialized equipment to drill a long deep path underneath a watercourse. This method is used to cross sensitive and large watercourses to avoid disturbances to instream habitat and riparian vegetation between the drill entry and exit locations. Other underground trenchless methods include auger boring and microtunnelling.

Depending on the methodology chosen and the nature of the watercourse crossing, the duration of an individual crossing can range from five to seven days for a small crossing to four months or more for a trenchless crossing. Instream activities would be minimized, and would take place within applicable least-risk windows, unless otherwise approved by the appropriate regulatory authorities for specific watercourse crossings. Final cleanup and reclamation activities would be conducted during dry, non-frozen conditions throughout the summer months.

Generally, large water bodies in areas with particularly sensitive (i.e., water quality, fisheries and habitat) ecosystems, and where geotechnical and hydrological conditions are favourable, may be suitable for trenchless crossings.

The crossing methods are described in greater detail in Section 1 of the Application. Figures 2-7 and 2-8 show typical HDD and isolated (dam and pump) watercourse crossings, respectively.

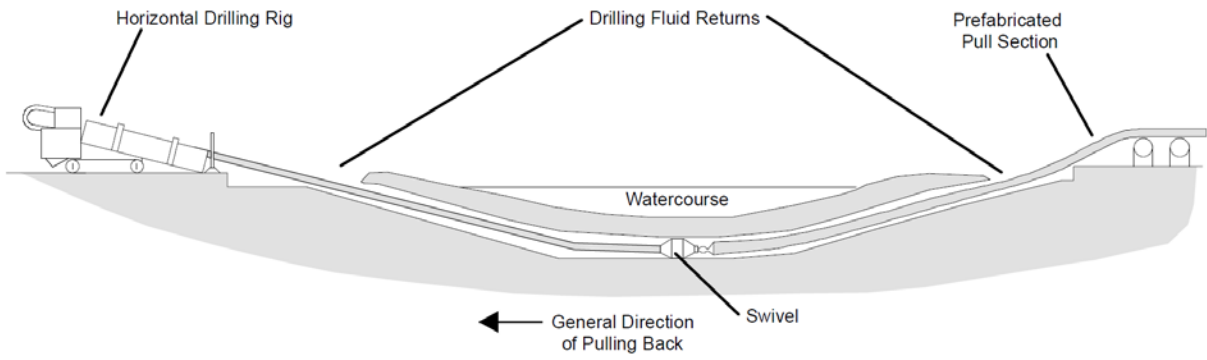


Figure 2-7: Typical HDD watercourse crossing.

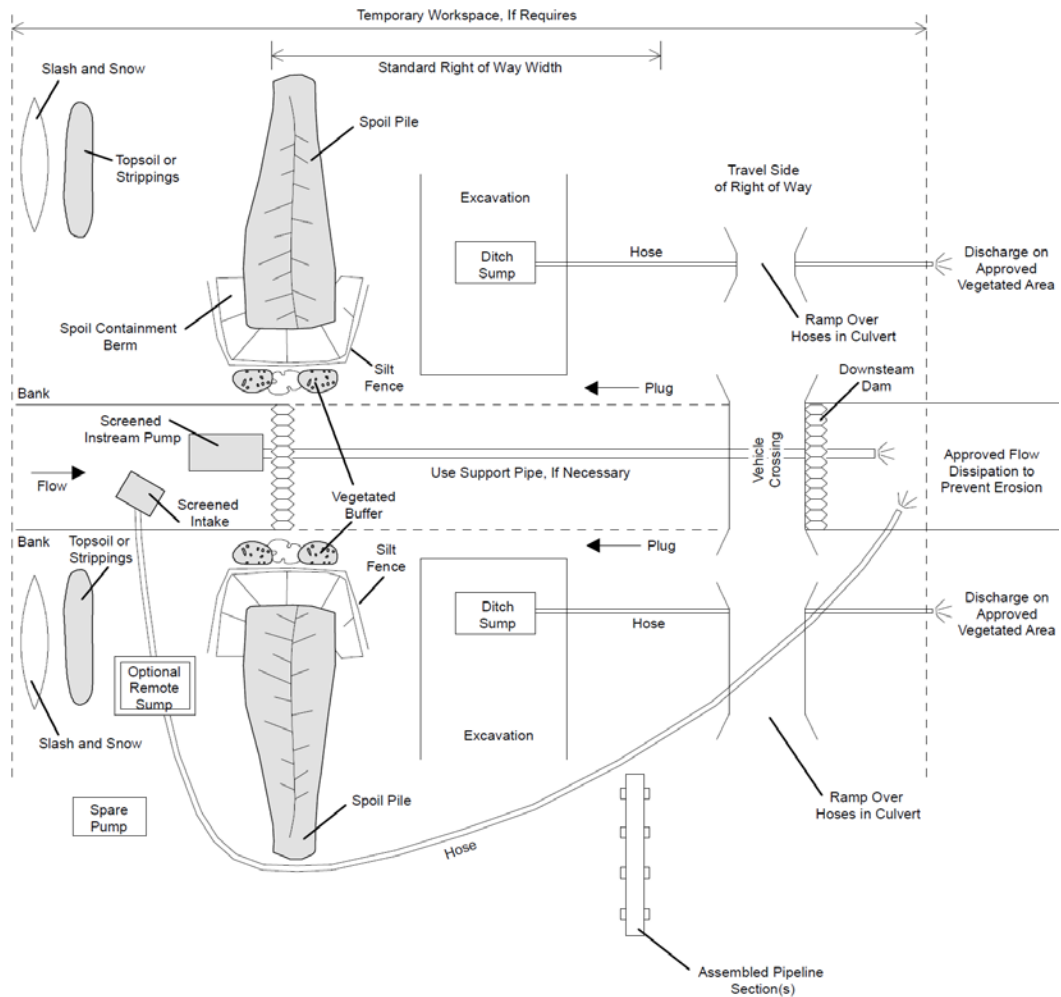


Figure 2-8: Typical isolated (dam and pump) watercourse crossing.

Transportation

Transportation of goods, materials, equipment and personnel would be required to support pre-construction and construction activities. Equipment and materials to transport would include:

- pipe segments;
- valve assemblies;
- diesel fuel;
- heavy construction equipment;
- directional drilling equipment;
- compressors;
- camp components; and
- other materials and consumables.

Rail transport would be the primary transportation mode for pipe segments and valve assemblies.

Truck transport would be required to deliver pipe segments from the rail siding sites to stockpiles or to work sites. It is also expected that diesel fuel, goods, materials, and equipment would be transported by truck.

In addition to transportation of goods, daily transport of personnel between the camps, muster areas and work sites would be by multi-passenger vehicles.

Operations

Once construction is complete, the proposed Project would be commissioned and the operations phase would then begin. The life of the proposed Project is estimated to be in excess of 30 years.

The ROW would be clearly marked with sign and post markings at public roads, railroad and navigable water crossings, and other areas, as required, to reduce the possibility of damage or interference resulting from the activities of third parties. Key operational activities would include ROW and block valve maintenance, operational surveillance (aerial and ground based), cathodic protection and line patrol. Prior to commissioning the pipeline, the Proponent would develop a variety of plans to address access management, vegetation management (including management of invasive species), and emergency management.

The permanent ROW and facilities sites would be maintained to prevent the introduction or spread of noxious weeds and to avoid negative impacts to sensitive or protected

wildlife habitat. Brush cover would be allowed to regenerate naturally on either side of a 10 m corridor along the pipeline centreline; however, a brush-free corridor must be maintained directly over the pipeline to allow for line-of sight inspection of the ROW.

The SCADA system is used to continuously monitor and control pipeline operation. Regular preventative maintenance programs would be conducted on the pipeline, compressor stations, meter station and associated facilities. Facility sites such as compressor and metering stations would be visited weekly.

Regular aerial patrols would be undertaken to monitor conditions on the ROW. Ground-based patrols may be performed along the permanent ROW by walking, all-terrain vehicle or motor vehicle as appropriate for the conditions and land use. The purpose of surveillance and monitoring activities is to assess the general condition of the ROW, and to look for evidence of natural gas leaks, construction or third party activities on or near the ROW, loss of vegetative cover on the pipeline route, un-authorized vehicular traffic, exposed pipe, and erosion and bank stability at river crossings.

Decommissioning and Abandonment

As specified in the Reviewable Projects Regulation, the decommissioning and abandonment phase is not included in the environmental assessment of natural gas transmission pipelines. Decommissioning and abandonment would be required to adhere to any applicable legislation or regulatory processes at that time. The timing of the decommissioning would be such that the Proponent determines the economic life of the proposed Project is complete.

Generally, it is anticipated that any one of the following three decommissioning and abandonment options (or some combination of them) would occur:

- pipeline removal;
- abandonment-in-place; and
- a combination of abandonment-in-place and pipeline removal.

The physical activities associated with decommissioning and abandonment would generally include:

- purging and cleaning the pipeline with in-line tools pushed by compressed air;
- physically separating the pipeline from any in-service piping and cutting, capping and sealing it below grade; and
- reclaiming any land disturbed by physical activities.

Any land disturbance activities related to the removal of the pipeline or associated facilities would be reclaimed to the appropriate land use at that time.

2.3 Project Setting

The proposed Project crosses the boundaries of the Peace River Regional District (PRRD), Regional District of Fraser-Fort George (RDFFG), Regional District of Bulkley-Nechako (RDBN) and the Regional District of Kitimat Stikine (RDKS). The proposed route also crosses the municipal boundary of the District of Kitimat.

Most of the proposed route would cross provincial Crown land. About 4.5% of the proposed route crosses private land, including land held under title to the Haisla Land Trust in the District of Kitimat. The proposed route does not cross any federally owned or administered land. The proposed route does not cross any Indian Reserves, as defined under the *Indian Act*, however, the proposed Project would cross the traditional territory boundaries of 29 Aboriginal Groups and 2 Tribal Councils.

The area crossed by the proposed Project supports a variety of activities on private and Crown lands, including:

- forestry;
- agriculture and grazing;
- mineral and coal exploration and development;
- oil and gas;
- trapping;
- hunting and guide outfitting;
- fishing; and
- tourism and commercial recreation.

The proposed Project would cross six Land and Resource Management Plan (LRMP) areas (Dawson Creek, Prince George, Vanderhoof, Lakes District, Morice, and Kalum), which provide management direction for various resource values within their boundaries. The proposed Project would also cross three Sustainable Resource Management Plan (SRMP) areas (Kalum, Lakes North, and Lakes South). Local governments have developed Official Community Plans overlapping the proposed Project area; a number of Aboriginal Groups have also developed land use plans that overlap the proposed Project.

There are no national or provincial parks crossed by the proposed Project. There are four ecological reserves, 16 provincial parks and one protected area found in the vicinity

of the proposed Project. There are no regional parks crossed by the proposed Project or located in the vicinity of the proposed Project. No municipal parks are crossed by the proposed Project; however, Hirsch Creek and Radley municipal parks are in the District of Kitimat and are located approximately 1.4 km north of KP 655.0 and 3 km north of KP 661.0, respectively.

Section 7.1 assesses the impacts of the proposed Project on current land and resource use, and presents additional detail on the areas overlapped by the proposed Project.

2.4 Alternative Means of Undertaking the Proposed Project

Alternative means are the various ways that are technically and economically practical to implement and carry out the proposed Project. The Proponent's Application demonstrated consideration of alternative routes for the pipeline or locations for the facility sites, as well as methods of construction and mitigation.

During pipeline route planning, the Proponent made use of existing disturbances where practical, including existing and proposed pipeline, railway, and power line rights-of-way (ROWs), and previously disturbed areas. The Proponent's process of selecting an appropriate pipeline route and facility site involved collaborating with experts from various disciplines, including land, environmental, engineering and construction, and considering input from potentially affected Aboriginal Groups, provincial and federal regulators, municipalities, landowners and the public. The Application identified a number of factors considered by the Proponent when evaluating pipeline routing options, such as:

- identifying previously cleared areas that are the result of forest harvesting or other linear developments (e.g., power lines, roads and highways); crossing watercourses at straight and stable reaches;
- avoiding disturbance to parks and protected areas, where practical;
- minimizing:
 - the number of watercourse crossings and the potential complexity of pipeline installation;
 - the length of disturbance in wetlands;
 - disturbance and pipeline routing in unstable terrain; and
 - disturbance to sensitive habitats;
- ensuring compatibility with existing land use (including traditional land use);
- ensuring the technical feasibility of construction;
- selecting a route that is cost-effective to build; and

- gathering and responding to input from landowners, Aboriginal Groups and other interested parties.

The Proponent considered various alternatives for the pipeline route (Application Appendix 3-B, Figure 3-B.1).

Based on comments provided by the Working Group and the public during the pre-Application stage, as well as more detailed design and engineering work, the Proponent made several changes to the proposed Project design to minimize or avoid potential adverse effects on the environment and Aboriginal Interests. These changes were incorporated into the proposed Project design presented in the Application. In addition, several addendums were filed during Application Review, amending the corridor to minimize or avoid potential adverse effects on the environment Aboriginal Interests, and public interests.

A summary of the major route refinements is provided below (refer to Application Section 1.4 and Appendix 3-B.1 for further details):

- Sukunka Pass Alternative – to reduce the corridor length within caribou ranges and the number of major river crossings; and
- Revision B Nimbus Pass 2 Alternative – to avoid parks and protected areas and the number of major river crossings.

Corridor changes provided in Addenda filed during Application Review:

- Corridor Widening at KP 3 – to widen the Application Corridor to accommodate a landowner request to avoid disturbance to a stand of trees on private property;
- Stuart River Crossing Alternate Corridor – to avoid critical habitat for the white sturgeon as identified in the proposed federal recovery strategy;
- Highway 16 Crossing Corridor Widening – to allow safe construction as the proposed footprint amendment for the Pacific Trail Pipeline would cross at the same location;
- Kitimat Valley Corridor Widening – consultation with stakeholders confirmed an interest in avoiding disturbance on lands within the Pine Creek Covenant and maintaining as much of the old forest west of Pine Creek as practical;
- Tchesinkut Creek Crossing Alternate Corridor – to avoid multiple crossings of Tchesinkut creek in response to concerns from Nee-Tahi-Buhn Band;
- Marbled Murrelet Habitat Corridor widening – to allow for additional flexibility during construction planning and detailed engineering design to avoid marbled murrelet habitat identified as having a potentially high

- Kitimat Valley Corridor Widening 2 – to provide flexibility in accommodating a request from Haisla Nation to revise the construction footprint to avoid culturally sensitive areas.

2.5 Project Benefits

This section summarizes the estimated Project benefits during construction and operations, as reported in the Proponent’s Application.

Economic Benefits from Project Construction

The Proponent expects that capital costs related to initial Project capacity would be \$4.7 billion (2013), spread over the three-to four-year construction period from 2015 to 2018. This would be expected to include \$3.05 billion of direct capital expenditures in Canada, representing 65% of total capital costs, of which \$2.0 billion would be spent in BC.

Table 2-3 summarizes economic benefits that would be generated from Project construction in BC and other Canadian provinces, mainly Alberta. Total construction costs are estimated at \$4.7 billion, \$2.0 billion of which is estimated to be spent in BC. Construction would generate almost 17,000 person-years (PY) of direct employment, and support over 37,000 PY, two-thirds of which would be within BC.

Table 2-3: Summary of economic benefits from Project construction

	British Columbia	Other Canada	Total
Construction costs	\$ million		
Spent in BC/ Canada	\$2,000	\$1,050	\$3,050
Imported goods and services			<u>\$1,650</u>
Total construction costs			\$4,700
Gross Domestic Product (GDP)	\$ million		
Direct, indirect and induced	\$1,700	\$1,900	\$3,600
Employment	Person Years		
Direct	10,916	5,887	16,803
Indirect and induced	<u>8,855</u>	<u>11,582</u>	<u>20,437</u>
Total	19,771	17,469	37,240
Government revenues (direct, indirect and induced)	\$ million		
BC government	\$166	over the 3- to 4-year period	
Federal government	\$480		

Economic Benefits from Project Operations

During the 30 years or more of operations, the primary benefit of the Project would be to support the natural gas exploration and production sector in northeast BC (upstream activities), and the proposed LNG Canada export facility to be located in Kitimat.

Table 2-4 summarizes the benefits that would be generated in BC and other Canadian provinces, specific to the proposed Project during operations. Of the 57 direct full-time equivalent (FTE) positions, approximately 16-35 would be on-site jobs to support operations.

Table 2-4: Summary of annual benefits from Project operations

	British Columbia	Other Canada	Total
Expenditures	\$ million per year		
Annual operating expenditures ^a	\$21.0	\$5.3	\$26.3
Employment	Full Time Equivalent (FTE) Positions		
Direct jobs	57	0	57
Indirect and induced jobs	<u>92</u>	<u>93</u>	<u>185</u>
Total	149	93	242
Effects on government revenues:	\$ million per year		
Annual municipal/ regional taxes	\$20.9		
BC government (direct, indirect and induced) ^b	\$1.36		
Federal government (direct, indirect and induced) ^b	\$3.0		

^a Annual operating expenditures, based on estimates provided by the Proponent, exclude the cost of natural gas that would be used by the compressor stations, as well as any associated carbon taxes.

The BC government revenues exclude carbon taxes which are estimated by Proponent to be at \$8 million per year for the initial capacity and up to approximately \$89 million per year at full capacity.

Annual municipal /regional revenues are estimated by the Proponent to be at \$20.9 million as follows:

- Peace River Regional District (RD) (\$4.4 million);
- Regional District of Fraser-Fort George (\$4.35 million);
- Regional District of Bulkley-Nechako (\$8.36 million);
- District of Kitimat (\$0.62 million); and
- Regional District of Kitimat-Stikine (\$3.15 million).

Social Benefits from Proposed Project

The Project is expected to create employment opportunities for Regional Study Area (RSA) residents and procurement opportunities for RSA businesses.

Direct labour income from Project construction is estimated at \$1.1 billion, approximately two-thirds of which is expected to be earned in BC. At any given time during the three- to four-year construction period, the construction workforce is expected to comprise 2,000–4,000 personnel spread across up to 18 camps, comprised of both main and pioneer camps, along the approximately 675 km pipeline route. Service contracts are expected to be valued at \$2.5 billion and offer a broad range of opportunities relating to pipeline and associated facility construction.

In addition, local businesses would benefit from an estimated \$87 million in workforce expenditures through indirect and induced spending in communities closest to the 18 main construction camps along the pipeline route (e.g., hotels and motels, campgrounds, restaurants, recreational facilities, helicopter support, local service stations).

Table 2-5 provides a breakdown of the proposed \$87 million in workforce expenditures, by community near construction camps.

Table 2-5: Proponent's estimate of workforce expenditures in communities near construction camps

Breakdown by community:	Workforce Expenditures (\$ million)		
	2016	2017	Total
Chetwynd	\$8.7		\$8.7
Prince George	\$23.4	\$2.7	\$26.1
Vanderhoof		\$9.5	\$9.5
Burns Lake	\$4.8	\$4.8	\$9.6
Houston	\$5.0	\$14.6	\$19.6
Terrace		\$4.1	\$4.1
Kitimat		\$9.5	\$9.5
Total	\$41.9	\$45.2	\$87.1

In addition to employment generated through direct and indirect spending on goods and services, the Project is expected to generate social benefits to local communities and Aboriginal communities, such as training and education and employment opportunities for unemployed or underemployed individuals, and increased availability of funds for government programs. The proposed Project would also be expected to provide important economic opportunities for Aboriginal Groups, including capacity-building initiatives to support employment, contracting and business development.

2.6 Applicable Permits

The primary regulator for construction and operation of a natural gas pipeline in BC is the Oil and Gas Commission (OGC), pursuant to the *Oil and Gas Activities Act* (OGAA). Various licences, permits or approvals are required for field programs, construction, operations, and decommissioning and abandonment of the proposed Project under federal, provincial and local jurisdiction.

EAO established a Memorandum of Understanding (MOU) with the BC Oil and Gas Commission (OGC) in 2013 to manage a single, predictable regulatory regime for LNG projects and to improve engagement with Aboriginal Groups, communities and the public. Regulatory agencies for many of the required authorizations participated in the environmental assessment are members of EAO's Working Group (see Section 3.3).

Table 2-6 provides a list of municipal, provincial and federal licences, permits and/or approvals that may be required for the planning, construction, operation and decommissioning of the proposed Project.

Table 2-6: Authorizations that may be required for Project planning, construction, operations, and decommissioning and abandonment

Responsible Regulatory Authority	Act or Regulation	Permit or Section(s)	Planning	Construction	Operations	Decommissioning
Federal						
Environment Canada	<i>Species at Risk Act (SARA)</i>	Section 73: Authorizes activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals.		X	X	X
Fisheries and Oceans Canada	<i>Fisheries Act</i>	Section 35(2): Authorizations for serious harm to fish		X	X	X
	Fishery (General) Regulations (SOR/93-53)	Scientific Fish Collection Permit	X	X	X	X
	<i>Species at Risk Act (SARA)</i>	Section 73: Authorizes activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals.		X	X	X

Responsible Regulatory Authority	Act or Regulation	Permit or Section(s)	Planning	Construction	Operations	Decommissioning	
Industry Canada	<i>Radiocommunication Act</i>	Section 5: Radio Licence	X	X	X	X	
Natural Resources Canada	<i>Explosives Act</i>	Sections 7 and 8:					
		Ammonium Nitrate Fuel Oil Permit		X			
		Temporary Magazine Licence		X			
		Explosives Transportation Permit		X			
Transport Canada	<i>Navigation Protection Act</i>	Section 6: issues approvals for works that are likely to substantially interfere with navigation		X	X	X	
Provincial							
Environmental Assessment Office	<i>Environmental Assessment Act</i>	Environmental Assessment Certificate		X			
Oil and Gas Commission	<i>Oil and Gas Activities Act</i>	Part 3 Division 1:					
		Ancillary Sites Permit		X			
		Pipeline Permit		X			
		Notice of Leave to Open			X		
		Notice of Intent			X	X	
		Notice of Construction Start			X		
		Notice of Pressure Test			X		
		Notice to Deactivate				X	
		Pipeline Permit Engineering Amendment Application			X	X	
	Section 24: Aggregate Operations and Borrow Pit Permit		X				
	Road Permit		X		X		
	<i>Land Act</i>	Section 14:					
		Crown Land Investigative Use Permit	X	X			
		Licence of Occupation		X	X		
			Authority to clear and construct pipelines		X		
<i>Water Act</i>	Section 8: Short-term Use of Water Permit	X	X	X	X		
	Section 9: Changes in and About a Stream Permit	X	X	X	X		

Responsible Regulatory Authority	Act or Regulation	Permit or Section(s)	Planning	Construction	Operations	Decommissioning	
	<i>Forest Act</i>	Section 47.4: Master Licence to Cut and Cutting Permit	X	X	X	X	
		Section 117: Road Use Permits for Industrial Use	X	X	X	X	
	<i>Agricultural Land Commission Act</i>	Section 20(3): Application to Place Fill or Remove Soil	X	X		X	
		Approval to use land in the Agricultural Land Reserve for non-farm use (for facilities)		X	X	X	
		Section 20: Application for Transportation, Utility and Recreational Trail Uses in the ALR		X	X	X	
	<i>Heritage Conservation Act</i>	Section 12: Site Alteration Permit	X	X	X	X	
Agricultural Land Commission	<i>Agricultural Land Commission Act</i>	Section 20: Application for Transportation, Utility and Recreational Trail Uses in the ALR		X	X	X	
		Section 34(6): Utility Use Application		X	X	X	
		Section 20(3): Application to Place Fill or Remove Soil	X	X		X	
Ministry of Forests, Lands and Natural Resource Operations	<i>Wildlife Act</i>	Section 19:					
		General Permit	X	X	X	X	
		Animal Care Permit	X	X	X	X	
		Application to Collect Fish for Scientific Purposes	X	X	X	X	
	<i>Heritage Conservation Act</i>	Section 14: Heritage Inspection and Investigation Permit	X				
	<i>Forest Act</i>	Burning permits		X			
Ministry of Transportation and Infrastructure	<i>Commercial Transport Act</i>	Section 8: Oversize-overweight Vehicle permits		X	X	X	
	Commercial Transport Regulations	Division 6: Non-resident Commercial Vehicle Permit		X	X	X	
	<i>Transportation Act</i>	Section 62:					
		Use or Occupancy Permit to cross or use highway right-of-way			X	X	X
		Work Notification			X	X	X
		Lane Closure			X	X	X
		Sign Permit			X	X	X
	Development Approval			X	X	X	

Responsible Regulatory Authority	Act or Regulation	Permit or Section(s)	Planning	Construction	Operations	Decommissioning
		Section 48: Controlled Access Highway Permit		X	X	X
BC Parks	<i>Park Act</i>	Section 20: Park Use Permit authorizing activity on or in a park or conservancy	X			
Ministry of Environment	<i>Environmental Management Act</i>	Section 6(1)(a): Waste Disposal		X		
		Section 6(1)(b) Waste Incinerator		X		
		Section 14: Authorizing the introduction of waste into the environment		X	X	X
		Section 7(2) Hazardous Waste Confinement		X		
Ministry of Energy, Mines and Natural Gas	<i>Mineral Tenure Act</i>	Section 22: Mineral Reserve		X		
	<i>Mines Act</i>	Section 10: Mines Act Permit – exploration and small mines		X		
Local						
Northern Health	<i>Public Health Act</i>	Section 19: Application for health approval (industrial camps)		X	X	X
	<i>Sewerage System Regulation</i>	Section 4: Permit for holding tank		X	X	X
Local Health Authority	<i>Public Health Act, Seward System Regulation</i>	Food, water, accommodations, and sewerage for industrial camps		X	X	
Regional districts and municipalities	<i>Municipal bylaws</i>	Various zoning permits		X	X	

3. Assessment Process

3.1 Strategic Context

The BC Government has been clear about the importance of liquefied natural gas (LNG) exports as one of the most significant economic development opportunities of the decade.

In February 2013, two LNG-related projects were in the early stages of assessment by EAO. By February 2014, there were 10 LNG-related pipeline and export facility projects in BC in various stages of review by EAO. In this context, EAO initiated a strategic approach to the review of LNG Projects, aiming to deliver:

1. early identification and resolution of strategic and operational policy issues;
2. effective Aboriginal Group, stakeholder and public engagement;
3. an efficient, robust and neutral regulatory regime;
4. a seamless approach to permitting by the OGC (in the event an EAC is issued); and
5. appropriate government resourcing to support the high volume of projects.

The results of the approach are:

- a dedicated team within EAO to coordinate the review of LNG projects, to provide greater consistency of reviews, and to identify cross-project issues to be addressed in a strategic manner;
- a Memorandum of Understanding between EAO and the OGC intended to:
 - prevent duplication between Environmental Assessment and OGC application information requirements;
 - provide the opportunity to proponents to use “synchronous permitting” – a mechanism to run both the Environmental Assessment and permitting review processes at the same time for timely permit issuance (should an Environmental Assessment Certificate be issued);
 - coordinate engagement with Aboriginal Groups to the mutual benefit of Aboriginal Groups and government; and
 - design highly effective, legally enforceable conditions and a robust compliance and enforcement regime including a delegation from EAO to OGC staff to carry out inspections.

- an LNG Regulatory Working Group representing most ministries across government to assist with issue identification and policy advice to EAO;
- a Pipeline Corridor Analysis tool developed to enable early identification of multiple project effects and a visual aid to assist with consultation;
- a Stewardship Strategy developed in partnership with Ministry of Forests, Lands and Natural Resource Operations (FLNR) to manage for multiple proposed project effects on wildlife, old-growth forests and timber utilization;
- the Kitimat Airshed Study developed to ensure the potential impacts from industrial air emissions are clearly understood and managed; and
- an organized approach to community and provincial service providers readiness to address infrastructure, health, safety and social service demands in BC's north to address major industrial development.

EAO has placed an emphasis on planning ahead and organizing events requiring Aboriginal Groups, community and stakeholder participation so that that all parties had the opportunity to contribute to the reviews.

3.2 Major Milestones of the BC Environmental Assessment

- The Environmental Assessment process started on December 11, 2012, when EAO issued an Order to this effect under Section 10 of the Act. (http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_35200.html)
- On March 8, 2013, EAO issued an Order under Section 11 of the Act which defined the scope of the proposed Project, as well as the procedures and methods for conducting the review. (http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_35419.html)
- On May 23, 2013, EAO approved and issued the final Application Information Requirements (AIR) to the Proponent. (http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_doc_list_392_p_tor.html)
- From January 29, 2014 to February 28, 2014, EAO evaluated the Application against the AIR, and decided that the Application met the requirements of the AIR. EAO indicated that the Application review period would commence when the Proponent provided the required copies of the Application.

- (http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_3734_8.html).
- On February 21, 2014, EAO issued a Section 13 Order for the proposed Project adding Blueberry River First Nations and Doig River First Nation to Schedule B of the Section 11 Order and adding Gitga'at First Nation to Schedule C of the Section 11 Order.
(http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_3726_3.html)
 - On March 11, 2014, the Proponent submitted the required copies of the Application for distribution to Working Group members, and the Application review began.
(http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_3736_7.html)
 - On May 13, 2014, EAO issued a Section 13 Order for the proposed Project adding Cheslatta Carrier Nation to Schedule C of the Section 11 Order.
(http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_3756_3.html)
 - On October 8, 2014 EAO issued an Order under section 24(4) of the Act to provide a timeline extension of 31 days to the 180-day application review timeline.
(http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_doc_list_392_r_com.html)
 - On October 8, 2014, EAO referred the proposed Project to Ministers for decision.

3.3 Federal Assessment

The Canadian Environmental Assessment Agency (CEAA) conducted a public comment period on the Project description that ended on December 3, 2012. On December 31, 2012, CEAA determined that a federal Environmental Assessment was required for the proposed Project (Notice of Commencement), posted the draft EIS Guidelines and conducted a public comment period.

On April 16, 2013, CEAA issued the final EIS Guidelines to the Proponent. At the time, EAO and CEAA worked together on a cooperative provincial and federal Environmental Assessment. On October 24, 2013, the Canadian Environmental Assessment Agency amended its *Regulations Designating Physical Activities* under the *Canadian Environmental Assessment Act, 2012*, removing non-National Energy Board-regulated pipelines, and therefore, terminating the federal Environmental Assessment of the proposed Project.

3.4 Role of the Advisory Working Group

EAO established a Working Group for the proposed Project, which was made up of provincial, federal and local government staff with the mandates and skill sets relevant to the review of a proposed Project and representatives of potentially-affected Aboriginal Groups as set out in the section 11 Order issued for the Environmental Assessment for a proposed Project. See Appendix 1 for a list of Working Group members.

During the course of the Environmental Assessment, EAO sought and considered advice from the Working Group in order to understand and assess the potential adverse effects associated with a proposed Project.

Working Group members were responsible for providing timely advice to EAO on:

- key EA documents including, but not limited, to the selection of Valued Components, Application Information Requirements, Application and EAO's Assessment Report;
- government policy direction and/or gaps that could affect the conduct of the Environmental Assessment;
- potential conflicts with the legislation and/or regulations of their organizations;
- Environmental Assessment information requirements as compared with permitting design and information requirements (it is important to focus on the level of detail appropriate to the Environmental Assessment); and
- technical issues that may be raised by the public during the public consultation process.

During Pre-Application and Application Review, Working Group members provided hundreds comments to EAO about the Project and Application. EAO reviewed the adequacy of the Proponent's responses to all comments received from Working Group members in the Issues Tracking Table (Appendix 2).³ EAO required the Proponent to update the Issues Tracking Table and supporting Technical Memos as appropriate. EAO considered all comments and issues raised during the Environmental Assessment, in development of its Assessment Report.

³ The Working Group Comment Summary on the draft AIR is available here:

http://a100.gov.bc.ca/appsdata/epic/documents/p392/1369951568627_1e0614e5f04b8c4c4117887905e9b1668ed1ba0a082b11fa3aa1db4870bb2eea.pdf

3.5 Aboriginal Groups Consultation

On March 8, 2013 EAO issued a section 11 Order which specified the consultation activities that both EAO and the Proponent would undertake with all Aboriginal Groups potentially affected by the proposed Project.

At the initial stages of Environmental Assessment for the proposed Project, EAO relied primarily on the proximity of the proposed Project to an Aboriginal Group's asserted traditional territory to determine whether an Aboriginal Group would be included on Schedule B or C:

- Those Aboriginal Groups with Aboriginal Interests within 2 km of the proposed Project were listed in Schedule B; and
- Those Aboriginal Groups within 30 km of the proposed Project were listed in Schedule C.

Aboriginal Groups in Schedule B of the Order were consulted at the deeper end of the consultation spectrum, and provided the following opportunities:

- participation in the Working Group;
- participation in meetings to identify and discuss both Aboriginal Interests that may be affected by the proposed Project and potential measures to avoid, mitigate, address or otherwise accommodate impacts;
- review and comment on key documents, including draft Application Information Requirements, the Proponent's Application for an Environmental Assessment Certificate, and EAO's draft Assessment Report and Aboriginal Consultation Report;
- submission of a document outlining the Aboriginal Groups' views on the Assessment Report to be included in the package of materials sent to Ministers when the proposed Project is referred for decision;
- notification of key milestones – such as the issuance of the Application Information Requirements, acceptance of the Application for review, timing of public comment periods (including open houses) – when the final Assessment Report is referred to Ministers and the resulting decision; and
- invitation to meet with EAO to discuss any Aboriginal Interests in the proposed Project area.

Aboriginal Groups in Schedule C of the Order were consulted at the lower end of the consultation spectrum, and provided the following opportunities:

- notification of key milestones – such as the issuance of the Application Information Requirements, acceptance of the Application for review, timing

- of public comment periods (including open houses) – when the final Assessment Report is referred to Ministers and the resulting decision;
- invitation to meet with EAO to discuss any Aboriginal Interests in the proposed Project area; and
- invitation to review and comment on the draft Assessment Report.

Considerations of the areas where Treaty 8 rights were historically exercised and initial assessments of the strength of the Aboriginal rights and title claims were conducted and discussed with Aboriginal Groups identified on Schedules B and C starting in the winter of 2013. As a result of these discussions, or new information relating to an Aboriginal Group, several modifications to the Section 11 Order were made during the Environmental Assessment:

- Blueberry River First Nations and Doig River First Nation were moved from Schedule C to Schedule B (February 21, 2014);
- Gitga'at First Nation was added to Schedule C (February 21, 2014); and
- Cheslatta Carrier Nation was added to Schedule C (May 13, 2014).

On June 26, 2014, the *Tsilhqot'in Nation v. British Columbia (Tsilhqot'in)* decision was released by the Supreme Court of Canada. The decision clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846 (the time of assertion of European sovereignty). In addition, the case set out considerations for government when consulting Aboriginal Groups regarding potential impacts on asserted Aboriginal title claims.

EAO originally was scheduled to provide the assessment report to Ministers for the proposed Project on September 8, 2014. As a result of the *Tsilhqot'in* decision, EAO extended the EA review period until October 8, 2014 to examine the decision implications on this proposed Project, and specifically:

- reassessed the strength of claimed Aboriginal title overlapping the proposed Project on the basis of the tests set out in the *Tsilhqot'in* decision, for the purpose of confirming appropriate level or depth of consultation;
- included the results of that reassessment in this report as it relates to each Aboriginal Group with asserted title claims overlapping the proposed Project;
- sought Aboriginal Group's perspectives on both the preliminary assessments of strength of Aboriginal claims and seriousness of impacts, as well as proposed accommodations, through the provision of a draft version of this report; and
- considered other approaches being taken by government that may be relevant to the accommodation for potential impacts to Aboriginal Interests.

Table 3-1 shows Aboriginal Groups on Schedule B and C for the proposed Project.

Table 3-1: Aboriginal Groups included on Schedule B and C potentially affected by the proposed Project

Aboriginal Groups		
Section 11 Order, Schedule B Aboriginal Groups	Treaty 8 First Nations	McLeod Lake Indian Band Saulteau First Nations West Moberly First Nations Blueberry River First Nations Doig River First Nation
	Aboriginal Groups	Ts'il Kaz Koh First Nation (Burns Lake Band) Dark House Haisla Nation Kitselas First Nation Lheidli-T'enneh First Nation Nadleh Whut'en First Nation Nak'azdli Band Nee-Tahi-Buhn Band Office of the Wet'suwet'en Hereditary Chiefs Saik'uz First Nation Skin Tyee First Nation Stellat'en First Nation Wet'suwet'en First Nation Yekooche First Nation
Section 11 Order, Schedule C Aboriginal Groups	Treaty 8 First Nations	Fort Nelson First Nation Halfway River First Nation Prophet River First Nation Treaty 8 Tribal Association
	Aboriginal Groups	Carrier Sekani Tribal Council Cheslatta Carrier Nation Lake Babine First Nation Lax Kw'alaams Band Metlakatla First Nation Nazko First Nation Tl'azt'en Nation Gitga'at First Nation

3.5.1 Ensuring the Crown's Duties to Consult and Accommodate Aboriginal Groups

EAO is required to ensure that the honour of the Crown is discharged by ensuring appropriate consultation and accommodation of potential impacts of the proposed Project on the exercise of Treaty rights, proven rights, and asserted rights and title (Aboriginal Interests) in respect of the decision by Ministers as to whether to issue an EAC. Aboriginal Groups' comments and interests in terms of consultation and specific

consideration of the Crown's duty to consult and accommodate Aboriginal Groups' interests are specifically factored into the analysis in Part C of this report.

There is often considerable overlap between the interests of Aboriginal Groups and the assessment of environmental, economic, social, heritage and health effects. Aboriginal Groups' comments and interests that directly relate to the environmental, economic, social, heritage and health assessments are discussed in Part B of this report.

3.6 Public Consultation

Context

For the purposes of conducting an Environmental Assessment, public consultation requirements are set out in the Section 11 Order dated March 8, 2013. The requirements are intended to provide multiple opportunities for the public to provide input into the process. Shortly after the issuance of the Section 11 Order, the Proponent was required to prepare a Public Consultation Plan, which laid out their consultation objectives and activities. The Proponent submitted multiple Public Consultation Reports to EAO during the course of their Environmental Assessment: the first Public Consultation Report was submitted during pre-Application, the second with their Application, and the third near the end of Application Review.⁴

In addition to the Proponent's public consultation activities, EAO required public comment periods and open houses during the pre-application and application review stages of the Environmental Assessment. The following provides a summary of those activities:

Summary of Proponent Activities

At the time EAO was writing this Assessment Report, the Proponent had completed the following activities:

- attended more than 50 meetings with local governments in the form of private briefing and presentations to the public;
- completed conversations with more than 600 landowners and Crown tenure holders;

⁴ The Public Consultation Plan and all Public Consultation Reports are available on the proposed Project's EAO website: http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_home_392.html

- organized 26 public information sessions throughout northern BC and provided support and staff resources for nine open houses sponsored by EAO;
- secured membership in 10 chambers of commerce and provided presentations to each chamber;
- sponsored and attended business or local government conferences in Prince George, Terrace, Dawson Creek, Chetwynd, Fort St John, Quesnel, Richmond, Nanaimo and Vancouver;
- opened a Coastal GasLink office in Prince George;
- issued six newsletters to over 1,470 addresses;
- issued 18 field activity updates to more than 160 local government officials, and provided advance notification of three geotechnical investigations to regional districts;
- launched a project website at www.coastalgaslink.com including a fact sheet, location maps, news updates, and the regulatory timetable;
- conducted two large scale opinion surveys of northern BC residents, as well as two sets of interviews with more than 140 community leaders;
- received and responded to more than 200 online submissions from interested vendors; and
- reviewed draft ancillary facility maps in face-to-face meetings with all four regional districts to discuss construction planning activities.

Through two years of public engagement, the Proponent has demonstrated to EAO that it has a good understanding of, and has managed for, public interests.

Summary of EAO Activities

- EAO hosted two public comment periods and eight open houses over the 18-month span of the Environmental Assessment.
- Public comment periods were held March 11–April 10, 2013, and March 21–May 5, 2014. Open houses were held in Burns Lake, Prince George, Dawson Creek and Kitimat between March and April 2013 and Chetwynd, Fraser Lake, Burns Lake and Kitimat between March and May 2014. About 75 people attended at open houses during Application Review.
- The key issues raised by the public during these open houses and through the online public comment periods included:
 - effects of the proposed Project on water quality and quantity;
 - effects on wildlife and wildlife habitat and fish and fish habitat;
 - concerns about accidents and malfunctions;

- concerns about upstream gas activities;
- concerns about the social impacts including construction effects on community infrastructure, such as housing, health services and recreation services, especially as a result of an anticipated influx of temporary workers including and increased industrial traffic;
- potential long-term effects of pipeline operations on residences, farms and businesses;
- support for the proposed Project, including the interest in local training programs and economic and employment benefits; and
- a desire to see safe, long-term monitoring, inspection and operation of the proposed pipeline.

These comments and the Proponent's response are on EAO's website here:

http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_home_392.html

Results of Public Engagement

As noted in the Proponent's Public Consultation Report 3:

- Input from conservation groups, local government, residents and landowners in Kitimat led to a route revision to avoid a valued riparian zone and mature forest.
- Input from residents south of Houston led to the implementation of a more detailed process of local government notification about field work activities.
- Input from stakeholders has informed the timing and scope of Project outreach activities. As an example, the Proponent has accepted invitations to host information sessions in rural communities such as McLeod Lake and Bear Lake, and has increased the frequency of contact with other communities as requested.
- As outlined in section 1.4.8, section 1.4.10, and section 1.4.11 of the Project Overview in the Application, landowner input has informed route revisions around the communities of Lone Prairie, Fraser Lake, Tschesinkut Creek, Bald Hill and Sukunka Valley.
- Input from conservation groups, local government, residents and landowners in Kitimat led to a route revision to avoid a valued riparian zone and mature forest.
- The Project's decisions on community partnerships often reflect recommendations from local stakeholders.
- Input from local governments and stakeholders during socio-economic interviews, contributed to the Application's development.

- Input from businesses and local governments have informed the Project's local contracting and employment plans.
- Input from training institutions, Aboriginal Groups, and local governments has influenced the development of a training and education plan to be implemented starting in the autumn of 2014.

PART B – ASSESSMENT OF POTENTIAL ADVERSE EFFECTS

4. Assessment Methodology and Overview of Potential Effects

4.1 General

4.1.1 Environmental Assessment Methodology

In this Assessment Report, EAO assesses whether the proposed Project is likely to have significant adverse environmental, economic, social, heritage and health effects, including cumulative effects, having regard to the mitigation measures proposed in the Application or otherwise developed through the Environmental Assessment process, in addition to conditions proposed by EAO.

To conduct this assessment, EAO follows the methodology outlined in EAO's *Guideline for the Assessment of Valued Components and Assessment of Potential Effects* (2013) (the Guideline). This section provides a brief summary of the methodology.⁵ Note that this methodology differs slightly from the methodology described in the AIR for the proposed Project, since the AIR was approved before the Guideline was finalized. However, the differences are not material.

The general methodological steps in EAO's Environmental Assessment process are depicted in Figure 4-1.

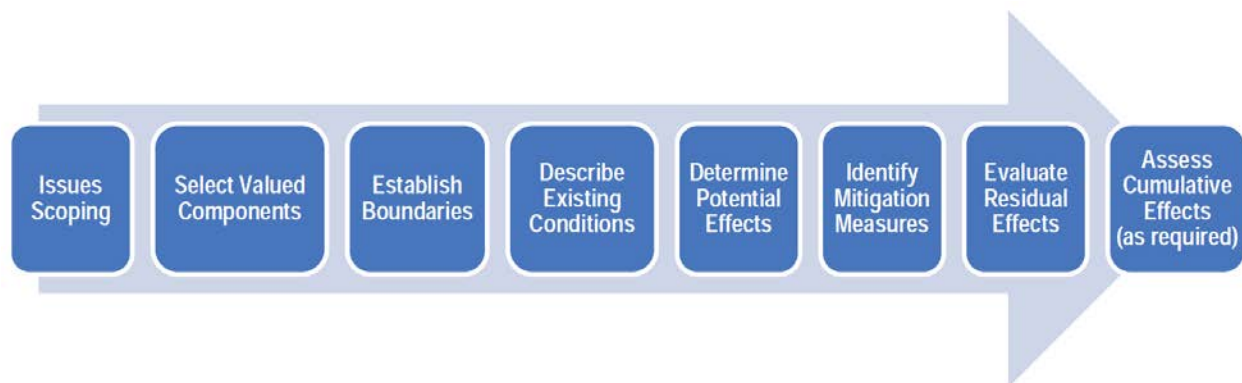


Figure 4-1: Environmental Assessment methodological steps.

Environmental Assessment in BC uses a values-based framework to support a comprehensive, yet focused, understandable, and accessible assessment of the

⁵ See the Guideline at www.eao.gov.bc.ca/pdf/EAO_Valued_Components_Guideline_2013_09_09.pdf.

potential effects of proposed Projects. This framework relies on the use of VCs as a foundation for the assessment. VCs are components of the natural and human environment that are considered by the proponent, public, Aboriginal Groups, scientists and other technical specialists, and government agencies involved in the assessment process to have scientific, ecological, economic, social, cultural, archaeological, historical, or other importance.

Appropriate VCs are identified and selected during the pre-Application phase of the Environmental Assessment. Ultimately the VCs that are required to be included in the Application are established by EAO upon issuance of the AIR. Much of the early part of the pre-Application phase is focussed on consultation on the VCs, key indicators, study area boundaries and technical requirements, with Working Group members, including Aboriginal Groups, and the public.

4.1.2 Study Boundaries

Assessment boundaries serve to define the scope or limits of the assessment. They encompass the areas within and times during which a project is expected to interact with the VCs (spatial and temporal boundaries), as well as reflecting constraints that may be placed on the assessment of those interactions due to political, social, and economic realities (administrative boundaries) and limitations in predicting or measuring changes (technical boundaries). These boundaries are discussed in the Application for each VC.

Spatial boundaries encompass the areas within which the proposed Project is expected to have potential effects on the selected VCs. The study areas generally include the:

- Project footprint – the area directly disturbed by the proposed Project's physical works and activities.
- Local Study Area (LSA) – this area varies by VC, and is based on the zone of influence within which the VC is most likely to be affected by the proposed Project construction and operations.
- Regional Study Area (RSA) – the area provides context for the assessment of potential project effects, and is typically based on a natural transition (e.g., watershed boundary, ecological zone) or an artificial delineation (e.g., political or economic district or zone) that is relevant to the VC, and is often, but not always, used as the spatial boundary for the assessment of potential cumulative effects.

Temporal boundaries encompass the periods during which the proposed Project is expected to have potential effects on the selected VCs. The temporal phases discussed under each VC are construction and operation, and the effect is assessed for as long as it would persist.

Technical boundaries refer to constraints on an environmental assessment where there are limitations in the ability to collect field validation information to support the prediction of effects for a project. Technical boundaries do not preclude the ability to use available data to identify potential adverse effects, identify mitigation and present conclusions about significance.

Spatial, temporal, administrative and technical boundaries are discussed in detail for each VC in the Application. In this Assessment Report, spatial boundaries are presented for each VC and other boundaries are discussed as relevant.

Morice River Technical Boundary

One technical boundary was particularly relevant to most VCs in the Proponent's Application. During the pre-Application stage of the Environmental Assessment, a blockade at the Morice River bridge was identified as an issue that was constraining the Proponent's ability to conduct ground surveys and studies within approximately 70 km of an active protest camp in the area (from approximately KP 522.0 to KP 592.0). (See Figure 4-2 for map of the technical boundary area.)

EAO agreed that this represented a valid rationale for inaccessibility to the area and supported considering it as a technical boundary, and directed the Proponent to use available information as well as desktop analysis to conduct the effects assessment prior to making an application. Although information on this area has been included in the Application, the field validation activity has not yet been completed. Field work supports the assessment but serves as only one input to the process. During the summer 2014 field season, after the Application was submitted for review, the Proponent attempted to proceed with non-invasive field studies, avoiding a 10 km protest camp. However, the Proponent informed EAO that out of continued safety concerns of their field crew they would be unable to continue the field work for this area for the remainder of the 2014 season.

EAO is proposing a condition that would require the Proponent to provide EAO with technical data reports (TDRs) based on field data for the Morice River Technical Boundary Area and a report that updates or verifies conclusions reached in the Application. The Proponent would also be required to share the TDR's and the report with Aboriginal Groups within the Area.

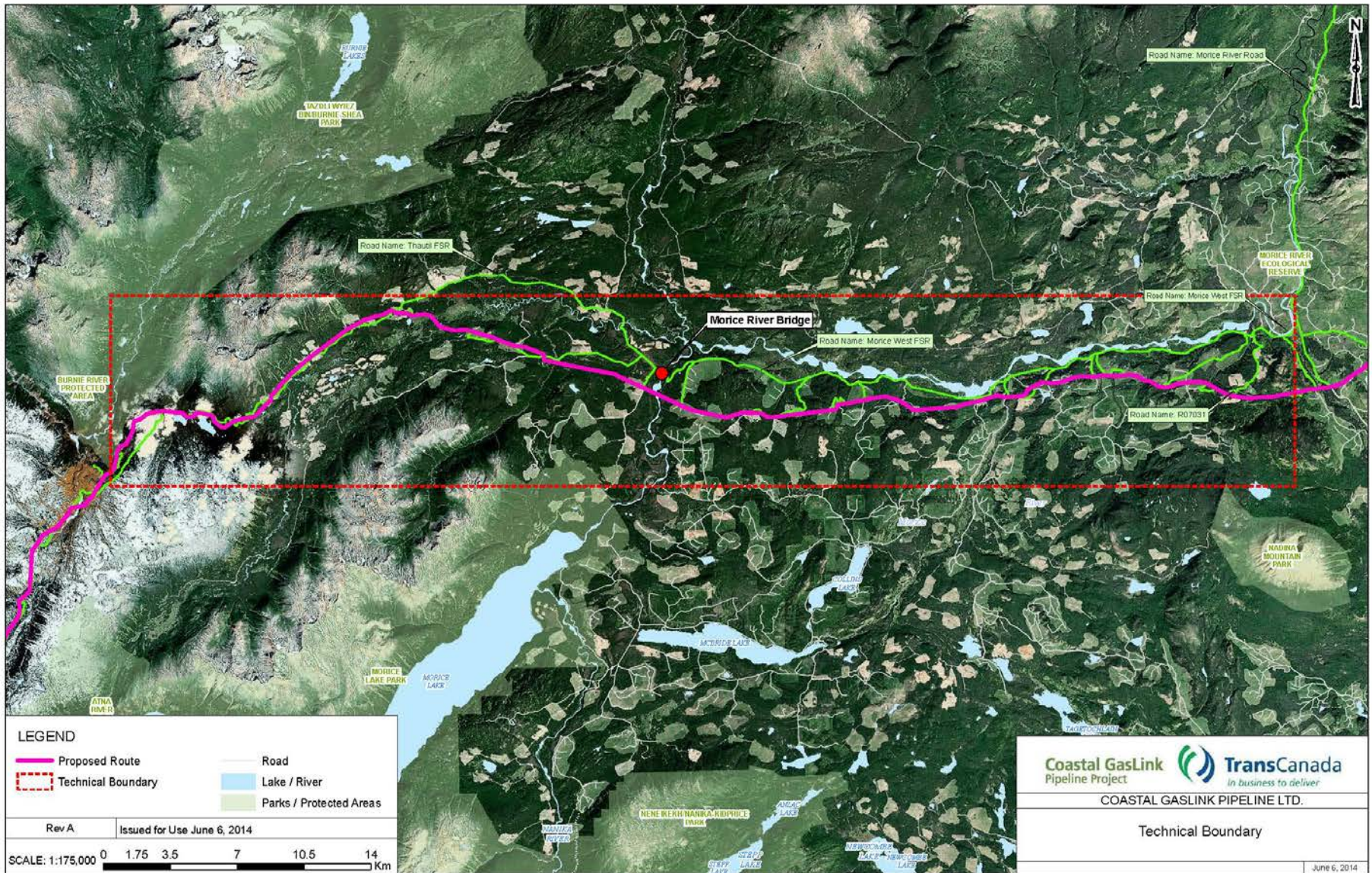


Figure 4-2: Coastal GasLink Pipeline technical boundary area.

4.1.3 Assessment of Valued Components

For each selected VC, the Application describes the existing conditions within the study area in sufficient detail to enable potential project/VC interactions to be identified, understood, and assessed. The description of existing conditions includes, as relevant, natural and/or human-caused trends that may alter the environmental or socio-economic setting irrespective of the changes that may be caused by the project in question or other projects and activities in the local area.

The assessment then considered the potential interactions of the proposed Project with the VC, and the potential effects that could arise. These potential effects are identified, described and an analysis is presented of the potential adverse effects resulting from the proposed Project.

The assessment then describes the mitigation measures that would be incorporated into the project, including site and route selection, project scheduling, project design (e.g., equipment selection, placement, emissions abatement measures), and construction and operation procedures and practices. Consistent with the Ministry of Environment's Environmental Mitigation Policy and Procedures, EAO considers mitigation to be any practical means or measures taken to avoid, minimize, restore on-site, compensate, or offset the potential adverse effects of a project. Standard mitigation, best management practices, environmental management plans, environmental protection plans, contingency plans, emergency response plans, and other general practices assumed or proposed to be implemented by the proponent are also described.

The residual effects to each VC are then identified. Residual effects are those effects remaining after the implementation of all mitigation measures, and, therefore are the expected consequences of the reviewable project for the selected VCs. To inform the determination of the significance of a residual (adverse) effect, it is necessary to characterize the residual effect. Residual effects are usually described using standard criteria: context, magnitude, extent, duration, reversibility, and frequency.

These criteria are summarized below:

Summary of Criteria for Characterizing Residual Effects

Context refers primarily to the current and future sensitivity and resilience of the VC to change caused by the project. Consideration of context draws heavily on the description of existing conditions of the VC, which reflect cumulative effects of other projects and activities that have been carried out, and especially information about the impact of natural and human-caused trends in the condition of the VC.

Magnitude refers to the expected size or severity of the residual effect. When evaluating magnitude of residual effects, consider the proportion of the VC affected within the spatial boundaries and the relative effect (e.g., relative to natural annual variation in the magnitude of the VC or other relevant characteristic).

Extent refers to the spatial scale over which the residual effect is expected to occur.

Duration refers to the length of time the residual effect persists (which may be longer than the duration of the physical work or activity that gave rise to the residual effect).

Reversibility pertains to whether or not the residual effect on the VC can be reversed once the physical work or activity causing the disturbance ceases.

Frequency refers to how often the residual effect occurs and is usually closely related to the frequency of the physical work or activity causing the residual effect.

Likelihood refers to whether or not a residual effect is likely to occur. It may be influenced by a variety of factors, such as the likelihood of a causal disturbance occurring or the likelihood of mitigation being successful. Generally speaking, the residual effects described in the assessment comprise the best prediction of what is likely to occur as a result of a proposed project, assuming a suite of proposed mitigation is implemented.

The identification of whether a proposed Project has significant adverse residual effects is a requirement of the *Environmental Assessment Act*. It is therefore important to ensure the determination of significance is clearly documented and explained in the assessment. In particular, the assessment should transparently present how 'significance' has been defined in relation to each VC.

When defining significance for each VC, consideration should be given as to how each of the criteria for characterizing residual effects would inform a determination of significance. Significance may be determined based on a quantitative or qualitative threshold that describes the point beyond which a residual effect would be considered significant. In some instances, thresholds established for some VCs by legislation, regulation, or regulatory standard may be used.

Once the residual effect prediction has been described in terms of significance and likelihood, it is important to explain the level of confidence in each prediction. The level of confidence is typically based on expert judgment, and should characterize the level of uncertainty associated with both the significance and likelihood determinations. Specifying the level of confidence associated with these determinations allows the decision-maker to better evaluate the risk associated with the proposed project. The assessment also describes the need for and scope of monitoring or other follow-up programs, including adaptive management programs, to address any identified uncertainty.

Significance is usually determined for both the residual effects of a project and the residual cumulative effects. This is critical to enable an informed decision about the project. It is important to understand the characteristics and significance of the potential project-specific residual effects in order to also understand the relative contribution of the project to residual cumulative effects. The cumulative effects assessment is discussed further below.

4.1.4 Cumulative Effects Assessment

If a proposed project is expected to result in any residual adverse effects on a VC, the need for a cumulative effects assessment must be considered. It is important to note that this consideration must be made for all residual adverse effects, not only those predicted to be significant.

Where there is a residual adverse effect, the assessment of cumulative effects for reviewable projects should consider other past, present, and reasonably foreseeable projects and activities, which were identified in the AIR. The general steps for a cumulative effects assessment are outlined in Figure 4-3. Considerations regarding the likelihood of a cumulative interaction with other projects and activities, and the proposed Project's contribution to the overall cumulative effect should inform the cumulative effects assessment undertaken.

The Application contains maps and a list and description of all projects and activities considered in the cumulative effects assessment. These projects and activities were specified in the AIR.

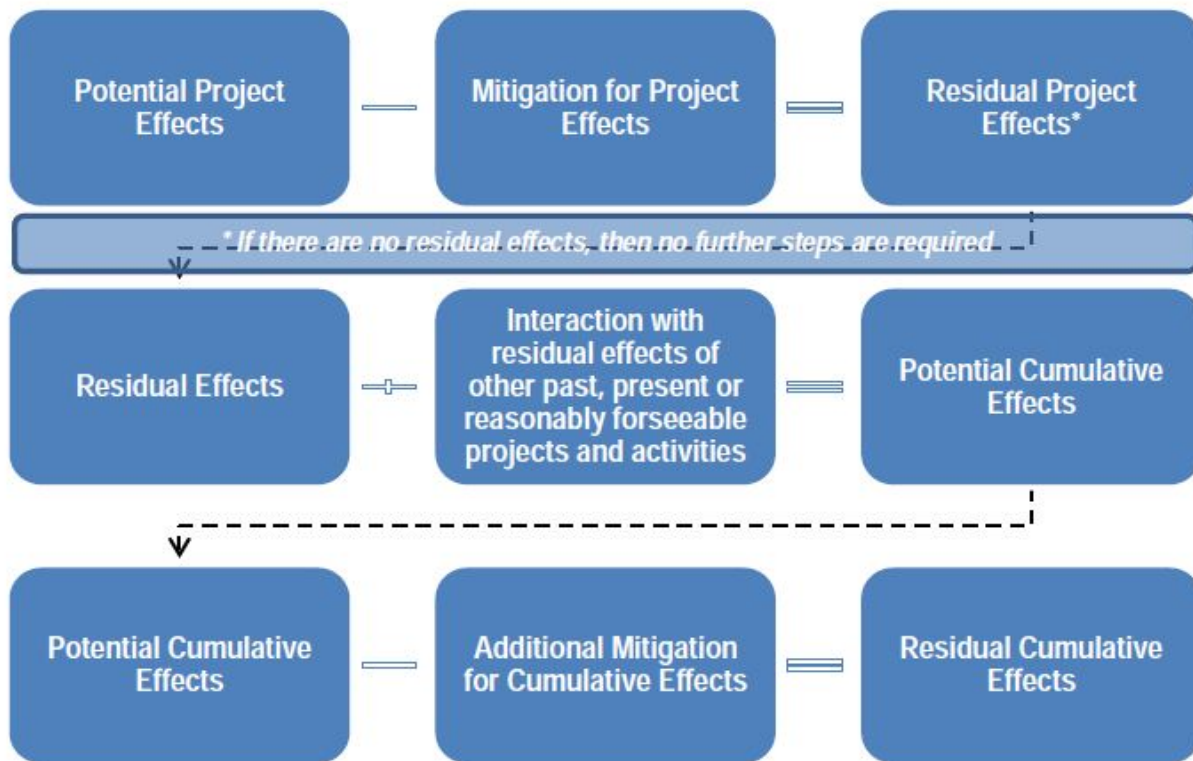


Figure 4-3: Steps to determine residual effects and cumulative effects.

4.1.5 Environmental Assessment Certificate Documentation

If an Environmental Assessment Certificate (EAC) is issued, the EAC would include a Certified Project Description (CPD) and Table of Conditions (TOC).

The CPD describes what is certified by an EAC. It consists primarily of a description of the components of the project. The goal of the CPD is to describe all of the essential elements of the project proposed by the proponent, taking into account any changes to the project that occurred during the Environmental Assessment. If a certificate is issued for the project and the proponent subsequently proposes to vary from the CPD, an amendment to the EAC would be required.

If the ministers decide to issue an EAC, they may attach legally binding conditions to it, under section 17(3)(c)(i) of the *Environmental Assessment Act* (Act). A “condition” is a legally binding requirement set by ministers to which a holder of an EAC must adhere. The Table of Conditions is provided to ministers as part of the referral package. As part of their decision regarding whether or not to grant an EAC, Ministers determine which conditions would be attached to the certificate.

EAO's goal is to ensure that the conditions are clear, measurable and enforceable. In general, conditions are based on mitigation measures identified by EAO, Working Groups, Aboriginal Groups and the public to prevent or reduce potential adverse environmental, economic, health, heritage or social effects. Conditions may also serve the purpose of preventing or reducing potential effects on treaty or Aboriginal rights.

4.1.6 Compliance and Enforcement

EAO has a Compliance and Enforcement Program (C & E Program), with the primary responsibility for compliance oversight and enforcement for EA conditions on all projects subject to the Act in British Columbia. EAO's C & E Program builds on the expertise and resources of other agencies, including the Compliance and Enforcement Branch of FLNR, Ministry of Energy and Mines, OGC, Conservation Officer Service and the Environmental Protection Division of MOE.

EAO conducts extensive planning to ensure effective, risk-based compliance oversight. The two key plans prepared by EAO compliance staff are:

- Compliance Management Plans (CMPs): After a project has been certified, EAO compliance staff prepare a CMP in collaboration with partner agencies. The CMP outlines the general approach to compliance oversight for the project and clarifies inter-agency responsibilities for inspecting and enforcing the certificate conditions. This plan is updated as the Project progresses.
- Annual Inspection Plans: Each fiscal year, EAO plans its administrative (i.e., desk-based) and field-based inspections for the year in keeping with risk-based criteria developed by EAO and the targets specified in Ministry of Environment's Service Plan. Unplanned inspections are also conducted in response to new information received by EAO, public and Aboriginal Group complaints or in follow-up to previous inspections.

When information from an inspection, certificate holder self-report, public or Aboriginal Group complaint or partner agency indicates that a certificate requirement may have been breached, EAO compliance staff conducts an investigation to collect the evidence necessary to determine if enforcement action is warranted. Investigations vary in effort and length of time depending on the nature and complexity of the non-compliance. Often, partner agencies are involved in the investigations.

Throughout the life of a project, EAO and compliance partners collaborate to ensure the project is constructed and operated according to the EAC.

5. Assessment of Environmental Effects

5.1 Acoustics

5.1.1 Background

The Application presents the findings of an assessment carried out by the Proponent of the potential noise effects from construction and operations. The results of noise modelling were compared with the established thresholds for the proposed Project.

The LSA is defined as a 2 km band centred on the proposed route and the RSA is defined as a 30 km band centred on the proposed route.

The framework for the effects assessment on the acoustic environment is provided by the OGC and Health Canada, each of which uses a different assessment methodology. The OGC's *British Columbia Noise Control Best Practices Guideline* presents a threshold-based approach, prescribing a maximum cumulative noise level. Health Canada guidance uses an annoyance-based approach, advising maximum acceptable increases in residential annoyance levels.

In general, thresholds from the OGC are more stringent than those established by Health Canada. Compliance with the former assures that any potential adverse effects on human health effects are well within acceptable limits.

The primary sources of noise are construction activities, which would take place during daytime hours, and primarily in remote areas. Other sources of noise include short-term pipeline pressure testing, as well as compressor station operations, which would operate 24 hours a day.

All compressor stations, except for the proposed Wilde Lake station, would be in remote areas with no human receptors within the LSA or RSA. At the Wilde Lake station, no residential receptors lie within the acoustic LSA, but there are eight residences within the acoustic RSA. These are located at between 1,550 and 3,200 m from the proposed station location.

Figure 5-1 shows an aerial view of the residential noise receptor locations around the proposed Wilde Lake compressor station.

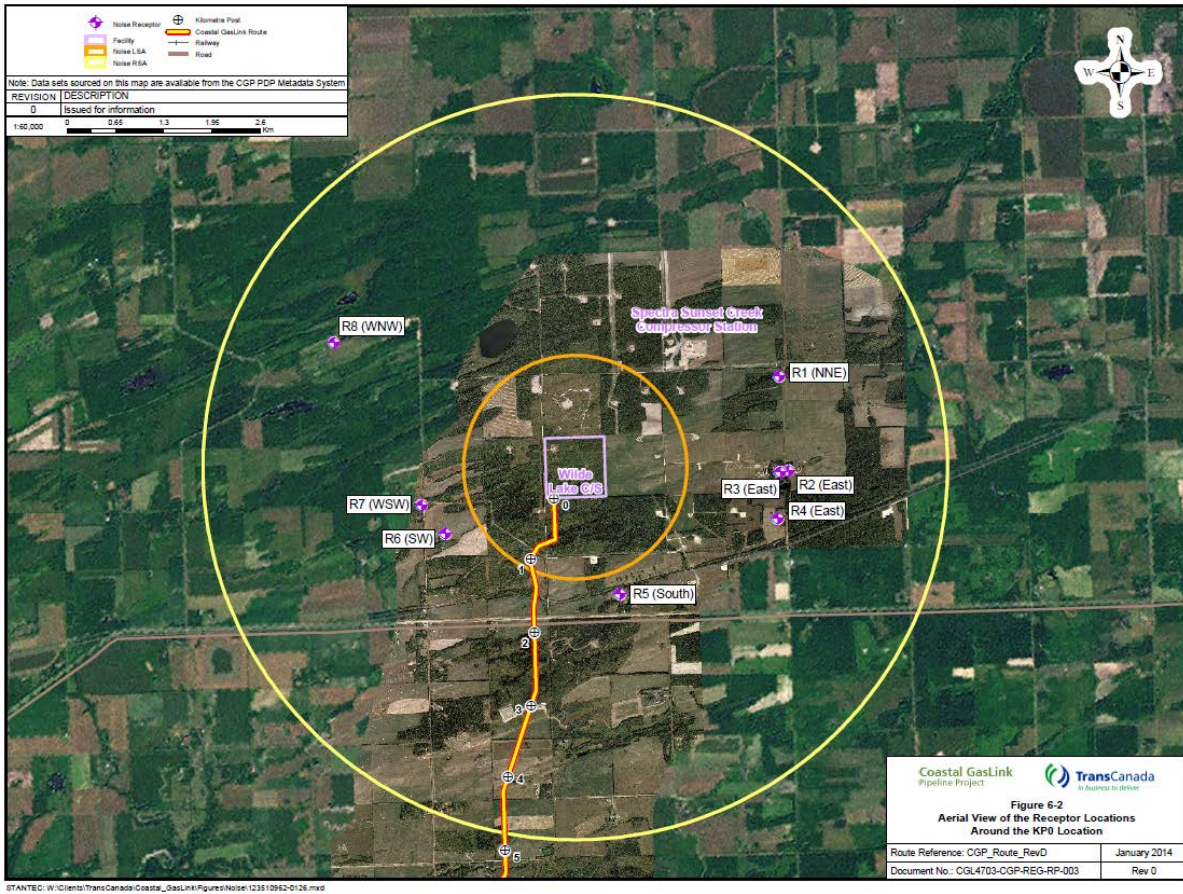


Figure 5-1: Location of residential noise receptors around the proposed Wilde Lake compressor station.

Under the OGC *Noise Control Best Practices Guideline*, acoustic impacts are assessed at the nearest residence or at 1,500 m from the proposed Project boundary, whichever is closer. The assessment was conducted at a conservative distance of 1,500 m for all stations, since there were no residences closer than 1,500 m.

EAO agrees that by using the OGC's recommended distance of 1,500 m, in this instance, to assess the compliance with noise thresholds, potential adverse noise effects at the residential locations identified above would be within acceptable limits.

The OGC *Noise Control Best Practices Guideline* requires that compliance be assessed with the inclusion of all ambient noise (including other facilities) present in the given area. The Application states that baseline measurements assessed and quantified noise emissions from other energy facilities in the area, including Spectra Energy

Corporation's Sunset Creek compressor station, which is located 2,300 m northeast of the proposed Wilde Lake station location.

The receptors most affected by the potential cumulative adverse effects of noise were two located at the intersection of the acoustic environment LSA boundaries for the existing site and the proposed site. According to the Proponent's assessment, the Project would be in compliance with the threshold specified in the OGC's *Noise Control Best Practices Guideline*.

With respect to the potential impacts of noise from the proposed Project on wildlife, refer to section 5.10 of this report (Wildlife). With respect to potential impacts on trapping and potential indirect effects related to Project noise, refer to section 7.1 of this report (Land and Resource Use).

5.1.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

During construction, potential adverse effects are expected to be localized to where the activity is taking place and to last only for the duration of the construction activity. The potential adverse effects would be reversible once construction of each section of the pipeline is completed and the severity of the effect would decrease rapidly with distance away from the source.

Construction

The construction period is expected to last approximately three to four years, with operations starting at the end of the decade and continuing for at least 30 years. Noise emissions associated with compressor station construction are substantially lower than those from compressor station operation. Construction activities would take place during daytime hours, while proposed compressor stations would be operating 24 hours a day. The Proponent notes that daytime hours could extend until 10 p.m. in some circumstances with the use of construction lighting. Construction of compressor stations and meter stations is expected to be concurrent with pipeline construction and to take approximately 12 months for compressor stations and five months for the meter stations.

Directional drilling – During pipeline construction, trenchless construction activities (e.g., directional drilling) would take place at some water crossings, primarily in remote areas, and would be conducted 24 hours a day. According to the Application, the noise threshold was set at 55 dB, L_{dn} (day-night average sound level) at a distance of 1,500 m from the drill site, and the Proponent's propagation calculations note that sound levels would be below the BC OGC threshold of 55 dB, L_{dn} at distances of 530 m or greater.

Hydrostatic testing—The noise thresholds for pipeline pressure testing are equal to thresholds for other short-term activities such as directional drilling. The equipment used would meet the minimum noise rating of 92 dBA at 7 m, to ensure that the established threshold of 55 dBA L_{dn} at a distance of 1,500 m would be met.

Operations

Pipeline operations - Noise emissions associated with *pipeline operations* are expected to be negligible, as the pipeline would be buried along the route, except in the immediate vicinity of compressor station buildings. In general, it is expected that noise from the pipeline outside of the compressor station fence lines would be low to negligible.

Compressor station operations - Noise emissions associated with *compressor station operational activities* would represent the majority of noise associated with the Project. Gas turbine exhaust and aerial coolers have noise emissions with low-frequency components, so low-frequency noise effects could be present. Compliance with the BC OGC's *Noise Control Best Practices Guideline* and the Health Canada guidance is predicted at all stations.

The Application states that noise from construction and operations activities would be at or below the provincial thresholds, even in “worst case” conditions. As such, EAO believes the direct and indirect proposed Project effects on the acoustic environment would be unlikely, although noise-sensitive individuals could still become potentially annoyed by sound pressure levels that fall below established noise effect criteria.

Tables 5-1 and 5-2 summarize the assessed compliance of each proposed compressor station with the OGC's *British Columbia Noise Control Best Practices Guideline* for nighttime and daytime hours, respectively. Both tables indicate compliance of each proposed compressor station for nighttime and daytime hours.

Table 5-1: Compressor station noise compliance assessment – nighttime hours (British Columbia Noise Control Best Practice Guideline)

Compressor Station	Predicted Maximum Sound Level at 1.5 km dBA, L_{eq}	Ambient (Baseline) Sound Level dBA	Cumulative Sound Level (CSL) dBA	Threshold PSL dBA, L_{eq}	Compliance with Threshold?
Wilde Lake	38.3	35	39.9	40	Yes
Sukunka Falls	37.3	35	39.3	40	Yes
Mount Bracey	37.3	35	39.3	40	Yes
Racoon Lake	37.3	35	39.3	40	Yes
Clear Creek	37.0	35	39.1	40	Yes
Segundo Lake	37.3	35	39.3	40	Yes
Goosly Falls	36.0	35	38.6	40	Yes
Titanium Peak	36.0	35	38.6	40	Yes

Table 5-2: Compressor station noise compliance assessment – daytime hours (British Columbia Noise Control Best Practice Guideline)

Compressor Station	Predicted Maximum Sound Level at 1.5 km dBA, L_{eq}	Ambient (Baseline) Sound Level dBA	Cumulative Sound Level (CSL) dBA	Threshold PSL dBA, L_{eq}	Compliance with Threshold?
Wilde Lake	38.3	45	46.3	50	Yes
Sukunka Falls	37.3	45	46.0	50	Yes
Mount Bracey	37.3	45	46.0	50	Yes
Racoon Lake	37.3	45	46.0	50	Yes
Clear Creek	37.0	45	46.0	50	Yes
Segundo Lake	37.3	45	46.0	50	Yes
Goosly Falls	36.0	45	45.9	50	Yes
Titanium Peak	36.0	45	45.9	50	Yes

The Application proposes the following key noise mitigation during pipeline construction:

- to limit constructions hours of operation to between 7a.m. to 10.p.m.; and
- to equip all power equipment with exhaust mufflers.

5.1.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During their review of the Application, the Working Group raised several key issues on noise effects. These issues and the responses of the Proponent and/or EAO are summarized below.

Nak'azdli Band expressed concern about the potential for noise emissions from horizontal directional drilling and operations of pipelines under watercourses to affect salmon.

The Proponent responded during a Working Group meeting session that the pipeline would be buried a distance below and away from all streams, and that noise and vibration would likely not be factors that would affect fish spawning. In addition, any instream works would be conducted during least-risk windows, which would largely mean that salmon would not be present.

For potential noise effects of pipeline operations on land, the pipeline would also be buried and there would be no noise impact from the transmission of natural gas on watercourses.

FLNR raised a question about the proximity of the proposed Raccoon Lake compressor station (KP 249.3) to residences near Vanderhoof.

The Proponent responded that the assessment of compliance at the proposed Raccoon Lake compressor station, as with all other proposed stations, was conducted at a conservative distance of 1,500 m, and was shown to be compliant with this threshold. The Proponent would continue to engage nearby residents, although EAO is of the opinion that there would be no residual adverse noise effects at these receptor sites.

During a Working Group meeting, a concern was raised about the potential noise effects from hydrostatic testing of pipeline segments.

In addition to the Proponent's proposed mitigation to address potential adverse effects of noise during the pressure testing activity, the Proponent would continue to communicate information about construction schedules and activities during ongoing consultation with Aboriginal Groups, in accordance with the Aboriginal consultation plan.

5.1.4 Characterization of Residual Project Effects

After considering all relevant proposed mitigation measures, EAO concludes that the proposed Project would result in the following residual adverse effects on the acoustic environment:

- Increase in ambient noise levels

EAO's characterization of the expected residual effects of the proposed Project on the acoustic environment is summarized below, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Criteria	Assessment Rating	Rationale
Context	Low sensitivity	The acoustic environment is of a low sensitivity, as the receiving environment is highly undisturbed and generally not sensitive to noise.
Magnitude	Low	The magnitude of potential adverse effects is predicted to be low. In general, there would be minimal noise from the Project outside of the compressor station fence lines. Compliance with the BC OGC's <i>Noise Control Best Practices Guideline</i> and Health Canada guidance is predicted at all proposed compressor stations during operations.
Extent	Local	The facilities of the proposed Project would comply with the BC OGC <i>Noise Control Best Practices Guideline</i> and potential effects would generally not be detectable outside the LSA of 1.5 km.
Duration	Event and effect: Short term to long term	The duration of the event causing the effect is the same as the duration of the effect. There would be a long-term increase in ambient noise levels during operation of the proposed compressor stations. Construction and commissioning/testing activities would temporarily affect the area acoustic environment; however, once these activities end, the acoustic environment would return to its original state with no potential residual effects. Construction activities would be generally limited to 12 hours a day, except during Horizontal Directional Drilling at watercourse crossings, which would be conducted 24

Criteria	Assessment Rating	Rationale
		<p>hours a day.</p> <p>Construction of compressor stations and meter stations is expected to be concurrent with pipeline construction and to take approximately 12 months for compressor stations and five months for the meter stations.</p> <p>Potential noise effects from drilling, testing and servicing would be short term.</p>
Reversibility	Reversible	The potential adverse effects would be fully reversible upon cessation of construction or operational activity.
Frequency	<p>Construction – Semi-continuous</p> <p>Operations – continuous</p>	Potential adverse effects are expected to be occasional or semi-continuous for construction, and continuous during operations at compressor station locations. Potential noise effects from drilling, testing and servicing would be occasional. Construction activities would take place during daytime hours (with the exception of HDD), while proposed compressor stations would be operating 24 hours a day.
Likelihood	The likelihood of impact is certain.	
Significance	EAO is satisfied that the proposed Project is not likely to have significant residual adverse noise effects, as adverse effects would be of a low magnitude, highly localized, and the effects assessments predict compliance with the OGC's <i>Noise Control Best Practices Guideline</i> and the Health Canada guidance at all compressor stations.	
Confidence	<p>Moderate to high confidence</p> <p>The Proponent would be required to implement mitigation controls to meet the noise thresholds under the OGC <i>Noise Control Best Practices Guideline</i>.</p>	

5.1.5 Cumulative Effects Assessment

The potential for cumulative adverse effects exists at the proposed Wilde Lake compressor station, where Spectra's Sunset Creek compressor station is located 2,300 m northeast of the proposed Wilde Lake station. However, the combined noise is not expected to exceed daytime or nighttime OGC noise thresholds. No other proposed projects in the area were identified in the Application that could interact with the proposed Project.

5.1.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), and that the noise mitigation proposed would be compliant with OGC and Health Canada requirements, EAO is satisfied that the proposed Project is not likely to have significant adverse effects on the acoustic environment.

5.2 Air Quality

5.2.1 Background

Air quality was identified as a VC and included in the assessment due to emissions produced from the proposed Project during construction and operations and potential impacts to human and ecological health and vegetation resources. The Application used a LSA of 2-km centred on the proposed route. The RSA was a 30-km band centred on the proposed route.

The Application considered air quality in accordance with existing provincial policy, including: *Guidelines for Air Quality Dispersion Modelling in BC* (2008) and provincial and federal ambient air quality regulatory objectives. Section 6 of the Application provides a quantitative assessment of effects on air quality, and notes that the proposed Project has been designed to meet or exceed provincial standards. Measureable parameters included concentration levels in relation to federal and provincial ambient air quality objectives for the following criteria area contaminants (CACs):

- inhalable particulate (PM_{2.5});
- sulphur dioxide (SO₂);
- nitrogen dioxide (NO₂);
- carbon monoxide; and
- volatile organic compounds (VOCs)

In 2013, the Province of BC announced the proposed development of new ambient air quality objectives (AAQOs) for nitrogen dioxide (NO₂) and sulphur dioxide (SO₂), which were expected to be released in mid-2014. Although the Proponent was not required to consider air quality objectives from other jurisdictions at the time of the development of the AIR, EAO, in consideration of advice from MOE, requested an assessment of the proposed Project emissions in relation to the US Environmental Protection Agency (US EPA) and World Health Organization (WHO) SO₂ and NO₂ objectives.

5.2.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The Application identified that adverse air quality effects would result from activities associated with different Project components

During construction, ambient concentrations of NO₂ and PM_{2.5} would increase in the LSA due to fugitive dust emissions and engine exhaust from construction vehicles along the pipeline ROW. Construction activities would occur along several pipeline segments

over 30 months, with each segment worked on for about six months. Air quality effects are expected to last longer for construction activities at proposed compressor station sites.

During operations, ambient concentrations of VOCs would intermittently increase within the RSA due to venting emission sources during maintenance at compressor, valve, metering and pigging stations. However, these emission sources would be minimal.

During operations, the primary source of air quality impacts would be the compressor stations. The Application's air quality data note that the most stringent air quality objectives would not be exceeded around any of the potential eight compressor station locations. For NO₂ (1-hour average), and relative to the Canada objective of 400 µg/m³, maximum values range from 30% to 69% of the objective. For PM_{2.5} (24-hour average) and relative to the provincial objective of 25 µg/m³, maximum values (including background values) range from 71% to 82% of the objective. Predictions for all other key indicators range much lower (maximum 5% for SO₂, and maximum 23% for CO).

The Application has proposed the following mitigation for potentially elevated concentrations of all CACs and of particulate matter during construction and operations phases:

- Reduce the length of the pipeline route to minimize emissions during the construction period.
- Minimize the emissions from vehicle idling, improperly maintained vehicles, and non-optimized construction equipment capacity.
- Avoid open burning of timber, tree/shrub debris and stumps, and instead mulch it for spreading on the right-of-way and maximize timber salvaging where feasible.
- Prohibit open burning of accumulated camp waste materials;
- Reduce the amount of fugitive dust emissions.
- Minimize continuous emissions during the operations period, primarily from the gas turbine exhaust emission sources at the compressor stations.
- Reduce the continuous NO_x emissions associated with the gas turbine exhaust using "Dry Low NO_x Emission" combustors.
- Reduce the intermittently vented emissions.

5.2.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During their review of the Application, a number of key issues were raised regarding impacts on air quality. These issues and the responses of the Proponent are summarized below

Haisla Nation expressed concern about cumulative adverse effects on air quality in the Kitimat airshed, particularly with regard to potential emissions from Rio Tinto Alcan (RTA).

The Proponent collected baseline data from multiple sources, including BC jurisdictional inventories and national inventory. Facilities, such as RTA, have been included in the assessment's baseline calculations.

With regards to assessing potential cumulative effects on air quality, the Province commissioned an independent assessment of the Kitimat Airshed in October 2013 to help inform regulatory and policy development for future industrial activity in the Kitimat area⁶. The Kitimat Airshed Assessment looked at the cumulative effects of industrial air emissions, primarily sulphur and nitrogen oxides, and their potential impacts on both human health and the environment from the following:

- Rio Tinto Alcan's existing aluminum smelter and its planned modernization;
- a proposed oil refinery;
- four proposed LNG facilities;
- BC Hydro gas turbine powered electrical generation facilities; and
- predicted increased to marine shipping in Douglas Channel.

The study shows that by adhering to world-leading emissions standards, NO₂ levels would be significantly reduced, allowing industrial expansion to be safely managed in the airshed.

Several Aboriginal Groups expressed concern that the Proponent had not conducted baseline air monitoring studies, but had collected information from existing stations, and that the Proponent had indicated that no air quality monitoring was planned during the construction phase.

The Proponent committed that equipment used would be selected and designed to meet emission targets. Based on analysis of existing data and

⁶ Available at www.bcairquality.ca/airsheds/docs/ESSA-Kitimat-Airshed-Report_20140425.pdf

using a conservative approach in the assessment, the Proponent does not expect that thresholds would be exceeded. The Proponent did commit to following regulatory requirements to conduct air monitoring as required. EAO is of the opinion that there may be situations where compressor stations are located in close proximity to other stations from future projects, currently not assessed in the Application, which could justify ambient air quality monitoring in the future; however EAO and OGC acknowledge that this would be addressed during the OGC permitting and regulatory process.

MOE and EAO requested that the Proponent assess the proposed Project's emissions in relation to the US Environmental Protection Agency (US EPA) and World Health Organization (WHO) SO₂ and NO₂ objectives, and use those as interim objectives.

The Proponent has provided an assessment of proposed Project emissions using these interim objectives. For both NO₂ and SO₂ there would be no exceedance of either the interim US EPA and WHO AAQO or the Existing AAQO at any of the proposed compressor stations.

MOE suggested a further mitigation to reduce continuous NO_x emissions associated with gas turbines. In particular, that NO_x emissions meet or exceed emissions criteria for gas turbines at the time the Proponent applies for the associated permits. OGC has indicated that the Proponent would be required to meet or exceed any OGC emissions requirements at the time of permitting, which would ensure this mitigation measure is met.

5.2.4 Characterization of Residual Project Effects

After considering all relevant proposed mitigation measures, EAO concludes that the proposed Project would result in the following residual adverse effects on air quality:

- Increase in elevated concentrations of CACs and Particulate Matter.

EAO's characterization of the expected residual effects of the proposed Project on air quality is summarized below, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Criteria	Assessment Rating	Rationale
Context	Low to Moderate sensitivity	The airsheds affected by the proposed Project are remote and have minimal disturbance at present. There is not a concern with background levels of air contaminants in these airsheds, and therefore they have low sensitivity to additional disturbance (i.e., significant additional air contaminants). By comparison, the Kitimat airshed is more disturbed than the more remote Project areas and is considered to have moderate sensitivity to additional disturbance.
Magnitude	Low to moderate	<p>The effects of the proposed Project on air quality are expected to be low to moderate in magnitude, as they are estimated to remain below provincial and federal guidelines and exceedance of CACs do not occur in locations where sensitive receptors would be adversely affected.</p> <p>Low – moderate: For NO₂ (1-hour average), maximum values range from 30% to 69% of the Canada objective.</p> <p>Low – moderate: For PM_{2.5} (24-hour average), maximum values range from 71% to 82% of the BC objective.</p> <p>Predictions for all other key indicators range much lower (maximum 5% for SO₂, and maximum 23% for CO), therefore are of a low magnitude.</p>
Extent	Local and regional airshed	Effects on air quality are expected to be localized during construction (i.e., not emitted from elevated emission sources that would be likely to emit far downwind), and not expected to exceed the RSA during operations.
Duration	<p>Event and Effect:</p> <p>Construction – short term</p> <p>Operations – long term (30+ years)</p>	<p>Event: The duration of the events causing increases in CAC emissions would take place throughout the life of the Project.</p> <p>Effects: The duration of the effects of the proposed Project on air quality would be the life of the proposed Project (30+ years).</p>
Reversibility	Reversible	The effects of the proposed Project on air quality are expected to be reversible, following proposed Project closure.

Criteria	Assessment Rating	Rationale
Frequency	Construction – Semi-continuous Operations – continuous	Potential adverse effects of elevated concentrations of CACs would occur at a given location only during construction at that location. During operations, effects from elevated concentrations of CACs would be continuous for the life of the operations.
Likelihood	It is certain that residual air quality effects would occur throughout construction and operation.	
Significance	EAO concludes that the air pollutants associated with the proposed Project would result in residual adverse environmental effects, although these residual adverse effects would not be significant, as the identified objectives and thresholds would not be exceeded.	
Confidence	High Confidence Confidence is based on the use of current base available Project design information, monitored background air quality information, and emissions estimation and air modelling methods that have been deemed to be appropriate.	

5.2.5 Cumulative Effects Assessment

Potential cumulative adverse effects are addressed regarding an existing emission source in the vicinity of the proposed Raccoon Lake compressor stations near Vanderhoof. Although emissions from the proposed Project would act cumulatively with other area emission sources, EAO is reasonably confident that predicted cumulative emissions from all current and reasonably foreseeable RSA emitters are expected to remain within provincial and federal air quality objectives.

The Application notes that there is the potential for another proposed LNG Project in the area to act cumulatively with the emission sources of this proposed Project, and there could be insufficient air quality data for NO₂ at this location. EAO is of the opinion that there may be situations where compressor stations are located in close proximity to other stations from future projects, which could justify ambient air quality monitoring; however EAO and OGC acknowledge that this would be addressed during the OGC permitting process.

For potential cumulative effects in the Kitimat airshed, the Province commissioned an independent assessment of the Kitimat airshed in October 2013 to help inform

regulatory and policy development for future industrial activity in the Kitimat area⁷. The Kitimat Airshed Assessment looked at the cumulative effects of industrial air emissions, primarily sulphur and nitrogen oxides, and their potential impacts on both human health and the environment. The Study determined that by adhering to world-leading emissions standards, nitrogen dioxide levels would be significantly reduced, allowing industrial expansion to be safely managed in the airshed.

EAO concludes that no significant cumulative effects to air quality are expected as a result of effects of the proposed Project interacting with effects of other past, present and reasonably foreseeable future projects and activities.

5.2.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on air quality.

⁷ Available at www.bcairquality.ca/airsheds/docs/ESSA-Kitimat-Airshed-Report_20140425.pdf

5.3 Greenhouse Gas Emissions

5.3.1 Background

Greenhouse gas (GHG) emissions were selected as a VC due to their importance for the global climate and their regulatory requirements in BC. GHG emissions would be released during the construction and operation of the proposed Project. . The primary source of GHG emissions from construction would be due to land clearing, while the primary source of GHG emissions during operations would be from the combustion of natural gas to power compressor stations and transport natural gas through the pipeline.

The proposed Project would require natural gas to be extracted, processed and transported to its point of commencement, and it would then transport the sweet natural gas to a proposed liquefaction facility. The extraction, processing, liquefaction, and final use of the natural gas were out of scope of the assessment, as they are not part of the proposed Project. There has also been suggestion that use of exported natural gas may displace the use of coal or other fuels for electricity generation. This is also out of scope of the assessment of the proposed Project.

There are four major gases or groups of gases that are influenced by human activities that are of interest with respect to GHG emissions: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and, synthetic (not naturally occurring) fluorinated gases (i.e., sulphur hexafluoride (SF₆), hydro-fluorocarbons (HFCs) and perfluorocarbons (PFCs)). Total GHG emissions are reported in this report as carbon dioxide equivalents (CO₂e), where emissions of each specific GHG are multiplied by their global warming potential.

Regulatory Context

Both the federal and provincial governments have indicated a desire to address GHG emissions and have created strategic-level plans. The Government of Canada has set a target of reducing Canada's total GHG emissions by 17% from 2005 levels by 2020. At present, with respect to GHG emissions reporting, Environment Canada requires that any facility emitting more than 50 kt CO₂e report their annual GHG emissions online.

In 2007, the Government of British Columbia passed the *Greenhouse Gas Reduction Targets Act* (GGRTA), legislating provincial GHG reduction targets of 33% below 2007 emission levels by 2020 and 80% below by 2050. Interim reduction targets of 6% by 2012 and 18% by 2016 have been set in policy to guide and measure progress. An Oil & Gas Climate Action Working Group, including representatives of provincial agencies

and the oil and gas industry, was established in 2008 to develop strategies to reduce GHG emissions within the industry.

BC's 2012 CO₂e emission levels were reported at 61,500 kt, 4.4% below 2007 levels, in the Province's most recent Greenhouse Gas Inventory Report.

In order to achieve the legislated GHG reduction targets, BC has designed and implemented a suite of policy measures to reduce emissions, including:

- a provincial carbon tax, introduced in 2008 through the *Carbon Tax Act*;
- a carbon-neutrality mandate for all public sector operations (*Carbon Neutral Government Regulation*), largely achieved through the sourcing of province-based offsets via the Pacific Carbon Trust (*Emissions Offset Regulation*);
- mandatory GHG reporting program (*Reporting Regulation*); and
- a potential cap-and-trade program and compliance offset scheme for large final emitters.

EAO recognizes that the impacts of GHG emissions must be addressed globally, and that it is not possible to estimate the impacts of an individual project's emissions on global climate change. However, EAO also recognizes that BC's GHG reduction targets were established in the context of the best science regarding the necessary reductions to global GHG emissions to address impacts to global climate change, and BC's responsibility to contribute to the global reduction. As such, individual projects are assessed against their estimated impacts to provincial GHG emission levels.

The Intergovernmental Panel on Climate Change (IPCC) is an international scientific body under the United Nations, whose role it is to assess available scientific information related to climate change. The IPCC reports that scientific consensus is that anthropogenic sources of GHG emissions are altering the global climate, and that concentrations above 450 parts per million (ppm) of CO₂ in the atmosphere would result in a 50% chance of increasing average global temperatures by 2°C over the pre-industrial average.⁸

The IPCC has developed scenarios (called "Representative Concentration Pathways") to support the development of global policy, mitigation and adaptation measures in response to a changing climate. These scenarios are presented in Figure 5-2 below, with the image on the left showing the projected global CO₂ emissions, and the image on the right showing the associated trends in the atmospheric concentrations of CO₂.

⁸ Intergovernmental Panel on Climate Change. 2013. Working Group I Contribution to the IPP Fifth Assessment Report Climate Change 2013: The Physical Science Basis. IPCC. Geneva, Switzerland.

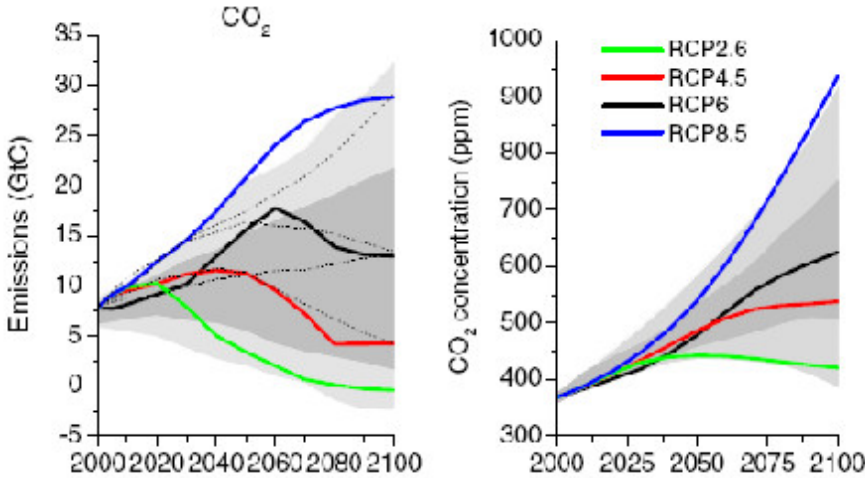


Figure 5-2: IPCC CO₂ emissions and concentration projections

These scenarios provide some information on the global context for GHG emissions. In three of the scenarios GHG emissions are expected to begin declining between 2020 to 2060. In one scenario, this would result in atmospheric concentrations of GHGs starting to decline around 2050, while the growth in concentrations would begin slowing down mid-century. All scenarios would result in atmospheric concentrations exceeding 450 ppm.

5.3.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The construction and operation GHG impacts of the proposed Project are generally related to the combustion of fossil fuels in construction equipment, and land clearing/ biomass burning during construction, and combustion at compressor stations, fugitive emission, venting and aerial patrols and maintenance during operations.

The proposed Project would have an initial capacity of approximately 2–3 bcf/d, with the potential to expand to approximately 5 bcf/d (the basis for the GHG emissions assessment). The Application presents the proposed Project’s estimated emissions under three different development scenarios.

- *Scenario 1* reflects an operational throughput of approximately 2 bcf/d. To optimize the operations of the pipeline at this throughput, only one compressor station (Wilde Lake compressor station) with two natural gas turbine-driven compressors would be required. Metering facilities would also be constructed at the beginning and end of the pipeline.
- *Scenario 2* reflects an operational throughput of approximately 3 bcf/d. To optimize the operations of the pipeline at this throughput, the same infrastructure would be required as in Scenario 1 with one additional compression unit at Wilde

Lake and the addition of the compressor station at Racoon Lake. This includes three natural gas turbine-driven compressors at Wilde Lake, with the addition of two natural gas turbine-driven compressors at the Racoon Lake compressor station location.

- *Scenario 3* reflects an operational throughput of approximately 5 bcf/d. This throughput reflects the full build-out scenario presented in the table above (22 units at eight compressor stations).

Table 5-3 presents the estimated CO₂e emissions under the three Project development scenarios.

Table 5-3: GHG emissions under three Project development scenarios

Scenario	Description	Construction (total Mt CO₂e)	Operations (avg Mt CO₂e/yr)
Scenario 1	Wilde Lake compressor station (2 units) (approximately 2 bcf/d)	2.341	0.326
Scenario 2	Wilde Lake compressor station (3 units) Racoon Lake compressor station (2 units) (approximately 3 bcf/d)	2.352	0.807
Scenario 3	8 compressor stations (total of 22 units) (approximately 5 bcf/d)	2.418	3.517

The following table (Table 5-4) details the number of compressor units that the Proponent modeled for the full build-out scenario. The number of compressors in the second column includes both operating units (that were modeled) and back-up contingency units that would only be operated should one of the operating units be shut-down. The modelling was carried for the worst case scenario of all units operating (operating and backup units).

Table 5-4: Compressor stations modeled for full build-out scenario

Compressor Station	Turbo-Compressors
Wilde Lake - KP 3	4
Sukunka Falls - KP 86	3
Mount Bracey - KP 166	3
Racoon Lake - KP 252	3
Clear Creek - KP 332	2
Segundo Lake - KP 419	3
Goosly Falls - KP 493	2
Titanium Peak - KP 575	2

The total estimated emissions during construction (under Scenario 3) would be 2.42 megatonnes (Mt) of CO₂e. Approximately 65% of the emissions would be due to land clearing, 24% the result of biomass burning, and the remaining 11% from the operation of construction equipment.

Land clearing required to create the pipeline ROW would involve the removal of trees and other vegetation. The estimated GHG emissions would be a result of biomass burning and residual emissions. Biomass burning of unmerchantable timber and other vegetation would occur during construction. Residual emissions are estimated to occur over the next 20 years as a result of biomass decomposition. Residual emissions were estimated assuming a 70 m wide construction ROW and considered only a very coarse approximation of regional vegetation. Some of the lost sinks would be re-established through natural or planned re-vegetation after the construction phase.

The anticipated actual land clearing in most areas is expected to be approximately 50–60 m wide. This assumption was intended to compensate for not including direct estimates of other cleared areas outside the construction ROW, such as for temporary camps, roads, and similar areas. The analysis also assumed that 80% of timber would be merchantable, while 20% would be non-merchantable; the latter is estimated to be burned. The final permanent ROW would be 32 m wide, with approximately 5 m on either side of the pipeline maintained clear of large woody vegetation.

At full operational capacity (full build-out), the proposed Project is estimated to release 3.517 Mt/year of CO₂e, which would be a 0.012% increase to global emissions, a 0.50% increase to national emissions, and a 6% increase to provincial emissions. The estimated annual operations GHG emissions from the two initial capacity scenarios, Scenarios 1 and 2, would be, respectively, 0.6% and 1.4% of BC's 2011 emissions. At full build-out, 96% of annual emissions would be from combustion at compressor stations, 3% from fugitive emissions (98.5% of which would occur at compressor stations), and 1% from venting.

The underlying assumptions made in the Application resulted in conservative estimates of total CO₂e emissions, meaning that the estimates presented are most likely higher than actual emissions at full build-out. The primary source of GHG emissions would be the compressor stations, and the Application has assessed the impact of full build-out and assumed a worst-case scenario of the compressor units operating at maximum load during the hottest day of the year.

The Proponent anticipates potential reductions to be identified during the detailed engineering design phase.

The Proponent committed in the Application to undertake mitigation measures to address potential effects of GHG emissions, including to:

- minimize continuous emissions during the operations period;
- minimize the emissions from vehicles idling, where practical, associated with vehicle idling, improperly maintained vehicles and non-optimized construction equipment capacity for duty at hand;
- ensure compliance with BC's *Carbon Tax Act*;
- start reclamation as soon as practical;
- prohibit open burning of accumulated waste materials;
- maximize the fuel efficiency of the gas turbines – to minimize continuous emissions during the operations period;
- minimize fugitive emissions through the use of Project engineering design, operational procedures, and fugitive emission surveys and leak detection and repair measures; and
- minimize the intermittently vented emissions.

5.3.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

In response to an Information Request from EAO on GHGs, the Proponent submitted a Technical Memo on GHGs (Coastal GasLink, May 13, 2014), which provided the following additional information:

- The Application and jurisdiction profile were prepared by the Proponent at a time when BC had not publicly released the 2011 provincial totals, therefore in the Application the provincial totals (59.1 Mt CO₂e) cited in the National Inventory Report were used. This resulted in more conservative predicted percentages of Project contributions in the assessment because the provincial total in 2011 (59.1 Mt CO₂e) is less than the provincial total in 2012 (62 Mt CO₂e).

During their review of the Application, the Working Group, including Aboriginal Groups, and public raised several key issues on GHG emissions. These issues and the responses of the Proponent and/or EAO are summarized below.

- FLNR and several Aboriginal Groups requested that a comprehensive GHG Emissions Management Plan be developed with input from the appropriate government agencies and Aboriginal Groups, and that all GHG-related mitigation measures and details on timber use in relation the ROW clearing be framed within the context of the plan.

EAO is proposing a condition that would require the Proponent to develop a Greenhouse Gas Emissions Management Plan, in consultation with the Ministry of Natural Gas Development (MNGD) and the Climate Action Secretariat (CAS). The Plan would demonstrate adherence to mitigation measures proposed in the Application and demonstrate that mitigation is consistent with MNGD Guidance “Best Available Techniques Economically Achievable” (BATEA), and does not inadvertently increase the effect on air contaminant emissions predicted in the Application.

The Proponent has committed to continued consultation with Aboriginal Groups on the nature of the various plans being developed, as well as throughout the life of the proposed Project. This is also being proposed as a condition for the EAC.

- FLNR raised concerns about the effects on GHG emissions from land-clearing activities on the ROW and requested the Proponent to consider the Ministry-recommended factors⁹ for predicting land clearing emissions during construction.

With regard to land clearing and open burning, the Application footprint was conservative at a 100 m width for the entire proposed route and maximum emissions factors were used in the calculations. The assessment also assumed a completely forested area along the entire proposed route, even when there were existing cut areas, cleared agricultural land or water crossings, thereby increasing the conservative estimate.

In the Greenhouse Gas Emissions Technical Memo, the Proponent clarified that if GHG's during construction are assumed to be evenly distributed over three to four years of construction, and then compared to estimated GHG's during operations, one year of construction emissions would be comparable to approximately 23% of one year of emissions during operations. When compared to 2011 Provincial and National Inventories, annual construction emissions would increase the totals by 1.36% and 0.11%, respectively.

If the Ministry-recommended factors (2013 FLNR) are considered for predicting land clearing emissions during construction, the Proponent recalculate the predicted emissions from 291,353 tonnes CO₂e to approximately 471,277 tonnes CO₂e over the construction period.

- Several Working Group members, particularly a number of Aboriginal Groups, and the public, expressed concerns about the consequences of LNG projects on provincial GHG reduction targets.

⁹ “Summary of Emissions for BC v2.xlsx” by Caren Dymond (2013 FLNR)

EAO acknowledges that the proposed Project and other reasonably foreseeable LNG-related projects could have a substantial impact on BC's total GHG emissions. This is considered in the assessment of effects.

- Fort Nelson First Nation asked if GHGs emitted by the proposed Project would be included in BC's emission reduction targets.

The Proponent and CAS clarified that emissions from the proposed Project would count towards any federal and/or provincial GHG targets, legislated or otherwise.

- Fort Nelson First Nation requested that the GHG emission impacts of the upstream raw gas production be included with the impacts of GHG emissions generated by the proposed Project.

EAO did not require the Proponent's Application to include a cumulative effects assessment for GHG emissions.

GHG emissions are a global issue, and the Intergovernmental Panel on Climate Change (IPCC) has produced several scenarios forecasting global GHG emissions and the potential impacts associated with these emissions levels.

5.3.4 Characterization of Residual Project Effects

After considering all relevant proposed mitigation measures, EAO concludes that the proposed Project would result in the following residual adverse effects on GHGs:

- Increase in GHG emissions during construction and operation.

EAO's characterization of the expected residual effects of the proposed Project on GHG emissions is summarized below, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Criteria	Assessment Rating	Rationale
Context	Moderate to High Sensitivity	The IPCC has confirmed the effects that GHG emissions are at levels that are impacting the global climate.
Magnitude	High	The majority of emissions would arise during operations. At full build-out, the proposed Project would increase provincial GHG emissions by 6% from 2012 levels. The proposed Project would also increase national GHG emissions by 0.5%, as well

Criteria	Assessment Rating	Rationale
		as contributing to global GHG emissions.
Extent	Global	The geographic impact of GHG emissions from the proposed Project is cumulative globally.
Duration	Long term	CO ₂ constitutes the majority of the proposed Project's GHG emissions. CO ₂ remains in the atmosphere for 100 years or more.
Reversibility	Irreversible	Given current technology and the persistence of CO ₂ in the atmosphere, the effects of the GHG emissions are effectively irreversible.
Frequency	Continuous	GHG emissions would be continuous for the life of the proposed Project.
Likelihood	It is certain that the proposed Project would emit GHG emissions. However, GHG emissions may be reduced over time due to changes in technology and/or regulatory requirements.	
Significance	After considering all relevant mitigation measures identified in the Application, EAO has determined that the proposed Project would have a significant residual adverse effects on GHG emissions, particularly in consideration of the magnitude of the proposed Project's GHG emissions in relation to BC's reduction targets.	
Confidence	High level of confidence – EAO is of the view that the estimates presented in the Application are a conservative estimate of potential GHG emissions during construction and operation, and therefore EAO is confident that emissions are likely to be no greater than estimated. The technical approach for estimating GHG emissions has a high level of confidence.	

5.3.5 Cumulative Effects Assessment

EAO did not require the Proponent's Application to include a cumulative effects assessment for GHG emissions.

GHG emissions are a global issue, and the IPCC has produced several scenarios projecting potential global GHG emissions trajectories and the potential impacts associated with these emissions levels.

5.3.6 Conclusions

Considering the above assessment and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO concludes that there would likely be significant residual adverse effects of the proposed Project related to GHG emissions.

5.4 Soil Capability

5.4.1 Background

The proposed Project crosses a variety of soil conditions. The soils assessment considered soil capability and related factors potentially affecting soil productivity and plant growth. Key indicators of that were studied in the Application are:

- *agricultural capability* – assessed based on a land capability classification system developed for agricultural lands in BC; and
- *reclamation suitability* – assessed based on the relative quality of soil materials for use as a growth medium.

5.4.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The Proponent conducted a soil survey along the portions of the pipeline route where the route crosses land within the Agricultural Land Reserve (ALR) as well as on adjacent land with the potential for agricultural and grazing use. Agricultural capability is generally low, at Class 3, because of a climatic heat deficiency limitation. The soils along the ROW through ALR lands generally have a fair to poor rating for reclamation suitability of the material in the root zone.

Through non-ALR lands, soils have a poor and poor-to-fair rating for reclamation suitability. In non-ALR lands, the Application also notes that approximately 96% of the proposed route would fall under moderate- or high-risk categories for erosion potential.

With the exception of topsoil loss or degradation, the potential adverse effects of the proposed Project would be the same for both agricultural capability and reclamation suitability. The proposed Project activities associated with clearing, construction and restoration, including blasting, grading, trenching, soil storage, infilling, slope stabilization trenching, operations and maintenance may have the following adverse effects:

- soil loss due to wind or water erosion any time the soil surface is exposed or unprotected;
- soil compaction and rutting from heavy vehicles and equipment travelling over or handling soils, particularly when soils are wet; and
- altered landscape contours and drainage patterns resulting from improper soil replacement and re-contouring during reclamation, including:
 - topsoil loss or degradation due to poor soil handling practices during construction (agricultural capability only); and

- soil contamination from spills during refueling of equipment or leaks from poorly maintained vehicles and equipment.

The Proponent committed to undertake mitigation to address potential effects on the soil capability, which were developed in accordance with industry-accepted best practice and BC's regulatory guidelines, and include the following:

- initiate re-vegetation as soon as possible after cleanup, and inspect vegetation regularly to ensure adequate vegetation cover is established and maintained;
- use slash or woodchips during re-vegetation in wooded areas to create microsites;
- install erosion control measures, such as cross ditches and berms, where required;
- install sediment control measures at all watercourse crossings;
- through wetland areas where sumps are required, pump water to an appropriate area so that erosion is not accelerated;
- re-contour ROWs and areas around facilities to be compatible with surrounding drainage patterns and to prevent the concentration of runoff;
- ensure water from hydrostatic testing is disposed of in accordance with the hydrostatic test water management plan, the EMP and permits;
- re-grade after backfilling to reclaim natural drainage patterns and remove possible barriers or conduits to water flow. Take appropriate action if post-construction monitoring indicates an undesirable outcome;
- inspect and maintain all erosion control measures to ensure they remain functional; and
- confine traffic to access roads and established trails.

5.4.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the review of the Application, the Working Group, Aboriginal Groups and the public raised several key issues on soil capability. In response to common questions raised by Working Group members regarding potential effects to soils, the Proponent provided a Technical Memo on Soils (May 13, 2014).

The Office of the Wet'suwet'en and Lheidli-T'enneh First Nation raised concerns about ground leveling that may occur in some areas for construction of campsites and questions about which potential soil mitigations were proposed for whitebark pine.

The Proponent responded that similar soil mitigation measures would be used throughout the ROW and in campsite areas, and that the Proponent would continue to identify appropriate reclamation for these areas, including for areas where whitebark pine is present.

EAO has proposed a condition that would require continued consultation by the Proponent with Aboriginal Groups on the development of the various plans being developed, as well as throughout the life of the proposed Project.

Lheidli-T'enneh First Nation questioned the kind of testing of soils and pH that were done along the proposed route and whether soil impacted route selection.

The Proponent responded that many factors were used to classify soil characterization, bedrock geology, and pH and chemical composition. Pipelines would be designed specifically to the type of soil they would be going through.

FLNR requested that soil monitoring take place, and sought clarification on the calculations used for reclamation suitability.

As shown in the Application, the Proponent assessed reclamation suitability using criteria for evaluating the suitability of soil material for reclamation developed by the Alberta Soils Advisory Committee, but modified those criteria for conditions in the proposed Project area, using soil moisture and drainage condition information for soils.

In its Technical Memo on Soils (May 13, 2013), the Proponent provided additional information and clarity on reclamation and reforestation of the Project. Natural recovery would be the preferred method of reclamation in appropriate areas. Controlling the growth of trees would be required on an approximately 10 m wide area, although the Proponent would reclaim disturbed areas to the appropriate vegetative cover to allow for natural reforestation, including shrub growth.

5.4.4 Characterization of Residual Project Effects

After considering all relevant proposed mitigation measures, EAO concludes that the proposed Project would result in the following residual adverse effects on soil capability:

- loss of soil and topsoil; and
- change in soil quality due to compaction, trench subsidence, and lowering of soil capability.

EAO's characterization of the expected residual effects of the proposed Project on soil capability is summarized below, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Criteria	Assessment Rating	Rationale
Context	Low to high sensitivity	<p>Through ALR lands, almost the entire route has a low water erosion risk rating, due mainly to gentle slopes. Where slopes are steeper, the erosion risk rating is greater, especially on valley sides of watercourses. Wind erosion is generally low risk as well. Poor drainage conditions of a large proportion of soils may result in a high susceptibility to soil compaction and rutting.</p> <p>In non-ALR lands, approximately 96% of the proposed route falls under moderate or high-risk categories for erosion potential.</p>
Magnitude	Low	The effects would be expected to be well within environmental variability and resilience, after the proposed mitigation.
Extent	Localized	Effects would be confined primarily to the Project footprint.
Duration	Short term to medium term	<p>With appropriate site restoration, it would generally take less than one year to establish stable vegetation cover to prevent wind and water erosion, and to reverse adverse effects from compaction or rutting (short term).</p> <p>Residual adverse effects from topsoil loss or degradation during handling could take several years to reverse (medium term).</p>
Reversibility	Reversible	The residual adverse effects are considered to be reversible.
Frequency	Once and occasional	Potential adverse effects would be largely confined to the construction phase, with some possibility occasional, localized occurrence during operations and maintenance.
Likelihood	There is a high likelihood of residual effects to soil quality and quality.	

Criteria	Assessment Rating	Rationale
Significance		In consideration of the low magnitude, short-to medium-term duration and reversibility of the residual effect, and provided the Proponent undertakes the mitigation measures indicated, EAO concludes that the Project would not result in significant adverse effects soils.
Confidence		The significance determination and likelihood rating for potential residual effects are determined with high confidence.

5.4.5 Cumulative Effects Assessment

In consideration of the spatial and temporal extent of the residual effects of the proposed Project, it is not expected that they would cumulate with residual effects of other past, present or future projects and activities on soil capability. It is not likely that there is the potential for a significant cumulative residual adverse effect on soil capability.

5.4.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on soil capability.

5.5 Terrain Integrity

5.5.1 Background

Terrain integrity was identified as a VC because of the physical environment along the proposed route, which crosses areas of steep terrain, including the Rocky Mountains, the Hazelton Mountains and the Coast Mountains, and major river valleys.

The terrain assessment LSA describes terrain along the 2-km wide proposed route based on desktop studies, detailed air photo interpretation and subsequent field assessments.

EAO's assessment of effects of the environment on the proposed Project, including slope stability and seismic events, is in section 10 of this report.

5.5.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The Application presents qualitative information on existing terrain conditions on maps that were developed according to provincial standards for terrain mapping, potential adverse effects of the Project on terrain, proposed mitigation measures, and a follow-up and monitoring program for prediction validation.

If an EAC is issued, the pipeline route would be further refined during final detailed engineering design which would be considered in the OGC permitting process. The OGC regulates most terrain aspects for natural gas pipelines situated entirely in BC.

A geotechnical program would be conducted by the Proponent during ongoing engineering design to evaluate areas of potential instability along the proposed route. After completion of the geotechnical program and assessment, a detailed grade plan would be developed with the pipeline construction Contractor before construction starts, to safely install the pipeline, re-establish slopes to a stable profile and implement any additional surface stabilization measures.

The Proponent committed in the Application to undertake mitigative measures to address potential effects on the terrain integrity, including to:

- conduct terrain stability site assessments on slopes identified during the terrain stability analysis before the final design is finished;
- undertake appropriate slope design and erosion control measures;
- undertake drainage improvement measures;
- promote re-vegetation after cleanup;

- ensure that pipe lay-down areas are not located on steep or unstable terrain areas;
- monitor the ROW to identify areas where surface erosion is occurring or other forms of instability; and
- ensure anchoring of the pipeline, deep burial of the pipeline, and increased cover over the pipeline.

5.5.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the review of the Application, the Working Group, including Aboriginal Groups, and public raised several key issues on terrain integrity.

FLNR raised concerns that the Application was missing a treatment of the effects of glacial thinning and mountain permafrost, as the route goes through passes where glacial retreat has occurred in the last century and where mountain permafrost is predicted. They also expressed concerns that the assessment did not examine seismicity glaciomarine /estuarine sediments.

The Proponent indicated that they would complete additional terrain stability mapping of the route, and would consider the occurrence of mountain permafrost and recently deglaciaded terrain hazards for as part of construction planning, detailed engineering design, and OGC permitting process.

5.5.4 Characterization of Residual Project Effects

Based on the analysis detailed in the Application and having regard for the Proponent's proposed mitigation measures, EAO concludes that the proposed Project would not have any residual adverse effects on terrain integrity.

5.5.5 Conclusions

Based on the analysis detailed in the Application and recognizing the Proponent's commitments (which would become legally binding as conditions of the EAC), EAO concludes that the proposed Project would not likely have any residual adverse effects on terrain integrity.

5.6 Fish and Fish Habitat

5.6.1 Background

The Application assessed VC's which included Protection of Recreationally, Commercially and/or Culturally Important Fish and Fish Habitat, and Species of Conservation Concern, which EAO has assessed and summarized in this Assessment Report as "Fish and Fish Habitat."

Fish and fish habitat key indicators included fish species and fish habitat that are important for commercial, recreational or aboriginal fisheries, as well as fish species of conservation concern (e.g., provincially or federally listed species at risk, species of concern and species identified in the BC Conservation Framework or regional LRMPs).

Key indicator fish species within the Aquatic Environment RSA include, but are not limited to: all five species of Pacific Salmon (chinook, sockeye, coho, chum and pink salmon), steelhead/rainbow trout, coastal cutthroat trout, bull trout, dolly varden char, lake trout, brook trout, arctic grayling, mountain whitefish, eulachon, northern pike, walleye, burbot and white sturgeon.

The LSA includes the zone of influence (ZOI) that would be likely affected by direct disturbance during construction and operations, including an area extending 100 m upstream of the crossing location and a minimum of 300 m downstream of the proposed crossing location. The boundary of the RSA is the major watershed boundaries crossed by the proposed Project.

Fish and fish habitat has important ecosystem interactions with other VCs, including wetlands, surface water, groundwater, vegetation and wildlife.

Regulatory Background

The following subsection provides a brief summary of federal and provincial legislation, regulations, guidelines and permitting requirements that provide important context for understanding and assessing the potential impact to fish, fish habitat and the aquatic environment. Potential effects and mitigation measures for pipeline construction and operations on the aquatic environment are generally well understood and subject to compliance with federal and provincial regulatory requirements. Authorization requirements for the proposed Project would be determined by regulatory agencies following the review of permitting applications only if an EAC is granted, and frequently after the Proponent finalizes the proposed pipeline route, engineering design details and any relevant management or mitigation plans.

Key federal and provincial legislation applicable to the proposed Project activities include:

- *Fisheries Act* (federal)
- *Oil and Gas Activities Act* (provincial)
- *Water Act* (provincial)
- *Environmental Management Act* (provincial)
- *Species at Risk Act* (federal)
- *Navigation Protection Act* (federal)
- *Fish Protection Act* (provincial)
- *Forest and Range Practices Act* (provincial)

Fisheries Act – Unless authorized by DFO, the *Fisheries Act* prohibits any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. The *Fisheries Act* defines “serious harm to fish” as “the death of fish or permanent alteration to, or destruction of, fish habitat” (DFO 2013). The *Fisheries Act* also has provisions that prohibit the deposition of deleterious substances into waters frequented by fish, ensure the safe passage of fish, require flow of water and passage of fish, as well as require water intakes and diversions to have a fish guard or fish screen.

Based on the new Fisheries Protection Policy (DFO 2013), proponents are responsible for conducting a self-assessment to determine if their proposed project may result in serious harm to fish requiring *Fisheries Act* Authorization. Based on permitting application review and determination by DFO, watercourse crossings or other proposed Project activities that result in unavoidable serious harm to fish may require Authorization under the Section 35(2) of the *Fisheries Act* and offsetting. Serious harm to fish, including permanent alteration or destruction of fish habitat, potentially resulting from construction of some of the proposed pipeline watercourse crossings may require *Fisheries Act* Authorization and offsetting. Offsetting is defined by DFO as “measures to counterbalance serious harm to fish by maintaining or improving fisheries productivity after all feasible measures to avoid and mitigate impacts have been undertaken”.

Oil and Gas Activities Act (OGAA) – The Environmental Protection and Management Regulation (EPMR), under OGAA, includes requirements related to the protection many aspects of the aquatic environment. Pipeline and access road watercourse crossings are required to be designed and constructed following best management practices (BMPs) and mitigation measures in accordance with the *Environmental Protection and Management Guide* (EPMG). The EPMG includes mitigation measures for watercourse

crossings (e.g., crossing methods, least risk timing windows, riparian management areas) to minimize and avoid potential effects fish and fish habitat.

A site-specific review process is required during permitting to assess all proposed structures on fish streams where critical or important fish habitat has been identified; and to assess all open cut trenched pipeline crossings or closed bottom structures where marginal fish habitat has been identified. Trenched pipeline construction methods (e.g., isolation method) at fish streams with “important” or “essential” habitat or channel width greater than 2.5 m are considered non-routine and a request for a deviance and approval is required from OGC.

In the event that a qualified biologist or technician has not determined an appropriate instream construction timing window, construction of a watercourse crossing may only proceed within the regional least risk timing window. In cases where following the least risk timing window is not feasible, an application must be submitted to OGC for approval.

Where stream crossing methods and activities proposed cannot follow the requirements in the EPMR and EPMG, an application must be submitted to OGC for approval with an appropriate rationale and site-specific mitigation measures to minimize impacts to fish and fish habitat.

Water Act – The *Water Act* regulates the allocation and management of surface water and establishes protective measures for groundwater and wells.

Section 8 of the *Water Act* regulates the right to divert and carry out any short-term use of water from a natural waterbody. OGC may need to authorize water withdrawals during hydrostatic testing of the pipeline if water is sourced from surface water supplies.

Section 9 of the *Water Act* regulates and allows for changes in and about a stream in accordance with regulations under the act. The Water Regulation sets out specific conditions under which changes in and about a stream may be carried out. These include timing windows of least risk for instream activities (also known as “instream work windows” or “reduced risk timing windows”) and prohibitions on entry of substances into a stream that may have a potential adverse effect on the stream and measures to protect fish, wildlife and habitat. Least risk timing windows may be subject to change by OGC or other provincial and federal agencies.

Pipeline watercourse crossings for OGC-regulated projects require either approval from, or notification to, the OGC under Section 9 of the *Water Act* and Part 7 of the Water

Regulation. Whether an activity requires notification to or approval from OGC depends on the nature of the work. The approval process requires proponents to submit an application to OGC with all habitat assessments, designs and plans for the proposed works that are needed to assess the potential adverse effects of the proposed works on channel stability, flood levels, fish and wildlife resources and downstream water licences.

Environmental Management Act (EMA) – EMA regulates industrial and municipal waste discharge, pollution, hazardous waste and contaminated site remediation. The Oil and Gas Waste Regulation (OGWR) allows authorization to discharge specific wastes to the environment from specific oil and gas operations, including water and water/chemical mixes utilized for hydrostatic testing of new or existing pipelines. The OGWR does not authorize the release of hydrostatic test water to surface waterbodies or surface watercourses, but it does authorize the discharge of hydrostatic test fluid onto land provided the requirements outlined in Section 7(2)(e) are met.

5.6.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

Background

The Application identified a total of 52 fish species with potential to occur in watercourses within the RSA, including 17 species of conservation concern. Traditional Ecological Knowledge (TEK) participants from Aboriginal communities also identified several fish species (e.g., salmon and eulachon) that are an important part of traditional Aboriginal culture and an important source of food.

The proposed pipeline route would traverse the Peace River, Fraser River, Skeena River and Kitimat River watersheds and would cross a total of approximately 1085 watercourses, including:

- 282 (26%) fish-bearing classified watercourses;
- 270 (25%) non-fish bearing classified watercourses; and
- 533 (49%) non-classified drainages (NCD) or non-visible channels (NVC)

Of the total of 1,085 watercourses crossings, 53 crossings would occur within mapped wetland areas, and 6 would occur on mapped waterbodies (ponds or small lakes). Table 5.5 below provides a summary of watercourse crossings in each watershed.

Table 5-5: Summary of watercourse crossings and fish-bearing classification within each major watershed and sub-basin

Major Drainage	Number of Crossings	Number fish-bearing (% of total)	Number non-fish-bearing (% of total)	Number of NVC/NCD
Peace River Watershed	378	78 (21%)	86 (23%)	214 (57%)
Pine River	189	25 (13%)	63 (33%)	101 (53%)
Parsnip River	137	36 (26%)	23 (17%)	78 (57%)
Crooked River	52	17 (33%)	0	35 (67%)
Fraser River Watershed	341	78 (23%)	26 (8%)	237 (70%)
Salmon River	64	18 (28%)	3 (5%)	43 (67%)
Nechako River	277	60 (22%)	23 (8%)	194 (70%)
Skeena River Watershed	206	73 (35%)	90 (44%)	43 (21%)
Bulkley River	118	57 (48%)	29 (25%)	32 (27%)
Clore River	88	16 (18%)	61 (69%)	11 (13%)
Kitimat River Watershed	160	53 (33%)	68 (43%)	39 (24%)
Kitimat River	146	45 (31%)	65 (45%)	36 (25%)
Minette Bay Tributaries	14	8 (57%)	3 (21%)	3 (21%)
PROJECT TOTAL	1085	282 (26%)	270 (25%)	533 (49%)

Fish habitat assessments were completed at all proposed watercourse crossings. Sampling for fish presence was conducted only at sites with potential fish habitat, and where limited or no historical fisheries data were available. Fish and fish habitat baseline data was used in the Proponent's route selection process to avoid and mitigate potential effects to fish habitat, where possible, and to determine appropriate watercourse crossing locations, construction methods, least risk timing windows and other mitigation measures.

The proposed watercourse crossing methods and mitigation measures including least risk timing windows for each crossing are listed in Table C-1, Master Watercourse Crossing List, in the Application's Appendix 2-G (Fish and Fish Habitat TDR).

Background: Species of Conservation Concern

Seventeen species of conservation concern (i.e., federal or provincially listed species) potentially occur in the aquatic environment RSA. Some species are subdivided by populations, lineages or hybridizations, resulting in 21 separate listings under federal and provincial systems.

Two species of fish listed in Schedule 1 of SARA that occur within the RSA are white sturgeon and westslope cutthroat trout. White sturgeon is classified as Endangered and occurs in the Stuart River, which is crossed by the proposed route. Westslope cutthroat

trout is listed under SARA as a Species of Special Concern, however it is an introduced species stocked in several lakes within the RSA and is not known to be present in any of the watercourses crossed by the proposed route.

Under the provincial listing system, white sturgeon is the only non-introduced red-listed species at risk within the RSA. There are ten Blue-listed species within the RSA including: coastal cutthroat trout, westslope cutthroat trout, bull trout and eulachon.

Bull trout have been ranked by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a Species of Special Concern. Bull trout are known to occur in a number of streams crossed by the proposed route in the Peace, Fraser and Skeena River Basins.

Effects of the Proposed Project

The Application identified a number of potential adverse effects to fish and fish habitat, primarily associated with the construction of pipeline and access road watercourse crossings:

- Alteration or loss of riparian habitat
- Alteration or loss of instream habitat
- Increased suspended sediment concentrations
- Potential for mortality or injury to fish species;
- Temporary blockage of fish movements
- Interbasin transfer of aquatic organisms.

Watercourse crossings involve either digging a trench to bury the pipeline below the bed of the watercourse (“trenched”), or a trenchless method. Options for trenchless crossings include, horizontal directional drilling (HDD) and aerial crossings. Open-cut trench crossing method would be used for non-fish-bearing watercourses or where channels are dry or frozen to the bottom. The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method with mitigation measures to avoid and minimize potential effects to fish and fish habitat.

The Proponent’s proposed pipeline route, watercourse crossing methods and locations have taken into consideration the sensitivity of fish habitat and fish species present at each crossing, habitat characteristics including stream width and stream flow, geotechnical considerations and the ability to effectively implement mitigation measures to protect fish and fish habitat. The timing of all watercourse crossings would be guided by least risk timing windows (see Table C-1 in the Application’s Appendix 2-G for a complete listing of crossing methods, timing windows, and mitigation by watercourse).

The Application identifies nine proposed HDD watercourse crossings on the Murray River, Sukunka River, Burnt River, Parsnip River, Crooked River, Salmon River, Stuart River, Morice River, and Kitimat River.

Access roads and associated watercourse crossings would be confirmed in the permitting stage once a final pipeline route is selected. The Application included general assessment of potential effects to fish and fish habitat and proposed mitigation measures associated with access roads.

Habitat Loss or Alteration

Table 5-6 shows the estimated riparian and instream disturbance areas and percentage within each watershed. The estimated total riparian disturbance area from the proposed Project within the aquatic environment RSA would be approximately 407 ha (0.05% of total). The estimated total instream disturbance area from all watercourse crossings within the aquatic environment RSA would be approximately 14.1 ha (0.03% of total).

Table 5-6: Estimated riparian and instream disturbance areas in the aquatic environment RSA

	Peace River	Fraser River	Skeena River	Kitimat River	Total
RIPARIAN DISTURBANCE					
Total riparian area ha	355,530	203,000	191,946	34,789	785,265
Existing riparian disturbance ha (%)	63,689 (17.9)	63,166 (31.1)	22,394 (11.7)	1,940 (5.6)	151,189 (19.3)
Project riparian disturbance (ha)/%	154 (0.04)	93 (0.05)	96 (0.05)	64 (0.18)	407 (0.05)
INSTREAM DISTURBANCE					
Total instream area ha	20,113	10,193	9,460	2,535	42,300
Existing instream disturbance ha (%)	38.6 (0.19%)	24.0 (0.24%)	16.0 (0.17%)	4.6 (0.18%)	83.2 (0.20%)
Project instream disturbance					
Assuming no trenchless crossings ha (%)	10.0 (0.05%)	4.4 (0.04%)	5.3 (0.06%)	4.4 (0.17%)	24.1 (0.06%)
Assuming proposed trenchless crossings are constructed ha (%)	4.3 (0.02%)	4.0 (0.04%)	3.7 (0.04%)	2.0 (0.08%)	14.1 (0.03%)

Watercourse Crossing Risk Assessment

The Proponent conducted an assessment to determine the level of risk of potential adverse residual effects to fish and fish habitat at proposed watercourse crossings using DFO's Risk Management Framework (2006). Of the 1085 watercourse crossings,

the Application identified 51 (5%) as high risk, 207 (19%) as medium risk, and 824 (76%) as low risk. Two watercourse crossings did not have field verification data available for the purposes of the assessment due to a technical boundary which resulted in no access.

One proposed crossing (the Stuart River, a tributary to the Nechako River) was initially ranked in the Application as potentially significant adverse effect based on the presence of critical habitat for white sturgeon. During Application Review an alternate crossing location was identified by the Proponent to avoid impacting the critical habitat and reduce the risk ranking to high (see Addendum to the Application, March 2014).

Fisheries Act authorizations for serious harm to fish with specific mitigation conditions and offsetting may be required for some medium and high risk watercourse crossings. However, specific watercourses potentially requiring authorization and offsetting would be determined by DFO based on the final proposed route and engineering design details in the permitting phase, and not at the environmental assessment phase.

Mitigation Measures

The Proponent's proposed Project location and design has been the primary mitigation measure to seek to avoid or minimize impacts to fish and fish habitat. The Application provides additional detail on potential effects and proposed mitigation measures for the construction of pipeline and vehicle watercourse crossings. Some of the key mitigation measures proposed in the Application include the following:

- Develop a detailed site-specific watercourse crossing plans that includes mitigation measures to avoid harm to fish and aquatic habitat, water quality monitoring, and riparian and instream habitat restoration plans.
- Adhere to windows of least risk for trenched crossings unless:
 - the crossing is dry or frozen to the bottom at the time of construction;
 - trenchless techniques are employed; and
 - approval from the appropriate regulatory agency is obtained.
- Complete instream works in one working day or in as short a time as practical.
- Install erosion and sediment control at all watercourses
- Develop a water quality monitoring plan with input from an aquatics specialist that includes monitoring for TSS and/or turbidity to monitor for sediment events during instream construction activities.
- For pipeline crossings conducted using a trenchless crossing method:
 - Follow the DFO Operational Statement for Directional Drilling or Punch and Bore Crossings.

- Excavate entry and exit sites far enough from the watercourse to provide for containment of sediments and other deleterious substances above the high watermark.
- Develop and implement an emergency response plan and the Directional Drilling Procedures and Instream Drilling Mud Release Contingency Plan in the event of sediment releases or spills of deleterious substances during the construction of the trenchless crossings.
- Develop and implement a plan for offsets, if and as required by DFO for *Fisheries Act* authorizations for serious harm to fish.

5.6.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the Application Review, the Working Group and the public raised concerns about the potential effects of the proposed Project on fish and fish habitat. In response to common questions raised by Working Group members regarding potential effects to fish and fish habitat, the Proponent provided Technical Memos on Aquatic Resources, Riparian Areas and Access Management (May 13, 2014).

General concerns raised by a number of Aboriginal Groups included requests for additional site-specific assessment at watercourse crossings and for monitoring of construction activities in and around watercourses.

The Proponent responded that descriptions of each watercourse crossing were provided in the Fish and Fish Habitat Technical Data Report (Application Appendix 2G) and that additional baseline data would be collected for detailed engineering designs and would also be used in the development of site-specific watercourse crossing plans and relevant permit applications.

Regarding monitoring, the Proponent responded that environmental monitoring would be conducted during and following construction to ensure that mitigation is implemented and is effective. The Application, including the Environmental Management Plan (EMP), provides information about environmental monitoring during construction at watercourse crossings.

EAO is proposing a condition that would require the development and implementation of a Water Quality Monitoring Plan to inform and support regulatory decision-making by DFO and OGC.

FLNR raised a number of concerns and questions of clarification regarding various aspects of the Application, including: the baseline data collected for individual crossings, including the identification of sensitive habitat (e.g., spawning, rearing or upwelling zones); the identification of contingency crossing methods; risk ratings for specific crossings (e.g., Endako River, Clore River, Gosnell Creek, tributaries within the Morice River watershed); risks regarding sedimentation and substrate effects to fish and fish habitat downstream; and trenched crossings in watercourses where no least-risk timing window has been identified. A number of these concerns were also raised by some Aboriginal Groups, including Wet'suwet'en First Nation.

These issues were discussed at technical Working Group meetings, and at additional meetings between EAO, OGC, the Proponent and FLNR. As a result of these meetings, FLNR was satisfied that the issues were either addressed or would be adequately addressed through existing regulatory requirements and permitting decisions (particularly those outlined previously in this section).

Working Group members and the public raised concerns regarding potential effects to fish and fish habitat from access roads, including temporary and permanent watercourse crossings potentially required outside of the proposed pipeline ROW.

The Proponent responded that clear-span bridges or ice bridges and snowfills during frozen conditions would be used for temporary vehicle crossing of watercourses during construction, and that they would be removed in order to restore habitat following construction. Fording at watercourses would not be permitted. Existing access roads would be utilized where possible.

Watercourse crossings for temporary and permanent access roads and upgrades to existing roads would be designed and constructed following applicable regulations and guidelines (i.e., *Environmental Protection and Management Guide* [OGC 2013], *Fish-Stream Crossing Guidebook* [FLNR, DFO 2012]), with mitigation measures to avoid impacts to fish and fish habitat.

Working group members raised concerns regarding potential effects associated with HDD crossings including potential inadvertent loss of drilling mud fluid (i.e., "frac outs") and potential effects to fish habitat.

The Proponent further explained their relevant mitigation measures including water quality monitoring, and the development of an emergency response plan and Directional Drilling Procedures and Instream Drilling Mud Release Contingency Plan, which would be implemented in the event of sediment releases.

Concerns were raised by FLNR, Nak'azdli Band, Nadleh Whut'en First Nation and the public regarding the Stuart River crossing proposed in the Application and in particular potential impacts to white sturgeon.

As previously noted, during Application Review the Proponent proposed an alternate crossing location for the Stuart River to avoid impacts to critical habitat for white sturgeon. A portion of the Stuart River, located approximately two km downstream of the proposed crossing location has been identified as Critical Habitat for late juvenile and adult stages of white sturgeon under the SARA recovery strategy. The Proponent notes that a trenchless crossing method would be preferred in consideration of available information and would be subject to further detailed design as construction planning advances.

In response to concerns raised by the Nee-Tahi-Buhn Band about the Tchesinkut Creek Crossing, an alternative corridor has been proposed in an Addendum (June 2014) that avoids multiple crossings of Tchesinkut Creek. The proposed alternative corridor is also adjacent to the proposed Pacific Trail Pipeline route that could allow for sharing of disturbed area and potentially reduce the overall footprint.

Questions were raised by Haisla Nation regarding the potential adverse effects of noise and vibration on fish and fish habitat, particularly resulting from the use of explosives.

The Proponent noted that construction of the proposed pipeline and watercourse crossings would follow applicable legislation and guidelines, including the "Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters" (DFO 1998). Mitigation measures would be implemented for blasting near fish-bearing watercourses, including: isolation of the worksite, fish salvages, bubble curtains, and sequencing of blast charges to avoid potential effects to fish.

Questions were raised by several Aboriginal Groups, including Wet'suwet'en First Nation, regarding recent amendments to the federal *Fisheries Act* and whether the Risk Management Framework (DFO 2006) used in the Proponent's Application to assess potential impacts to fish habitat was still applicable. There were additional questions of clarification regarding the requirements under the *Fisheries Act*.

The Proponent provided additional explanation on the requirements under the *Fisheries Act* and clarified that they understand the framework would still apply. The Proponent commits to submit a Request for Review or an Application for Authorization under Paragraph 35(2)(b) of the *Fisheries Act* to DFO prior to

construction, to confirm Authorization and offsetting requirements for serious harm to fish for any watercourse crossings ranked as medium risk or high risk identified in the Application (Appendix 2G, Table J-1), and any additional medium risk or high risk watercourse crossings proposed for the final pipeline route and access roads. In the event offsetting plans are required consultation would occur with Aboriginal Groups and appropriate provincial agencies.

Wet'suwet'en First Nation raised concerns regarding the effects of riparian habitat alteration and lack of large trees and mature riparian function (e.g., stream cover, shade) from clearing and maintenance of riparian vegetation along the ROW. In order to protect the pipeline from potential damage, large trees would be prevented from establishing near pipeline watercourse crossings in a limited area within the ROW, however small shrubs and trees would be established to provide riparian function.

The Proponent clarified that the removal of riparian vegetation for construction of proposed pipeline and vehicle watercourse crossings, and maintenance of vegetation during operations would be limited within riparian management areas within the proposed ROW. Mitigation measures and BMPs with classified riparian areas for streams, wetlands and lakes would be required to follow OGC's requirements under the *Environmental Protection and Management Regulation* (EPMR) and guidelines for protection of riparian habitat.

5.6.4 Characterization of Residual Project Effects

Considering the potential for effects once the proposed mitigation is applied, EAO concludes that the proposed Project is likely to result in the following residual adverse effects to fish and fish habitat during construction:

- alteration and loss of instream and riparian habitat
- increased fish mortality and injury

Based on standard practices and mitigation measures, during operations the proposed Project has a very low likelihood of having a residual effect on fish and fish habitat, and any impacts would arise from accidents and malfunctions are considered in section 10.3 of this report.

Summarized below is EAO's assessment of the expected residual effects of the proposed Project on fish and fish habitat, as well as EAO's determination of significance based on the residual effects characterization.

Criteria	Assessment Rating	Rationale
Context	Habitat and Mortality: Undisturbed; variable sensitivity	<p>Habitat: Habitat sensitivity is considered in the risk rankings of watercourses. Critical habitat (e.g., spawning habitat) for fish species of conservation concern has a higher sensitivity to disturbance.</p> <p>Mortality: Fish species of conservation concern have a higher sensitivity and lower resilience to disturbance.</p>
Magnitude	Habitat and Mortality: Low-Medium	<p>Habitat: The total habitat impacted by proposed Project is relatively low. However, within some watercourse there is the possibility that the proposed Project would impact moderately sensitive habitat and would have “serious harm” to fish, requiring habitat offsetting.</p> <p>Mortality: The proposed Project has the potential to increase mortality of some fish species, but not in numbers that would affect the local populations.</p>
Extent	Habitat and Mortality: Local	Potential residual effects to fish habitat and fish mortality risk would be within the LSA (i.e., primarily 100 m upstream and 300 m downstream).
Duration	Habitat: Medium term to long term Mortality: Short term	<p>Habitat: The duration of the effects depend on the instream habitat characteristics, timing and extent of disturbance, effectiveness of mitigation, post-construction reclamation, habitat restoration (and offsetting, if required), and natural stream channel and riparian restoration. However, considering the existing regulatory regime and past practice, the measureable effect is anticipated beyond construction, but material effects would generally not be present beyond a few years.</p> <p>The duration of impacts to riparian habitat would depend on the re-establishment of riparian vegetation following construction, which would take approximately 3-5 years. Effects at some watercourses may extend for the duration of the proposed Project due to lack of large trees and mature riparian function (e.g., stream cover, shade) along the ROW.</p> <p>Mortality: Potential for fish mortality or injury would be</p>

Criteria	Assessment Rating	Rationale
		limited to the duration of instream construction activities at each watercourse crossing.
Reversibility	Habitat and Mortality: Reversible	Habitat and Mortality: The residual effects on fish habitat and mortality are expected to be reversible with reclamation, and in some cases offsetting.
Frequency	Habitat and Mortality: Once	Habitat and Mortality: Frequency of fish mortality and habitat disturbance would occur one time, during instream construction activities.
Likelihood		Habitat: The likelihood of residual effects to instream and riparian habitat would vary from low to high, depending on the watercourse and crossing method. Mortality: The likelihood of fish mortality would generally be low, but would somewhat depend on watercourse crossing method and fish presence.
Significance		Taking into consideration the magnitude of the potential effect, as well as their short duration and reversibility, EAO concludes that the potential residual effects of the proposed Project on fish and fish habitat are not likely to be significant.
Confidence		The significance determination and likelihood rating for potential residual effects are determined with high confidence, based on effective implementation of the proposed mitigation measures, particularly existing federal and provincial regulatory requirements, as well as well-developed industry best management practices and compliance with the proposed EAC conditions.

5.6.5 Cumulative Effects Assessment

The Application included a cumulative effects assessment of the combined residual effects that the proposed Project, existing projects and reasonably foreseeable future projects could have on riparian and instream habitat disturbance and fish mortality or injury, including blockage of fish movement within each watershed.

Table 5-7 below provides the following two estimates of the instream disturbance arising from the construction of the proposed Project, which includes an assumption that all proposed trenchless crossings are implemented and that none of the proposed trenchless crossings are implemented.

Table 5-7: Estimated existing and future instream disturbance in the aquatic environment RSA

	Peace River	Fraser River	Skeena River	Kitimat River	Total (RSA)
Total Instream Area ha	20,113	10,193	9,460	2,535	42,300
Existing Instream Disturbance ha (%)	38.6 (0.19)	24.0 (0.24)	16.0 (0.17)	4.6 (0.18)	83.2 (0.20)
Proposed Project's Instream Disturbance ha (%)	4.3 (0.02)	4.0 (0.04)	3.7 (0.04)	2.0 (0.08)	14.1 (0.03)
Reasonably Foreseeable Development Instream Disturbance ha (%)	6.9 (0.03)	12.1 (0.12)	13.3 (0.14)	16.23 (0.64)	48.55 (0.11)
Total Cumulative Instream Disturbance ha (%)	49.8 (0.25)	40.1 (0.39)	33.0 (0.35)	22.8 (0.90)	145.85 (0.34)

The total increase in cumulative instream disturbance in the RSA would be 146 ha, or 0.34%, ranging from a low of 6.9% (0.03%) in the Peace to 16 ha (0.64%) in Kitimat. The proposed Project would contribute from 0.04% to 0.08% to the cumulative instream habitat disturbance areas in the major river watersheds.

The BC Interior Watershed Assessment Procedure (FLNR and MOE) identifies hazard levels based on percentage of cumulative riparian disturbance in a watershed (low hazard: 0-9% disturbed; medium hazard: 9-18% disturbed; high hazard >18%). Table 5-8 shows the existing riparian disturbance by major watershed, and projected riparian disturbance associated with the proposed Project, associated with other reasonably foreseeable development, and cumulatively. Potential cumulative adverse effects risk resulting from riparian disturbance is currently low in Kitimat River watershed, moderate in Skeena River watershed, on the border between moderate and high in the Peace River watershed and high in Fraser River watershed. Currently, forest harvesting and agriculture are the largest contributors to riparian disturbance, contributing 61% and 17% to total existing riparian disturbance in the RSA.

Table 5-8: Estimated Existing and Future Riparian Disturbance in the Aquatic Environment RSA

	Peace River	Fraser River	Skeena River	Kitimat River	Total (RSA)
Total Riparian Area ha	355,530	203,000	191,946	34,789	785,265
Existing Riparian Disturbance ha (%)	63,689 (17.9)	63,166 (31.1)	22,394 (11.7)	1,940 (5.6)	151,189 (19.3)
Proposed Project's Riparian Disturbance ha (%)	154 (0.04)	93 (0.05)	96 (0.05)	64 (0.18)	407 (0.05)
Reasonably Foreseeable Development Riparian Disturbance ha (%)	3,226 (0.91)	1,429 (0.70)	477 (0.25)	225 (0.65)	5,357 (0.68)
Total Cumulative Riparian Disturbance ha (%)	67,069 (18.9)	64,688 (31.2)	22,967 (12.0)	2,229 (6.4)	156,953 (20.0)

Due to the very short duration of impacts to fish mortality, and proximity and timing of other projects and activities, these effects are not reasonably expected to cumulate with past, present, or reasonably foreseeable projects and activities.

No additional mitigation beyond the Project-specific measures is presented in the Application or were identified or deemed necessary to mitigate potential cumulative effects.

Concerns were raised by FLNR, MOE and several Aboriginal Groups regarding the uncertainty and lack of assessment on potential cumulative effects associated with current and future non-linear disturbances (e.g., forestry cutblocks, mining projects, agricultural run-off) in watersheds along the proposed route.

The Proponent noted that the cumulative effects assessment in the Application included using stream crossing densities in each watershed as a quantitative metric to allow an understanding of the potential cumulative effects of the proposed Project in relation to existing and reasonably foreseeable future developments. The Application's cumulative effects assessment also included estimates of existing and future instream and riparian disturbance areas in each watershed, including linear (e.g., roads, pipelines) and non-linear activities (e.g., forestry cutblocks, agricultural areas).

The potential residual cumulative effects to instream habitat loss area are assessed as having a low magnitude, while the potential residual cumulative effects related to loss of riparian habitat are considered moderate to high. Overall cumulative effects to fish and fish habitat are considered not significant.

5.6.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on fish and fish habitat.

5.7 Surface Water

5.7.1 Background

The key indicators for this VC include changes to surface water quality (e.g., turbidity, total suspended solids [TSS], metals, temperature and pH) and surface water quantity (e.g., discharge rates). The assessment focused on surface water within watercourse crossings, as well as natural surface water flow and drainage along the construction footprint. EAO has assessed the acid rock drainage (ARD) VC in this section.

The proposed pipeline route has approximately 1,085 watercourse crossings within the following four watersheds (Peace River, Fraser River, Skeena River, Kitimat River). The proposed route crosses six hydrologic zones in BC:

- Southern Interior Plains
- Southern Rocky Mountain Foothills
- McGregor Basin
- Nechako Plateau
- Southern Hazelton Mountains
- Central Coast Mountains

Baseline surface water quality data collected by the Proponent at watercourse crossings within each hydrologic zone was compared with the Canadian Council of Ministers of the Environment (CCME) *Water Quality Guidelines* (CCME 2002, 2007) and BC's *Approved Water Quality Guidelines* (BC Ministry of Environment, 2006).

Additional information on the regulatory environment is provided in section 5.6.1 (Fish and Fish Habitat) of this report.

5.7.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

Maintenance of surface water quality is important for fish and aquatic habitat, domestic water supplies and community watershed values. Potential changes to surface water quality associated with proposed construction activities include:

- an increase in suspended sediment caused by road and pipeline construction;
- instream construction activities; and
- erosion of approach slopes and stream banks.

Other potential sources of suspended sediment are the inadvertent release of drilling mud during trenchless pipeline watercourse crossings and the disturbance of water intake areas during withdrawal of hydrostatic test water.

Contaminants could enter watercourses via the inadvertent inflow from accidental equipment spills. Indirect introduction of chemical contaminants could also occur where compounds are adsorbed to sediment, deposited from the atmosphere or released during accidents. Potential effects on surface water caused by accidents or malfunctions are discussed in section 10.3.8 of this report.

Open-cut and isolated pipeline watercourse crossing methods have the potential to result in disruptions or alterations of natural stream flow and changes in water quality. However, with successful implementation of the proposed mitigation measures, alteration of natural stream flow following construction would likely be minor at all watercourse crossings where open-cut and isolated pipeline crossing methods are proposed.

Some of the potential adverse effects on water quality and quantity indicators associated with the construction and operations of the proposed Project either do not apply or would be eliminated through the successful implementation of mitigation measures and compliance with regulatory requirements. Neither alteration of stream flow due to withdrawal or release of hydrostatic test water nor changes in water quality resulting from metal leaching and acid rock drainage are likely to result in any residual effects.

Mitigation measures have been proven effective based on well-developed regulatory requirements, industry standards, guidelines and BMPs for pipeline construction and operations. Some of the key mitigation measures proposed in the Application include:

- Develop a detailed site-specific watercourse crossing plans that includes mitigation measures to avoid harm to fish and aquatic habitat, water quality monitoring and riparian and instream habitat restoration plans.
- Adhere to windows of least risk for trenched crossings unless:
 - the crossing is dry or frozen to the bottom at the time of construction;
 - trenchless techniques are employed; and
 - approval from the appropriate regulatory agency is obtained.
- Install erosion and sediment control at all watercourses
- Develop a water quality monitoring plan with input from an aquatics specialist that includes monitoring for TSS and/or turbidity to monitor for sediment events during instream construction activities.
- If monitoring reveals sediment values are approaching threshold values, require the water quality monitors to alert the Environmental Inspectors and work with them to develop corrective actions. If corrective actions are not

successful, require construction activities to be temporarily suspended until effective solutions are identified.

- Construct, install and remove all watercourse vehicle crossings across waterbodies, shorelines, riverbanks and wetlands in a manner that protects the banks from erosion and maintain the flows in the waterway, and in accordance with regulatory requirements.
- Conduct all hydrostatic testing activities in accordance with the *Oil and Gas Activities Act*, Oil and Gas Waste Regulations under the *Environmental Management Act* and the *Water Act*.
- Ensure maintenance of downstream flow at all times when constructing an isolated crossing. Ensure adequate pumping equipment is on site and ready to take over immediately should operating pumps fail. Monitor pumps continuously to avoid equipment failure.
- Ensure water from flumes, dam and pumps, diversion or other methods do not cause erosion or introduce sediment into the channel. Pump sediment-laden dewatering discharge into a vegetated area or settling basin to prevent sediment and other deleterious substances from entering any waterbody.
- Develop and implement site-specific mitigation plans prior to construction for large open-cut crossings.
- Schedule instream work during low-flow periods when possible.

Potential Effects from Acid Rock Drainage

The proposed Project has some potential to cause acid rock drainage (ARD) due to exposure of rock with high sulphide mineral content during construction activities (e.g., blasting of bedrock), which could result in metal leaching and acidification of surface water. Several areas with potential for ARD requiring implementation of standard mitigation measures have been identified within the aquatic environment RSA.

Potential locations for ARD along the proposed route were determined by the Proponent through a desktop evaluation. Results of the analysis of ARD potential identified:

- 52.0 km of the proposed route with relatively high ARD potential;
- 163.5 km of moderate potential;
- 128.8 km of relatively low potential; and
- approximately 259 km of no ARD potential.

The Proponent has noted that 62 km of the proposed route would require further study of ARD potential to inform detailed design.

The Proponent has committed to carrying out field investigation and sampling on high and moderate ARD potential locations, with a few low potential locations to confirm results of the desktop study. Inspection of excavated and exposed bedrock would be completed at locations of potential ARD during pipeline ROW preparation and trenching activities and construction of the access road.

The primary mitigation measure is to avoid areas of high ARD potential. However, in areas where ARD is confirmed through further field studies, the Proponent also committed to undertaking mitigative measures to address potential effects of acid rock drainage, including:

- blending of limestone with potential acid generating (PAG) rock and placing into the trench or excavation as backfill;
- applying shotcrete or a synthetic spray cover on elevated PAG rock faces and diversion of water from exposed PAG rock;
- removing PAG rock for construction; and
- monitoring the runoff from exposed PAG rock.

5.7.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the Application Review, the Working Group and the public raised concerns about the potential effects of the proposed Project

In response to common questions raised by Working Group members regarding potential effects surface water, the Proponent provided Technical Memos on Aquatic Resources and Acid Rock Drainage (May 13, 2014).

Working Group members and the public had questions about the adequacy and effectiveness of the mitigation strategies proposed to minimize the potential adverse effects on water quality and alteration of natural drainage patterns.

The Proponent clarified that mitigation to minimize the effects on water quality and alteration of natural drainage patterns were developed to meet or exceed the following regulatory guidelines:

- *Canadian Water Quality Guidelines* (CCME, 2002, 2007)
- *BC Approved Water Quality Guidelines* (BC Ministry of Environment, 2006)
- *BC Interior Watershed Assessment Procedures Guideline* (BC Ministry of Forests, 1995)
- *Standards and Best Practices for Instream Work* (MWLAP, 2004)

- DFO Pacific Region Operational Statements (DFO, 2008)
- Pipeline Associated Watercourse Crossings (CAPP, 2005)

Potential for streambed sediment deposition would be addressed by monitoring TSS during construction at watercourse crossings, as specified in the Water Quality Monitoring Plan. Standards for acceptable levels of suspended sediment in (set out in the *BC Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments* [BC Ministry of Environment, 2001]) would be adhered to during construction to ensure that suspended sediments remain within acceptable levels and that downstream sediment deposition (e.g., on spawning gravel downstream of watercourse crossings) is avoided.

A Post-Construction Monitoring Program would be implemented over a five-year period following construction. It would include monitoring for stability, erosion and vegetation establishment at watercourse crossings and for alteration of drainage patterns and stream flow, as described in the Environmental Management Plan. EAO has proposed a condition requiring the Proponent to develop and implement a Water Quality Monitoring Plan to address onsite water quality monitoring.

Several Working Group members, including Nak'azdli Band and Nadleh Whut'en First Nation, expressed concern about hydrostatic testing of pipelines; specifically about potential impacts to water level and potential use of chemical additives.

All hydrostatic testing activities would be conducted in accordance with the *Oil and Gas Activities Act*, Oil and Gas Waste Regulations under the *Environmental Management Act*, and the *Water Act*. Hydrostatic testing would be planned to occur during summer or fall when water supply is high and warming of water is not necessary. The Proponent confirmed that there would be no additives put into the water. Testing would be done on the water before placing in pipe and also before releasing.

Office of the Wet'suwet'en, Nak'azdli Band, and Nadleh Whut'en First Nation had a number of questions and concerns regarding ARD, including: future sampling and testing of ARD potential; what backfill material would be used in areas where ARD has been discovered; and the potential effects of abandonment of pipelines as a possible conduit for ARD migration.

The Proponent explained how they conducted their desktop geological study to identify areas along the route with potential for acid rock drainage (PAG)/metal leaching, and how additional studies would be conducted to further assess the

impacts of rock exposure within the two rock mass areas that tested positive for PAG. Further assessment and terrain mapping would continue as construction planning and detailed engineering design advances. The Proponent also noted that their Application committed that any backfill material would need to be acid neutralizing. This requirement would also be part of the information that the Proponent would include in the Acid Rock Construction Response Plan (ARCRP). EAO is proposing a condition that would require the Proponent to develop their ARCRP, to inform and support regulatory decision-making by OGC.

The Proponent identified that there are a number of mitigation measures to address possible ARD migration, such as the use of a hard plug to stop the potential flow of ARD, and appropriate, site specific measures, would be identified in the ARCRP. Decommissioning and abandonment would be required to adhere to the regulatory requirements at that time, and would include development of appropriate plans and mitigation measures.

5.7.4 Characterization of Residual Project Effects

Considering the potential for effects once the proposed mitigation is applied, EAO concludes that the proposed Project is likely to result in the following residual adverse effects to surface water:

- Change in water quality due to increase TSS
- Change in water quantity due to the disruption or alteration of drainage patterns and stream flows

The use of well understood mitigation measures for managing ARD potential, as would be outlined in the required ARCRP, would be sufficient to avoid ARD risk at crossings and areas where pipeline construction would occur in rock formations with high sulphide content. As a result, no residual effect is expected to water quality due to ARD.

Summarized below is EAO's assessment of the expected residual effects of the proposed Project on surface water, as well as EAO's determination of significance based on the residual effects characterization.

Criteria	Assessment Rating	Rationale
Context	TSS and Quantity: Undisturbed; variable	Sensitivity of a watercourse to sedimentation or changes in flows depends on somewhat on the end receptors (e.g., the uses of the water by people and animals). The resilience of a watercourse to localized alteration of natural drainage

Criteria	Assessment Rating	Rationale
	sensitivity	patterns depends on several factors, including: the size of the basin, the natural flow regime, stability of bank materials, existing hydrologic regime and land use conditions within the watershed. Larger watersheds with relatively small alterations are the most resilient.
Magnitude	TSS and Quantity: Low	<p>TSS: Given proven mitigation measures, the TSS would be with regulatory guidelines within the ZOI. They are expected to be within the range of natural variability, and would not affect health of aquatic organisms.</p> <p>Quantity: Any change is expected to be well within the range of natural variability and would not measurably affect the long-term ecological integrity of fluvial systems. Any water withdrawals are limited under the <i>Water Act</i>.</p>
Extent	TSS and Quantity: Localized	<p>TSS: Impacts would be within the ZOI (i.e., an area extending a minimum of 300 m downstream of most proposed crossing locations).</p> <p>Quantity: Potential changes in water quantity may extend beyond the ZOI for some watercourse, but would not be measureable within a system.</p>
Duration	TSS: Short term Quantity: Short term to medium term	<p>TSS: TSS levels would decrease in less than two days after construction at flowing watercourses, but the potential residual effect would not be reversed until dry or frozen-to-bottom open-cut crossings first become inundated with water following construction. Suspended sediments from test water release would settle out within 24 hours. The potential for erosion is expected in the short to medium term until the re-vegetation of slopes and banks occurs.</p> <p>Quantity: Impacts from water withdrawals would be very short term. In some instances it may take more than one year to reclaim natural drainage patterns and streamflow.</p>
Reversibility	TSS and Quantity: Reversible	TSS and Quantity: Once the cause is addressed, the residual effects would be reversible.

Criteria	Assessment Rating	Rationale
Frequency	TSS and Quantity: Once	TSS and Quantity: At any one location the effect would primarily be caused by a single event during construction.
Likelihood	<p>TSS: The likelihood of residual effects to water quality would vary from low to high, depending on the watercourse, crossing method, and success of mitigation measures.</p> <p>Quantity: The likelihood of residual effects to water quantity would be relatively low.</p>	
Significance	Taking into consideration the magnitude of the residual effect, as well as the short duration and reversibility, EAO concludes that the potential residual effects of the proposed Project on surface water are not likely to be significant.	
Confidence	The significance determination and likelihood rating for potential residual effects are determined with high confidence. Based on effective implementation of the proposed mitigation measures; industry best management practices; and compliance with the EAC conditions, federal and provincial guidelines and permitting requirements, there is high confidence the potential residual effects would be minimized and would not be significant.	

5.7.5 Cumulative Effects Assessment

The Application included a quantitative assessment of potential cumulative effects on surface water quality. Runoff from forestry cutblocks, agricultural runoff and other non-point sources of contamination could contribute to cumulative effects on water quality and is reflected in current baseline water quality conditions. Characterization of the potential combined effects on stream crossing density relied on available risk ratings and professional judgement.

Project effects are associated with the construction phase only. In relation to surface water, these construction-related effects are not expected to overlap spatially or temporally with other projects. As a result, EAO considers that the proposed Project would not contribute to residual cumulative effects.

5.7.6 Conclusions

Taking into consideration the proposed mitigation measures to avoid and minimize potential impacts to surface water, as well as recognizing the EAC conditions and

federal and provincial permitting requirements, EAO concludes that the proposed Project would not likely result in significant adverse effects.

5.8 Groundwater

5.8.1 Background

The key indicators for this VC include: changes to ground water quality and ground water quantity. The assessment of this component focused on groundwater aquifers and groundwater supply wells within 1 km of the proposed route.

Potential impacts to groundwater quantity may arise due to water withdrawals from any wells associated with construction-related activities and interruption of groundwater recharge. Potential impacts to groundwater quality could arise due to spills, should they occur.

The assessment of surface water (section 5.7) also applies to that for groundwater because the potential effects on surface hydrology in watersheds and watercourses crossed by the proposed route could also potentially affect groundwater.

5.8.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

Seven mapped aquifers lie within 1 km of the proposed route and are crossed by the route for a total length of approximately 15.9 km. Four of the mapped aquifers are classified as “sand and gravel” aquifers, made up of relatively permeable glacial sediments (e.g., glaciofluvial deposits) or post-glacial fluvial deposits. The other three aquifers are composed of fractured bedrock.

Of the seven aquifers crossed by the proposed route, six are rated as low vulnerability. One aquifer composed of bedrock has a moderate vulnerability rating and is crossed by the proposed route for approximately 1.5 km (between KP 442.2 and KP 443.8).

The demand on all aquifers crossed by the proposed route is rated as low or moderate. The seven aquifers contain:

- 22 registered water supply wells located in areas where aquifers have been mapped and classified aquifer; and
- 27 registered water supply wells located in areas where aquifers have not been mapped or classified.

There are also 11 wells near Anzac, 15 wells near the communities of Endako and Savory, and one well near Kitimat.

The Application noted that existing data on the specific locations of springs and groundwater inflow are limited, but springs and groundwater inflow could be

encountered at some locations along the route. Aboriginal TEK participants reported springs located approximately 50 m west of KP 70.6 and 115 m east of KP 96.8.

Groundwater quantity (including subsurface groundwater flow rates and groundwater levels) are not subject to provincial or federal regulation. The quantity (i.e., rate) of groundwater withdrawal or diversion is not regulated in BC, except when the withdrawal rate exceeds 75 L/second. The proposed Project would not exceed this withdrawal rate.

Key mitigation measures proposed in the Application include the following:

- Provide shallow domestic well owners within 200 m of the proposed Project the option to participate in a well-monitoring program prior to construction to determine pre-construction quality and quantity conditions.
- If springs and groundwater are encountered, review the area and determine the appropriate mitigation, as specified in the EMP.

5.8.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the Application Review, the Working Group and the public raised concerns about the potential effects of the proposed Project on groundwater.

In response to common questions raised by Working Group members regarding potential effects to ground water, the Proponent provided a Technical Memo on Aquatic Resources (May 13, 2014).

MOE requested clarification if any of the proposed watercourse crossings might change based on additional field data being collected on groundwater recharge areas and springs within the technical boundary identified in the Application (i.e., near the Morice River).

The Proponent responded that incoming information would continue to inform construction planning and detailed engineering design. Currently, no revisions are anticipated to the proposed crossing method for each watercourse and no additional trenchless crossings are proposed. EAO is proposing a condition that would require the Proponent to provide EAO with technical data reports based on field data collected in the Morice River Technical Boundary Area, in addition to a report that either verifies or updates the conclusions reached in the Application.

The Office of the Wet'suwet'en indicated there are areas of groundwater recharge and groundwater upwelling in streams that are important for bull trout spawning habitat, and

requested confirmation that the Proponent’s winter field program had gathered this information.

The Proponent provided information about the fish and fish habitat winter field program, which included identification of groundwater upwelling and bank seepage locations, and identification of bull trout spawning habitat near proposed watercourse crossings. Results of the field program informed route selection and proposed watercourse crossing methods to mitigate potential effects to groundwater, surface water and fish habitat. This issue was considered under fish and fish habitat in this report.

5.8.4 Characterization of Residual Project Effects

Considering the potential for effects once the proposed mitigation is applied, EAO concludes that the proposed Project is likely to result in the following residual adverse effects to groundwater:

- Disruption of groundwater flow where springs are encountered

Summarized below is EAO’s assessment of the expected residual effects of the proposed Project on groundwater, as well as EAO’s determination of significance based on the residual effects characterization.

Criteria	Assessment Rating	Rationale
Context	High resiliency; low sensitivity	The sensitivity and resiliency of groundwater that may be encountered would vary based on the recharge rate of the aquifer and the extent of disruption of shallow groundwater flow where springs are encountered. In context of regional groundwater and aquifers there is a high level of resiliency and low sensitivity.
Magnitude	Low to medium	The relative magnitude of potential residual effects from disruption of shallow groundwater flow is expected to be generally low, but could be medium depending on the characteristics of the spring encountered (i.e., depth and flow rate). However, at a regional or aquifer level the impacts would be low to negligible.
Extent	Local	Effects on groundwater flow and springs encountered may extend beyond the construction footprint, but would

Criteria	Assessment Rating	Rationale
		primarily be within 1 km of the proposed route.
Duration	Short term	The duration of effects to shallow groundwater flow would depend on the recharge rate of the disrupted spring or aquifer, but any effects are expected to be mitigated during, or shortly following, construction.
Reversibility	Reversible	Potential effects to shallow groundwater flow are expected to be reversible.
Frequency	Once	At any one location the effect would primarily be caused by a single event during construction
Likelihood	Although springs may be encountered, there is a low likelihood that groundwater flow would be disrupted during construction based on the assessment and required mitigation measures.	
Significance	Taking into consideration the magnitude of the residual effect, as well as the short duration and reversibility, EAO concludes that the potential residual effect of the proposed Project on groundwater is not likely to be significant.	
Confidence	Based on the potential effects and proposed mitigation, the significance determination and likelihood rating for the proposed Project's residual effect on groundwater are determined with high confidence.	

5.8.5 Cumulative Effects Assessment

The proposed Project's residual effect on groundwater would occur during the construction phase and be limited to very localized, short-term impacts to specific springs and groundwater flows. Therefore these effects are not expected to materially overlap spatially or temporally with other projects or activities. As a result, EAO has concluded that the proposed Project would not contribute to residual cumulative effects.

5.8.6 Conclusions

Taking into consideration the proposed mitigation measures to avoid and minimize potential impacts, as well as recognizing the Environmental Assessment Certificate conditions, EAO concludes that the proposed Project would not result in significant adverse effects to groundwater.

5.9 Wetland Function

5.9.1 Background

Wetlands support unique assemblages of plants and ecological communities, provide important habitat for wildlife, moderate water flow and maintain water quality.

The potential for the proposed Project to adversely affect the Wetland Function Valued Component was assessed in terms of three key indicators that represent the major ecological functions provided by wetlands:

- hydrologic function – the capacity of wetlands to store and release surface water, thereby providing flow moderation, erosion and shoreline protection, and contributing to groundwater recharge;
- habitat function – providing habitat for plants, wildlife and fish; and
- biogeochemical function – the maintenance or improvement of water quality, nutrient cycling and export, and carbon sequestration and storage.

The LSA is a 2-km corridor centred on the proposed route. RSA includes wetlands, wetland complexes and riparian wetlands located within the watersheds of all drainages directly affected by the proposed Project.

5.9.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The approximate area of each wetland class within the LSA was calculated for both the wetland aerial imagery interpretation and Terrestrial Ecosystem Mapping (TEM).

Aerial projections of wetlands area in the LSA and RSA, and the area that would be disturbed by the proposed Project, are listed in Table 5-8. Within the study areas, swamps and fens cover the largest areas, while marsh and shallow open water wetlands cover substantially less area. Wetlands connected to surface or groundwater flows (fens, swamps and marshes) cover 80% of the wetlands LSA.

Table 5-9: Distribution and projection of area of wetland class in the wetlands LSA and RSA

Wetland Class	Project Disturbance	LSA Total Area	Approximate % of Total Wetland Area in LSA	RSA Total Area
Bog	49 ha	1,313 ha	17%	62,500 ha
Fen	68 ha	3,140 ha	41%	149,466 ha
Swamp	110 ha	2,524 ha	33%	120,144 ha
Marsh	6 ha	423 ha	6%	20,135 ha
Shallow Open Water	<1 ha	259 ha	4%	12,329 ha

The proposed route and associated facilities would encounter approximately 234 ha of wetlands, which is approximately 3% of the total area of wetlands in the wetlands LSA, and 0.14% of the total wetlands in the wetlands RSA.

Pipeline construction would temporarily alter approximately 219 ha of wetlands, while permanent facilities would disturb approximately 15 ha of wetlands and result in permanent loss of wetland function. The facilities that would contain wetlands within their proposed footprints are the compressor station sites at Wilde Lake, Sukunka Falls and Raccoon Lake. The Application also states that, if warranted, the loss of wetland function at compressor station sites would be mitigated through compensation developed in conjunction with appropriate regulatory agencies.

The proposed crossing of Gosnell Creek in the Morice Region could result in potential adverse effects on wetlands in the Morice District. Targets of no loss of wetland function and zero adverse effects on the Gosnell wetland complex, are set out in the Morice LRMP. The Application states that if deemed necessary to meet those targets, a compensation plan would be developed with the approval of appropriate regulatory authorities.

Ecological communities and plant species at risk occur within wetlands in the LSA. During field surveys undertaken during the 2012-2013 fall to spring- season, 20 wetland ecological communities at risk were identified in the wetlands LSA: two are red-listed wetland communities and 18 are blue-listed wetland communities. Rare plant surveys identified 14 provincially listed wetland plant species in the wetlands LSA: two are red-listed and 12 are blue-listed species. These impacts are considered in the vegetation section 5.11 of this Assessment Report.

Pipeline installation, pipeline maintenance, and ancillary site development can cause changes to hydrological flow or alteration of habitat function. The hydraulic flow and conductivity of wetlands substrate can be affected by stripping, compaction and mixing of the soil structure. Examples of impacts to habitat function could include changes in

floristic species composition, interruption of wildlife movements and fragmentation of natural habitats. Proposed Project activities in or near wetlands during pipeline or ancillary site construction could also cause an increased sediment supply and turbidity of surface waters, thereby affecting biogeochemical function of the wetland.

The Application notes that the proposed route has been aligned to avoid wetlands wherever feasible, including avoidance of the Sukunka River Valley. Other key mitigation measures proposed by the Proponent include:

- Reducing the use of areas within 30 m of a wetland, to the extent practical;
- Reducing the area of disturbance when crossing a wetland;
- Laying geotextile material, matting or log corduroy over sensitive soil and wetland areas to reduce soil and surface vegetation effects, or allowing construction to happen only in frozen winter conditions in these areas to reduce rutting;
- Replacing trench material as soon as feasible and re-establishing pre-construction contours within the wetland boundary to maintain drainage across the right-of-way;
- Compensation, where warranted, for impacts that cannot be avoided or sufficiently mitigated; and
- Post-construction compliance and effectiveness monitoring, and application of adaptive management as required based on monitoring results.

5.9.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the review of the Application, additional issues, potential Project effects and proposed mitigations were raised by regulatory agency and Aboriginal Group representatives. A non-exhaustive list of key issues and comments, specific to the wetlands VC, raised by these groups related to the following:

- permanent loss of wetlands and required compensation;
- additional certainty around site-specific impacts, mitigation, monitoring and compensation; and
- role and responsibilities of the Environmental Inspector.

Permanent Loss of Wetlands

Permanent loss of wetland ecosystems could occur during the construction of the pipeline and permanent facilities associated with the pipeline. FLNR commented that this permanent loss of wetland should be compensated.

West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation were concerned about how the requirement for compensation in the Gosnell Creek wetland complex would be determined and who would be consulted regarding that compensation plan.

The Proponent has committed to the implementation of the mitigation hierarchy specified in MOE's Environmental Mitigation Policy, and would strive to avoid impacts to wetlands to the extent practical. The Proponent further noted that, if warranted, the loss of wetland function at compressor station sites would be mitigated through compensation developed in conjunction with appropriate regulatory agencies.

EAO proposes a condition that would require the Proponent to develop a Wetlands Management Plan, in consultation with Environment Canada, FLNR and OGC, driven by a "no net loss" objective for wetland function, and that would include pre-construction surveys and site specific mitigation, post-construction wetland monitoring to confirm whether residual loss of function occurs, as well as mitigation and compensation measures to address any loss of wetland and function.

Another condition proposed by EAO would require the Proponent to continue to engage with relevant regulatory authorities and Aboriginal Groups in the development and implementation of the monitoring plan and Environmental Management Plans.

Additional Site-Specific Certainty

Regulatory agencies and several Aboriginal Groups, including Wet'suwet'en First Nation, expressed the desire for additional certainty around site-specific impacts, mitigation, monitoring and compensation. Reviewers were concerned that there could be significant effects at localized areas and that it was important to ensure these effects would be avoided, minimized or compensated. The importance of a monitoring plan for wetland restoration was also raised by Nak'azdli Band, Nadleh Whut'en First Nation and Blueberry River First Nations.

FLNR also noted concerns with the fact that wetland functions were not well linked with wetland ecological communities and associated vegetation, and that mitigation was not identified by wetland type.

The Proponent explained that particular aspects of the receiving environment would be considered on a site-specific basis as construction planning and detailed engineering design advance, and then provided to the appropriate regulatory authorities during permitting. They committed to undertaking additional fieldwork to assess the location of particular ecological communities of concern within the Project footprint.

EAO proposes a condition that would require the Proponent to develop a Wetlands Management Plan, as described above.

Roles and Responsibilities of the Environmental Inspector

Yekooche First Nation noted that the mitigation approach proposed in the Application relies heavily on an Environmental Inspector hired by the Proponent, and sought assurance that the Environmental Inspector would have appropriate professional accreditation.

The Proponent committed to hiring Environmental Inspector(s) with experience in environmental inspection or planning. The Environmental Inspector(s) would have an understanding of pipeline construction techniques and take a proactive approach to environmental issues. In addition, the Environmental Inspector(s) would be supported by appropriate resource specialists who have expertise in the particular issues associated with the proposed Project and who would be available on site or consulted, as necessary.

EAO is proposing a condition that would require the Proponent to retain an Environmental Inspector that would have full authority to cease pre-construction and construction activities that are causing unpredicted adverse impacts to environmental valued components.

5.9.4 Characterization of Residual Project Effects

Considering the potential for effects once the proposed mitigation is applied, EAO concludes that the proposed Project is likely to result in the following residual adverse effects to wetlands:

- Loss or alteration of wetland hydrologic, habitat and biogeochemical function

Summarized below is EAO's assessment of the expected residual effects of the proposed Project on wetlands, as well as EAO's determination of significance based on the residual effects characterization.

Criteria	Assessment Rating	Rationale
Context	Low to moderate sensitivity	<p>Wetland hydrologic function, habitat function and biogeochemical function are generally expected to be resilient to disturbance when appropriate mitigation is implemented.</p> <p>Peatlands that rely solely on precipitation for water inputs, such as bogs (17% of the wetlands in the LSA), are expected to be less resilient to hydrologic alteration.</p>
Magnitude	Low to medium	<p>Effects of hydrologic alteration would generally be low, but detectable, until natural flow patterns were restored. Biogeochemical alteration would be detectable until natural flow patterns and vegetation was restored. Impacts would be within the range of natural variability. In some cases, compensation could be used to achieve “no net loss” of wetland function.</p>
Extent	Local	<p>Potential effects are expected to extend to areas adjacent to the proposed route, but within the LSA (1 km from the centreline).</p>
Duration	Short term to long term	<p>With mitigation, the natural flow regime would recover in short term, while impacts from soil compaction would be reversible in the medium term.</p> <p>Wetland habitat would recover in the short term, while treed wetland habitat would take longer to recover and would not be allowed to re-establish until after decommissioning.</p> <p>There would be areas with permanent loss of wetland function where compressor or meter stations are located in wetland areas. However, these areas would be subject to compensation, making the net effect medium to long term instead of permanent.</p>
Reversibility	Reversible	<p>The reversibility of potential residual effects to wetlands varies. All potential residual effects to</p>

Criteria	Assessment Rating	Rationale
		<p>wetland function are considered reversible, although in some cases Project effects would not be reversible until after decommissioning.</p> <p>For areas with permanent loss of wetland the impacts at the site would irreversible, but these areas would be subject to compensation and therefore the impact to wetland function would be reversible.</p>
Frequency	Once to periodic	Disturbance would primarily occur during the construction phase, followed by minor periodic disturbance from maintenance activities.
Likelihood	There is a high likelihood that effects to wetland function would occur from the proposed Project.	
Significance	Given the low to medium magnitude impact to wetland function and the short-term to permanent effects, as well as the mitigation and monitoring measures identified by the Proponent, and proposed conditions, the capacity of the wetland to maintain functional integrity would not be threatened. EAO concludes that the proposed Project would not have significant residual effects on wetlands.	
Confidence	The level of confidence is determined by the understanding of cause-effect relationships and the availability of data pertinent to the area of the proposed Project. Based on the potential effects, proposed mitigation and monitoring, and proposed conditions, the significance determination and likelihood rating for potential residual effects on wetland function are determined with moderate confidence.	

5.9.5 Cumulative Effects Assessment

Since surface disturbances can affect wetland function, existing activities and the proposed Project would act cumulatively to increase disturbance of wetland function in the Wetlands LSA and RSA. The cumulative effects assessment was completed with consideration of objectives identified in the six LRMPs and three SRMPs encountered along the proposed route. Examples of LRMP and SRMP objectives and requirements are as follows:

- Maintain high quality waterfowl lakes and wetland complexes (Prince George LRMP)
- Identification of riparian areas and wetland complexes as important habitat movement corridors should be maintained (Vanderhoof LRMP)
- Inventory and classification of wetlands and prioritization of wetlands reclamation where required (Lakes District LRMP)
- Set targets of no reduction in functional area for regionally important ecosystems including rare wetlands, wetland complexes, Coastal Western Hemlock plant associations and specific wetlands (Morice LRMP)
- Wetlands in the Gosnell / Thautil RMZ are specifically identified with a target of zero incidences of potential adverse effects (Morice LRMP).
- No loss of functionality of culturally significant ecosystems at the landscape level, which includes several wetland types, and zero events related to industrial development that results in damage to aquatic ecosystems and habitat (Morice LRMP).
- Avoid infrastructure development in sensitive ecosystems and ecological compensation of equivalent size where non-recoverable losses occur (Morice LRMP).

Table 5-9 provides a summary of the cumulative hectares of disturbance to wetlands in the LSA and RSA. There is existing surface disturbance to 12.7% of wetlands in the RSA. The proposed Project and other proposed projects and activities would cumulatively result in 13.4% of wetlands in RSA being disturbed. The proposed Project contributes an incremental 0.1% of the total cumulative disturbance in the RSA, and 2.6% in the LSA.

Table 5-10: Cumulative disturbance of BC FWA wetlands in the wetlands LSA and RSA

Wetland Cumulative Disturbance Assessment	Wetlands in LSA (ha)	Wetlands in RSA ^b (ha) ^c
Total Area of Wetlands	7,659 ha	165,930 ha
Total Cumulative Wetland Disturbance	1,519 ha	22,236 ha
Disturbance Attributed to Existing Activities	1,231 ha	21,056 ha
Disturbance Attributed to Known Future Developments	92 ha	978 ha
Disturbance Attributed to the Proposed Project	196 ha	202 ha

Residual adverse cumulative effects are considered significant when there is a long-term or irreversible potential residual adverse cumulative effect with a magnitude that is predicted to exceed an acceptable biological threshold or standard, or is predicted to affect the indicator population such that stated management or conservation objectives might not be attainable.

EAO concludes that the residual adverse effects to wetlands within the RSA from the proposed Project and reasonably foreseeable future projects are not likely to be significant.

5.9.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on wetland function.

5.10 Wildlife and Wildlife Habitat

5.10.1 Background

Key indicators for the wildlife and wildlife habitat Valued Component were identified and assessed for their potential to be adversely affected by the proposed Project. The indicators chosen include wildlife communities by habitat type, species groups, species at risk, and species of management importance or social or cultural importance (see Table 5-10).

Table 5-11: Wildlife communities assessed

Valued Component	Key Indicator
Wildlife and Wildlife Habitat	Mammals: Grizzly bear Woodland caribou Moose Mountain goat Marten Fisher Bats Amphibians: Pond-dwelling amphibians Western toad Coastal tailed frog Birds: Mature/old seral forest birds Early seral forest birds Wetland birds Grass/shrub land birds Canada warbler Rusty blackbird Common nighthawk Marbled murrelet Northern goshawk (coastal and interior subspecies) Band-tailed pigeon Western screech-owl

Wildlife baseline conditions were characterized in the Application by means of literature review, desktop analysis, Traditional Ecological Knowledge (TEK), field surveys conducted by the Proponent in 2013, habitat suitability modelling, and consultation and engagement with regulatory agencies, Aboriginal Groups, municipalities, landowners, and public stakeholders.

The wildlife LSA is a 2-km corridor centred on the proposed route, and the RSA is a 30-km corridor. Exceptions are the caribou RSA, which is delineated by the ranges of the Hart Ranges and Telkwa caribou herds, and the grizzly bear RSA, which is delineated by the province's Grizzly Bear Population Units (GBPUs).

5.10.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

Three main potential Project effects were identified and assessed in the Application:

- *Change in habitat suitability and effectiveness* – Habitat loss and alteration can cause displacement of wildlife through direct loss of habitat or, indirectly, through disturbance that causes wildlife to avoid an area. The Proponent used habitat suitability models to estimate the amount of effective habitat for many of the key indicator species and estimated the change in effective habitat from construction and operation of the proposed Project.
- *Change in movement to and through habitat* – The alteration or disturbance of habitat from the construction and operations of the pipeline, compressor station, and ancillary sites could reduce habitat connectivity and create barriers or filters to wildlife movement.
- *Change in mortality risk* – The creation of corridors, including for the pipeline right-of-way and access roads, could increase human and predator access to wildlife habitat. Maintaining early seral stages of habitat along the pipeline ROW may also attract some species to the corridor. This would increase the risk of wildlife mortality by predators as well as by hunters, trappers and poachers. Construction and operation of the Project could also cause mortality through vehicular collisions with wildlife and direct human–wildlife conflicts.

The construction of the proposed Project would result in the clearing of vegetation, and would either create a new corridor in undisturbed habitat or widen an existing corridor where it is continuous with another linear feature. Most of the Project footprint is expected to be reclaimed following construction, with temporary workspace and a large portion of the pipeline ROW being allowed to regenerate to natural vegetation communities. A portion of the ROW, approximately 10 m wide, is expected to be maintained in early seral stages of vegetation throughout the life of the pipeline operation, and periodic maintenance would continue to disturb areas of the ROW over

the life of the Project's operation. Indirect habitat loss would occur as a result of fragmentation, creation of edges and creation of sensory disturbance.

Sensory disturbance associated with the pipeline construction and reclamation is expected to be relatively localized and of short duration. However, sensory disturbance associated with noise and artificial light at the proposed compressor stations and with use of access roads and maintenance of the pipeline would be ongoing over the life of the proposed Project. Noise would impact the effectiveness of habitat in proximity to compressor stations, especially for species that are particularly sensitive to human disturbance.

The proposed Project's potential effects on specific Wildlife Key Indicators are discussed below.

Mammals

Grizzly bear – Grizzly bears are blue-listed (special concern) in BC because they are particularly sensitive or vulnerable to human activities. They are also federally listed as a species of special concern because their range and population have been greatly reduced as a result of development-related habitat fragmentation and increased human conflicts. Grizzly bears are sensitive to human disturbance, and potential cumulative effects of human disturbance are identified as the greatest threat to bear populations.

The proposed pipeline route crosses six Grizzly Bear Population Units (GBPUs). All six are considered viable, although two have been closed to hunting because they have populations of fewer than 100 bears. The combined population estimate for these six GBPUs is 1,410 adults. The BC Ministry of Environment has identified objectives for viable GBPUs, including maintaining current population abundance and distribution.

Areas with high habitat value and low mortality risk (i.e., roadless areas) are important for grizzly bears. This core security habitat is defined as an area larger than 10 km² (1,000 ha) with no motorized access. The proposed Project would intersect a total of 24 core security habitat areas for grizzly bear that are available at existing conditions. The number of core security areas would decrease in the Francois GBPU. In the remaining GBPUs the total number of core security areas above 10 km² would not be reduced. The Application predicts a decrease of 0.1% to 0.6% in the total area of grizzly bear core habitat in the GBPUs as a result of the proposed Project (Table 5-11). The Application concludes that it is unlikely the proposed Project would result in barriers between these core patches. The creation of new access resulting from the pipeline right-of-way within grizzly bear habitat is the most serious potential effect to grizzly bears from the proposed Project. In the Accounts and Measures for Managing Identified

Wildlife, FLNR recommends minimizing the amount of areas with $>0.6 \text{ km/km}^2$ of open road in grizzly bear habitat. The application estimates that the average existing motorized access density is above 0.6 km/km^2 in the Hart, Nation, Nulki and Francois GBPUs, and at 0.6 km/km^2 in the Bulkley Lakes GBPU and below 0.6 km/km^2 in the Parsnip GBPU. The proposed Project would result in an increase in average linear density of less than 0.01 to 0.02 km/km^2 in the GBPUs.

The proposed Project would result in clearing and disturbance of grizzly bear foraging habitat. The Application estimates that the proposed Project would reduce effective spring foraging habitat by 7.4% and fall foraging habitat by 5.9% within the LSA. Effective habitat includes moderate, moderately high and high habitat rating classes.

Table 5-12: Population size and change in average linear density and core habitat area for GBPUs affected by the proposed Project

GBPU	Population estimate	Linear Density			Core Habitat
		Baseline average access density (km/km^2)	Project condition access density (km/km^2)	Increase in average access density	Decrease in core habitat area
Hart	244	0.89	0.89	0.8 %	0.6 %
Parsnip	455	0.38	0.39	1.2 %	0.7 %
Nation	170	1.06	1.06	0.5 %	0.1 %
Nulki	44	1.70	1.71	0.4 %	0.3 %
Francois	58	1.08	1.09	0.6 %	0.4 %
Bulkley-Lakes	439	0.60	0.62	3.4 %	0.7 %

Loss of individual bears could occur as a result of bears being destroyed or relocated due to bear-human conflicts. Hunting and poaching, and collisions with vehicle traffic are also key factors in grizzly bear mortality. Within the affected GBPUs the Application notes that hunting is the primary cause of mortality for grizzly bears, except in the Nulki and Francois GBPUs, where vehicle collisions are the primary cause of mortality. The Proponent proposes to develop and implement a Human–Wildlife Conflict Management Plan that would include measures to prevent any direct bear mortalities associated with the construction and operations of the Project.

Woodland caribou – The proposed Project would result in habitat clearing and the creation of new linear corridors in the range of the Hart Ranges caribou herd, a mountain caribou ecotype in the Omenica Region and the Telkwa caribou herd, a northern caribou ecotype in the Skeena Region. Mountain caribou are red-listed by the Province, while northern caribou are blue-listed. The federal government considers both herds to be part of the southern mountain caribou population, which is listed as

threatened under SARA. The current population of the Hart Ranges herd is estimated at 459 animals (129 animals in northern Parsnip sub-herd would be affected by the Project) and declining. The current population of the Telkwa herd is estimated at 19 animals and declining.

There is currently a high level of habitat disturbance in both the Hart Ranges and Telkwa caribou ranges. The Application assessed functional habitat disturbance (direct and indirect disturbance) to be approximately 32% of the total Hart Ranges caribou range and 46% of the total Telkwa caribou range (Table 5-12).

The Province announced the Mountain Caribou Recovery Implementation Plan in 2007, with the goal to stop the decline of mountain caribou populations by 2014 and recover the population to pre-1995 levels (2,500 animals) within 20 years.

The federal government released the Recovery Strategy for the Woodland Caribou, Southern Mountain population on June 3, 2014. The plan defines critical habitat to include maintenance of greater than 65% of low elevation winter habitat and matrix habitat, and all high elevation winter and summer range and low elevation summer range in an undisturbed state for the northern group caribou (i.e., Telkwa) and maintenance of 100% of all remaining habitat types for southern group caribou (i.e., Hart Ranges), from all cumulative impacts including loss due to mountain pine beetle and fire. Environment Canada confirmed that the pipeline ROW as currently proposed would likely result in the loss of 269 ha of high-elevation critical habitat for the Hart Ranges herd (including direct and functional disturbance). Mapping of critical habitat for the Telkwa herd is underway, but will not be complete until 2015.

The Application states that the proposed Project would directly disturb 383 ha and create a functional disturbance of 2,369 ha within the range of the Hart Ranges herd. Functional disturbance is the direct disturbance plus a 500-m buffer to account for avoidance by caribou near disturbed areas. The proposed Project would cross a high-elevation UWR (u-7-003 P-003) in the Hart Ranges, intended to maintain old-forest habitat and reduce displacement and predation, as well as two corridor UWRs (u-7-003 P-028 and P-062) intended to maintain landscape connectivity. The proposed Project would directly disturb 46 ha and create a functional disturbance of 236 ha within the UWRs (Table 5-12). One compressor station (Mount Bracey) is proposed at low elevation within the Hart Ranges caribou range, but not within the UWRs.

The proposed Project would directly disturb 245 ha and create a functional disturbance of 334 ha in the range of the Telkwa herd. The proposed Project would cross one proposed WHA (6-333) in the Telkwa range. WHAs are designated to conserve those

habitats considered most limiting for the species. The proposed Project would directly disturb 51 ha and create a functional disturbance of 490 ha within the proposed WHA (Table 5-12). One compressor station (Titanium Peak) is proposed within the Telkwa caribou range.

Caribou are likely to alter their movement to avoid noise, activity and disturbance associated with construction activities, as well as noise from permanent facilities such as compressor stations, which could increase energetic demands. The ROW could provide a travel route for predators, increasing the predations risk to caribou.

Mitigation identified in the Application includes avoiding the creation of permanent access (with the exception of access for permanent facilities) within caribou range – and in particular UWRs for caribou – and implementing access control measures. The Application states that the Proponent would not be able to follow the OGC’s recommended timing windows for Northern Boreal caribou for construction within the Hart Ranges high-elevation UWR (which are considered the best available guidance for mountain caribou). The Proponent does commit to consulting with regulatory agencies to develop further mitigation and monitoring strategies for the Hart Ranges caribou and the Telkwa caribou.

Table 5-13: Predicted change in caribou habitat

Caribou Range/UWR	Area (ha)	Habitat Disturbance ^a	Baseline Conditions (ha)	Project Conditions		
				Project (ha)	Incremental Change (ha)	% Change
Hart Ranges	1,246,057	Direct Anthropogenic Disturbance	136,010	136,393	383 ↑	0.3 ↑
		Functional Disturbance	392,656	395,025	2,369 ↑	0.6 ↑
		Undisturbed	853,401	851,032	2,369 ↓	0.3 ↓
Hart Ranges UWR u-7-003	492,222	Direct Anthropogenic Disturbance	13,856	13,902	46 ↑	0.3 ↑
		Functional Disturbance	58,129	58,365	236 ↑	0.4 ↑
		Undisturbed	434,093	433,857	236 ↓	0.1 ↓
Telkwa Range	310,131	Direct Anthropogenic Disturbance	60,482	60,727	245 ↑	0.4 ↑
		Functional Disturbance	143,042	143,376	334 ↑	0.2 ↑
		Undisturbed	167,090	166,756	334 ↓	0.2 ↓
Telkwa proposed caribou WHA 6-333	262,744	Direct Anthropogenic Disturbance	38,989	39,040	51 ↑	0.1 ↑
		Functional Disturbance	103,056	103,546	490 ↑	0.5 ↑
		Undisturbed	159,688	159,198	490 ↓	0.3 ↓

Notes:

^aDirect anthropogenic disturbance is the area of anthropogenic disturbance (direct footprint). Functional disturbance is the area of anthropogenic disturbance buffered by 500 m, and fire <40 years. Undisturbed is the area of caribou range outside of functional disturbance (*i.e.*, undisturbed habitat).

Presented area (ha) values are rounded. Incremental and percent change was calculated using the full (*i.e.*, not rounded) values. ↓ represents a decrease and ↑ represents an increase

Moose – Moose populations in the province are generally considered healthy. However, recent declines in the central Omenica, Skeena and other northern regions have raised concerns among Aboriginal Groups, resident hunters and guide outfitters. The reasons for the declines are not well understood and as a result FLNR has initiated a five-year study to investigate causes of moose mortality. FLNR is also developing a provincial moose management framework and regional moose management plans.

Moose populations are considered more sensitive to human- and predator-caused mortality than to habitat loss and fragmentation. The Application notes that the linear corridors created by the proposed Project could increase wolf predation and hunting pressure. Increased early seral vegetation along the Project ROW may increase local densities of moose and create increased mortality risk.

The Wildlife RSA contains 2,762 ha of UWR for moose, elk and mule deer, of which 408 ha are in the Wildlife LSA and 16 ha are intersected by the Project footprint. There are also 11,777 ha of proposed UWR for moose in the Kalum Land and Resource Management Plan, of which 1,602 ha are in the Wildlife LSA and 117 ha are intersected by the Project footprint. According to the Application, the proposed Project would reduce effective winter foraging habitat in the LSA by 4% and reduce effective winter shelter habitat by 4.1%.

Mountain Goat – The proposed Project would cause direct and indirect disturbance to mountain goat habitat in the Skeena Region, including 6 ha of direct disturbance in UWR u-6-003, and disturbance in the no harvest zone buffer around UWR u-6-001. The Project has the potential to cause habitat changes that facilitate access and disturbance that displace mountain goats from preferred habitat. Operational activities such as road access use and helicopter overflights may cause disturbance of goats.

Mitigation proposed for mountain goats includes avoiding the creation of permanent access in or near mountain goat UWRs and wherever practical locating permanent and ancillary sites a minimum of 1 km from UWRs and avoiding clearing trees with UWRs and adjacent No Harvest Zones.

Bats – There are four species of bats known to occur along the proposed route, two are blue-listed: the Northern myotis and the Keen’s long-eared myotis. The little brown myotis and silver-haired bat are yellow-listed (apparently secure). Little information is available about bat habitat, movement, population status, trends and threats, but it is expected the proposed Project could result in habitat loss to bats through direct clearing of mature and old forest as well as sensory disturbance. Project construction is expected to clear 7.5% of old forest within the LSA.

Mitigation specific to bats is focused on protecting and reducing disturbance to identified hibernacula or maternity roosts. Pre-construction wildlife surveys are proposed in the Application to identify habitat features that warrant site-specific mitigation.

Furbearers – Fisher populations are declining in the province and habitat loss is the primary long-term threat to fisher populations. Marten are not a species of conservation concern in the province. The proposed Project is expected to reduce effective habitat for fisher natal denning by 7.1% and reduce the year-round effective habitat for marten by 8.3% within the LSA.

Although clearing for pipeline construction would alter habitat at the patch or feature-level habitat scale, it is unlikely to preclude marten or fisher use of the modified habitat within the Project footprint and adjacent areas, although individuals might expend more energy to find resources. Habitat fragmentation has the potential to contribute to habitat loss if suitable habitat patches are reduced below threshold levels.

Where practical, the proposed route parallels existing linear developments and avoids construction of new access (i.e., use existing access) to reduce the fragmentation of habitat patches. Redistributing large-diameter slash (rollback) over select locations on the ROW (e.g., where high levels of coarse woody debris [CWD] is present prior to construction) is expected to reduce the potential adverse effects from the proposed Project by providing cover and facilitating the movement of marten and fisher. Riparian areas are also important movement corridors for furbearers. Trenchless watercourse crossings (where appropriate), measures to reduce riparian clearing during trenched watercourse crossing installation, and reclamation of disturbed riparian areas would reduce potential adverse effects from the proposed Project on mammal movement.

Amphibians

The Application assessed the impacts of the proposed Project on pond-dwelling amphibians, Western toad, and Coastal tailed frog. Vegetation clearing (wetland and terrestrial habitats), road building and interruption of surface water drainage, soil handling and artificial nighttime light would reduce the availability of effective amphibian

habitat. Amphibian abundance is often lower in cleared areas and second-growth stands than in mature forests due to changes in microclimate. The proposed Project would reduce effective breeding habitat for pond-dwelling amphibians by 2.4%, reduce effective breeding habitat for western toad by 2.6%, reduce effective hibernation habitat for western toad by 4.7% and reduce effective year-round living habitat by 4.9% within the LSA.

Construction of the proposed Project could create barriers to amphibian movement from brush piles, strung pipe, and open trench, depending on the location. The proposed Project could also increase the risk of amphibian mortality from heavy machinery and vehicle traffic, predation risk, creation of artificial ponds (mortality sinks) and reduced water quality.

Mitigation proposed for amphibians includes reducing the area of disturbance, implementing minimal disturbance construction in upland, wetland and riparian areas to the extent practical and reclamation of disturbed habitat and using directional or shielded lighting where practical to reduce light pollution. Pre-construction wildlife surveys are proposed in the Application to identify habitat features such as breeding sites and wetland and stream habitat, so they can be avoided, or other site-specific mitigation can be applied. The proposed route would avoid wetlands to the extent practical.

Birds

The Application assessed the potential effect of the proposed Project to four bird community types and seven individual species. Factors that could alter bird habitat include vegetation clearing, anthropogenic noise and artificial nighttime light.

As a result of vegetation clearing, earlier seral vegetation stages would replace previously forested areas along the proposed pipeline right-of-way until disturbed areas regenerate in the long term after decommissioning. Vegetation clearing would directly decrease available bird habitat by removing potential nesting and perch trees, and by temporarily removing grassland, shrubland and wetland vegetation. Effective breeding habitat was assessed for all bird key indicators except Western screech owl which was assessed using year round living habitat. Effective habitat in the LSA is predicted to decrease by between 3-10% for the bird key indicators.

Marbled murrelet is listed as Threatened under Schedule 1 of SARA and is blue-listed by the Province. Main terrestrial threats to marbled murrelets include loss and fragmentation of old-growth nesting habitat. The federal government released the Recovery Strategy for the Marbled Murrelet (*Brachyramphus marmoratus*) in Canada on

June 3, 2014, which identifies critical habitat as at least 68% retention of 2002 suitable nesting habitat in the northern mainland coast region where the Project occurs. As of 2011, 97.6% of suitable habitat (420,221 ha) remained in the northern mainland coast region. The proposed Project is estimated to impact 1 ha of high suitability habitat, 37 ha of medium suitability habitat and 140 ha of low suitability habitat.

Mitigation for birds includes conducting pre-construction wildlife surveys to identify habitat features that warrant mitigation and reduced grubbing near watercourses, wetlands and other wet areas to facilitate reclamation of shrub communities. In addition, the proposed route parallels existing corridors and incorporates existing disturbances where practical, to reduce vegetation clearing and habitat fragmentation.

Proposed Mitigation

In addition to the mitigation measures identified above for the various key indicators, the Application identifies a number of key measures to generally mitigate adverse effects to wildlife. In particular, the proposed route and site selection would be the primary mechanism for avoiding or reducing potential adverse effects on wildlife. Other key mitigation and monitoring measures proposed by the Proponent include:

- Where practical, follow existing linear disturbances (i.e., pipeline, utility, seismic and road right-of-ways) to avoid or reduce fragmentation of habitat;
- Use existing clearings (i.e., shared workspace) to reduce the amount of new clearing and land disturbance needed;
- Avoid or reduce lengthy traversing of environmentally sensitive areas such as parks, protected areas, endangered or sensitive vegetation and wildlife habitat, where practical;
- Complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation (i.e., selected to focus on habitats or segments of the proposed route that are determined to have high potential for occurrence of site-specific habitat features that could be adversely affected);
- Use existing access, to the extent practical; and
- Deactivate and reclaim all temporary construction access roads and tote roads (shoo-flies) to pre-construction conditions, as identified in applicable agreements or regulatory direction.

5.10.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During their review of the Application, the Working Group (including Aboriginal Groups), and the public raised several key issues on wildlife and wildlife habitat. These issues and the responses of the Proponent and/or EAO are summarized below.

In response to Working Group comments and questions on the wildlife effects assessment for several key species and issues, the Proponent provided Technical Memos on caribou, grizzly bear, mountain goat and access management (May 13, 2014).

General Issues and Concerns

To better understand how the wildlife assessment calculated the habitat and mortality impacts, a number of Working Group members including FLNR, Wet'suwet'en First Nation, West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, Nak'azdli Band and Nadleh Whut'en First Nation, requested clarification regarding the footprint that was used in the assessment. In particular: 1) the areal extent of footprint used to quantify Project effects; 2) the features that were assessed qualitatively; and, 3) how the effects of any features not included in the footprint in the assessment (e.g., access roads) were or would be assessed.

The Proponent responded that quantitative analysis for the proposed pipeline route assumed a 100 m wide corridor, as it reflects the construction right of way and temporary workspace. Quantitative analysis also considered the permanent facility footprints of the meter stations and compressor stations. The Proponent would seek to use existing roads and trails to the extent practical, and minimize the construction of new roads. Temporary ancillary facilities such as camps, stockpiles, and borrow pits were assessed qualitatively. The Proponent would be required to provide detailed information about temporary ancillary facilities to the OGC during the permitting phase, and the impacts of these areas on wildlife would be assessed.

Several Working Group members raised concerns that compressor stations would be present and operational throughout the operations phase, and would result in long-term disturbance of environmental values, particularly wildlife.

The Proponent characterized the potential effects of compressor and meter stations in the Application. EAO is proposing a condition requiring the Proponent to develop a Wildlife and Wildlife Habitat Management Plan that would capture all relevant wildlife mitigation set out in Appendix 2A of the Application and technical

memos. The Plan would provide specific information on how and when mitigation measures would be implemented and would include site assessment surveys for all habitat features of SARA schedule 1 listed species. EAO has also proposed a condition requiring specific plans for caribou and grizzly bear that would require effectiveness monitoring as a component of those plans, and an adaptive management approach.

Working group members, notably FLNR and several Aboriginal Groups including Wet'suwet'en First Nation, and the public, raised concerns about the creation of new access into wildlife habitat, particularly in relation to increased disturbance and human and predator access to high elevation caribou habitat, and increased access for hunters to moose habitat.

The Proponent committed to developing an Access Control Management Plan and Traffic Control Management Plan. The Traffic Control Management Plan would provide guidelines for vehicle use on the ROW and access roads during construction to reduce wildlife disturbance. The Access Control Management Plan would provide guidelines for blocking and controlling access to previously inaccessible portions of the ROW post-construction, with the objectives of controlling public access along the ROW, reducing line of sight and ease of access along the ROW for natural predators, hunters and anglers, and reducing disturbance to high quality, sensitive wildlife habitat.

EAO is proposing a condition to require development of the Access Control Management Plan to meet the objectives stated in the Application, and include information about the types of access that would be required and the types of access control management measures planned during construction and operations. Another proposed condition would also require a Caribou Mitigation and Monitoring Plan and a Wildlife Management Plan that would address access management.

Working Group members raised several concerns about the baseline data used in the assessment. Wet'suwet'en First Nation questioned the use and analysis of the wildlife camera data. FLNR noted that bats were identified as a key indicator, but were not included in the wildlife technical data report (TDR). Yekooche First Nation and Halfway River First Nation expressed concern with the level of confidence regarding significance determinations for mammals given the baseline data collected. FLNR inquired about the completeness of wildlife data being collected over only one season. Blueberry River First Nations also expressed concern about uncertainty in the habitat models and recommended that another field season of data collection be completed.

The Proponent responded that collecting wildlife data over a single field season provides useful information on wildlife species densities, occupancy or presence/not-detected for that survey period. Wildlife species densities and presence may vary across years. In an Environmental Assessment, the primary objectives of the wildlife field surveys are to aid in the characterization of baseline conditions (i.e., in combination with other data, where available), inform construction planning and detailed engineering design, and develop effective mitigation. Baseline conditions consider not only the field data collected, but also other existing information, data and literature, as well as available traditional ecological knowledge.

The wildlife habitat suitability models are primarily based on provincial standards used to develop Terrestrial Ecosystem Mapping (TEM) for the proposed Project, and on provincial standards for developing wildlife habitat suitability ratings.

Habitat suitability models are an important tool used in the assessment, and a conservative approach was used during their development to take into account imperfect data (i.e., lack of detection of a given species does not always mean it is not present or does not occur), particularly if the Project would occur within a species' habitat. As a further means of mitigating potential Project effects on wildlife, the Proponent has committed to conducting pre-disturbance surveys for important wildlife habitat features.

EAO has proposed a condition requiring a Wildlife and Wildlife Habitat Management Plan that would capture all relevant wildlife mitigation as set out in Appendix 2A of the Application, and would also require pre-construction surveys and information on the site specific mitigation that would be implemented for habitat features that could be encountered.

Working group members raised concerns that suitable habitat for mountain goat also occurs outside of legally designated areas and therefore using only UWRs to calculate the availability of mountain goat habitat is likely to underestimate the habitat that is actually available.

The Proponent acknowledges that mountain goat occurrence is not restricted to designated UWRs and WHAs, and would implement appropriate mitigation in mountain goat habitat to avoid adverse effects.

EAO proposes a condition requiring a Wildlife and Wildlife Habitat Management Plan that would capture all relevant wildlife mitigation as set out in Appendix 2A

of the Application, including pre-construction surveys and would require information on the site specific mitigation that would be implemented for habitat features that could be encountered.. EAO is also proposing a condition that prohibits the Proponent from conducting low elevation helicopter or fixed wing flights over UWR during critical timing windows.

FLNR and West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation raised concerns about the identification and appropriate size of avoidance buffers around sensitive resources. Several Aboriginal Groups, including Wet'suwet'en First Nation raised the concern that because the assessment area for wildlife was for the entire pipeline length, it did not capture variability in wildlife populations and localized effects on wildlife. Several Aboriginal Groups stressed the importance of avoiding wildlife features and implementing buffers around features, and recommended that local Aboriginal Groups' knowledge be used to help identify these features.

The Proponent proposed the following mitigation:

- Completing pre-construction wildlife surveys in habitats or segments of the proposed route determined to have the potential for habitat features that could be adversely affected in order to identify habitat features that require site-specific mitigation and monitoring; and
- Consulting appropriate regulatory authorities on the size of avoidance buffers around sensitive resources and conducting pre-construction surveys.

Furthermore, EAO is proposing the following conditions:

- A proposed condition would require a Wildlife and Wildlife Habitat Management Plan to be developed in accordance with the mitigation identified in the Application, including pre-construction surveys to identify locations requiring site specific mitigation and monitoring;
- Proposed conditions require specific mitigation and monitoring plans for caribou and grizzly bear due to broad concern for these species; and
- A proposed condition would require the Proponent to, at the request of Aboriginal Groups, discuss the development of the Environmental Management Plan and any other relevant plans developed to meet regulatory requirements.

Nak'azdli Band, Nadleh Whut'en First Nation, West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation requested that further mitigation measures be specified to avoid impacts to bear dens, specifically with

respect to implementation of blasting restrictions and establishment of no-go areas in high potential denning habitat.

The Application included the following mitigation for bear dens:

- Pre-construction surveys to identify important habitat features, such as dens. Where practical, maintain a minimum 50 m setback distance from identified active bear dens during winter construction.
- If a bear den is identified during construction, implement the Wildlife Species of Concern Contingency Plan
- If an active grizzly bear den is discovered, consult with appropriate regulatory authorities to discuss what, if any mitigation is necessary.

EAO considers the mitigation proposed for bear dens to be sufficient to mitigate potential adverse effects. A proposed condition would require the development of a Wildlife and Wildlife Habitat Management Plan to capture all relevant wildlife mitigation as set out in Appendix 2A of the Application. EAO is also proposing a condition for the requirement of a Grizzly Bear Mitigation Monitoring Program with the objective of avoiding sensory disturbance and incremental mortality risk to grizzly bears as a result of the Project.

Post-construction wildlife monitoring was raised by several reviewers as important for a number of species, including SARA-listed species, Clark's nutcracker, moose, caribou and grizzly bear, in order to ensure effects are as predicted. Treaty 8 Nations also requested that local Aboriginal knowledge be incorporated into the monitoring program on the effectiveness of reclamation and access control efforts as part of post-construction monitoring.

The Proponent committed to completing a Post-Construction Monitoring Program as part of the EMP, and acknowledged that if monitoring resulted in the need for further action, the Proponent would work with the appropriate regulatory authorities to implement an adaptive management approach.

EAO is proposing conditions that would require:

- Development and implementation of an EMP, in accordance with section 25 and Appendix 2A of the Application, which includes a Post-Construction Monitoring Program;
- specific mitigation and monitoring plans for grizzly bear and caribou, which would require a monitoring program, reporting out on the effectiveness of mitigation, and an adaptive management approach; and

- a Wildlife and Wildlife Habitat Management Plan to provide specific information on how and when the mitigation measures would be implemented throughout the life of the Project.

Aboriginal Groups raised concerns about the current status of moose populations and impacts to moose from the proposed Project, particularly effects resulting from increased access and the potential for an increase in non-Aboriginal hunting.

The Proponent responded that mitigation includes implementing the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. The Access Control Management Plan provides guidelines for blocking and/or controlling access to previously inaccessible portions of the ROW following construction and throughout the operations phase of the Project.

EAO has proposed a condition requiring the development of the Access Control Management Plan as a condition. EAO is also proposing the development of a Wildlife and Wildlife Habitat Management Plan that would specifically require monitoring to assess the effectiveness of the mitigation for moose in the Project area.

Animals of Particular Concern

Caribou:

Potential effects to caribou were highlighted by a number of Working Group members, including:

- EC raised concerns about the impacts of the proposed Project on caribou in regard to the objectives of the federal recovery strategy for the southern mountain caribou population, specifically the likely loss of critical caribou habitat for the Hart Ranges herd and potential critical habitat loss for the Telkwa herd.
- FLNR raised concerns about the effects on the Hart Ranges herd, in particular the loss of important habitat within UWRs for caribou, increased access into herd range and the potential for disturbance in high- elevation areas to drive caribou into using lower-elevation, higher-risk habitat.
- FLNR raised concerns about the effects on the Telkwa herd, noting that additional linear development within the recovery area increases the risk to

the population and that mitigation is required to alleviate the long-term impact of a new linear feature.

- Several Aboriginal Groups raised concerns about the status of caribou and future ability to practice Treaty or Aboriginal rights to hunt. Blueberry River First Nations requested to be consulted on the development of a caribou monitoring plan. West Moberly First Nations, Saulneau First Nations, McLeod Lake Indian Band and Doig River First Nation raised concerns about the proposed pipeline route through caribou habitat and the potential for increased poaching and resource extraction pressure, and highlighted the need for a comprehensive access management plan.

The Proponent noted that there were no practical route options that entirely avoided provincially-identified caribou ranges and that the proposed corridor was routed to reduce the extent of caribou ranges traversed. The Proponent acknowledged that further mitigation would be required to mitigate impacts to caribou.

EAO is proposing a condition that would require the Proponent to develop a Caribou Mitigation and Monitoring plan to detail a site-specific mitigation, monitoring and adaptive management approach. The Proponent would be required to engage with Aboriginal Groups, Environment Canada, OGC and FLNR in the development of this plan. The Proponent would also be required to provide a monetary amount to fund all or a portion of a program of activities that support caribou conservation and recovery of caribou ranges.

Grizzly Bear:

Yekooche First Nation and Blueberry River First Nations requested the development of a grizzly bear mitigation strategy prior to the end of the Application Review period, or the involvement of Aboriginal Groups in reviewing that mitigation strategy. Nadleh Whut'en First Nation and Nak'azdli Band requested that grizzly bear mitigation be reviewed by a third party as well as Aboriginal Groups.

Uncertainty about the effects of the proposed Project on grizzly bear was raised by FLNR, noting that further information would be required at the sub-population level to assess the risk to breeding females (the limiting factor in grizzly bear productivity). EAO is taking a conservative approach to requiring mitigation and monitoring for grizzly bear, given the uncertainty of the potential effects. This approach would include monitoring to evaluate the effectiveness of mitigation.

EAO is proposing a condition requiring a Grizzly Bear Mitigation and Monitoring Plan, given the uncertainty in the potential effects. The plan would require the proponent to develop mitigation to address sensory disturbance and mortality risk to grizzly bears as a result of the proposed Project. The plan would also require monitoring to evaluate the effectiveness of mitigation.

Marbled Murrelet:

Environment Canada highlighted the recovery strategy for marbled murrelet and its description and targets for critical habitat. Environment Canada recommended utilizing the Avoidance Guidelines on the Incidental take of Migratory Birds to develop mitigation measures to avoid engaging in potentially destructive or disruptive activities in critical habitat or during breeding season that may affect marbled murrelet. Environment Canada also recommended that the development of monitoring protocols be included in EAO's proposed conditions.

During Application review, the Proponent submitted an addendum to the application for a corridor widening in the Kitimat Valley in an area of marbled murrelet habitat to allow more flexibility in avoiding key habitat or habitat features during construction. A second addendum was filed for corridor widening in the Kitimat Valley in another area to accommodate a request from Haisla Nation. The second addendum results in intersection with an additional 330 m² of critical marbled murrelet habitat. This addendum was reviewed by Working Group members and no major concerns were raised, except for the recognition by FLNR and Environment Canada that the intersection with critical habitat occurred. EAO is proposing a condition that would require a mitigation plan to be developed, including monitoring, to avoid or minimize impacts of any Project-related incursions into Marbled Murrelet Critical Habitat.

Trumpeter Swan:

A member of the public raised concerns about potential changes to geothermal activity near Crooked River, as a result of the proposed Project, that represented an important area for overwintering trumpeter swans.

The Proponent acknowledged the concern and the importance of this area, and noted that the potential effects would be mitigated through a combination of Project design and avoidance, and that the habitat would be maintained.

Clark's Nutcracker:

Office of the Wet'suwet'en raised concerns about the Clark's nutcracker because of its close association with listed whitebark pine ecosystems.

Effects to whitebark pine are discussed in section 5.11 of this report.

Migratory Birds:

Environment Canada suggested that further clarity was needed on the effects to olive-sided flycatcher, which is listed as threatened under SARA, and is blue-listed by the Province.

The Proponent noted that the effects assessment considered changes to habitat, movement and mortality risk for the mature/old seral forest birds, early seral forest birds and wetland bird communities, which include olive-sided flycatcher. The Proponent noted that habitat on the disturbed Project footprint may not be effective for olive-sided flycatchers until the forest structure no longer has characteristics of human development, and that restoration of forested habitat to mature or late seral stages with natural openings would take decades. However, implementation of the Proponent's proposed mitigation is expected to reduce the magnitude of potential effects.

Environment Canada, in regards to migratory bird species associated with old forest habitat, recommended that the Proponent identify and monitor mitigation measures to avoid engaging in potentially destructive or disruptive activities in key locations (e.g., critical habitats) or during critical timing windows (e.g., breeding season) that may affect migratory bird species protected under SARA and the *Migratory Birds Convention Act 1994*.

The Proponent responded that mitigation for birds includes conduction pre-construction wildlife surveys to identify habitat features that warrant mitigation and reduced grubbing near watercourses, wetlands and other wet areas to facilitate reclamation of shrub communities. In addition, the proposed route parallels existing corridors and incorporates existing disturbances where practical, to reduce vegetation clearing and habitat fragmentation.

5.10.4 Characterization of Residual Project Effects

Considering the potential for effects once the proposed mitigation is applied, EAO concludes that the proposed Project is likely to result in the following residual adverse effects to wildlife and wildlife habitat:

- Habitat loss, alteration and fragmentation;
- Sensory disturbance, particularly during construction and in the vicinity of compressor stations during operations; and
- Increased mortality risk from predators and humans.

Summarized below is EAO's assessment of the expected residual effects of the proposed Project on wildlife and wildlife habitat, as well as EAO's determination of significance based on the residual effects characterization.

Criteria	Assessment Rating	Rationale
Context	Grizzly bear: High sensitivity	Grizzly Bear are highly sensitive to human disturbance. Existing average linear disturbance in most GBPUs crossed by the proposed Project currently exceeds the recommended road density threshold. The GBPUs traversed by the proposed Project are not considered threatened.
	Caribou: High sensitivity	Caribou herds affected by the proposed Project are part of a population unit listed as threatened under SARA. Caribou are highly sensitive to human disturbance and both herds have high levels of disturbance currently within their ranges. Both caribou herds have a very low resiliency to disturbance.
	Moose: Moderate sensitivity	Moose have a low sensitivity to habitat disturbance, but are more sensitive to human- and predator-caused mortality which may be facilitated by disturbance that increases human and predator access.
	Mountain goat: Moderate sensitivity	Mountain goats are highly sensitive to human caused disturbance, however mountain goat populations in the regions traversed by the route are considered stable.
	Fisher: Moderate-high sensitivity	Furbearers: Marten is not a species of conservation concern provincially or federally and has a low sensitivity to human caused disturbance. Fisher have a moderate to

Criteria	Assessment Rating	Rationale
	<p>Marten: Low sensitivity</p> <p>Bats: Low sensitivity</p> <p>Birds and Amphibians: Low to High sensitivity</p>	<p>high sensitivity to human disturbance as they use mature and old forests, have large home ranges and low reproductive rates.</p> <p>Bats: The sensitivity of bat populations in the vicinity of the proposed Project is difficult to determine as there is limited information available regarding bat habitat, movement, population status, trends and threats. Some bats species may be sensitive to disturbance of mature and old forest roosting and foraging habitat, while other species use clearings, meadows, wetlands and other openings including forest edges for foraging.</p> <p>Bird and amphibians: The sensitivity of bird and amphibian species ranges from low to high depending on their ability to use disturbed habitat, their reliance on early vs. late seral stage habitat and their current population status.</p>
Magnitude	<p>Grizzly Bear: Medium</p> <p>Caribou: High</p> <p>Mountain Goat: Medium</p> <p>Moose: Low</p>	<p>The magnitude of potential effects to grizzly bear is considered medium because of the contribution to linear density and reduction in area of core habitat in GBPU, resulting in an increased mortality risk, and the direct loss of spring and fall foraging habitat.</p> <p>The magnitude to caribou is considered high because of the increase in mortality risk that would result from creating access for predators and the loss of critical habitat described by the Federal Recovery Plan for Southern Mountain Caribou and the loss of habitat in important UWR units and the proposed WHA. Available mitigation to reduce impacts of increased predation are still unproven and cannot be relied upon to completely reduce those effects.</p> <p>The magnitude of potential residual effects to mountain goat is considered medium because there would be clearing in a designated UWR for mountain goat.</p> <p>The area of impacted moose winter foraging habitat and winter shelter habitat is relatively low. Mortality risk due to increased access is expected to be mitigated to a low</p>

Criteria	Assessment Rating	Rationale
	<p>Furbearers: Low</p> <p>Bats: Low Amphibians: Low Birds: Low/negligible</p>	<p>level with implementation of the Access Control Management Plan.</p> <p>The magnitude of potential residual effects to furbearers is considered low because of the amount of habitat disturbance in the LSA and the mitigation proposed to minimize habitat disturbance and fragmentation and create rollbacks to provide cover are expected to reduce the potential effects.</p> <p>The magnitude of potential residual effects to bats, amphibians and birds is considered low because of the amount of habitat disturbance in the LSA and the mitigation proposed to minimize habitat disturbance and fragmentation is expected to reduce the potential residual adverse effects.</p>
Extent	<p>Local: bats, amphibians, birds</p> <p>Regional: grizzly bear, caribou, moose, mountain goat, furbearers</p>	<p>Alteration of habitat, effects on movement and mortality risk would be limited to the LSA (i.e., within 2 km of the Project footprint), except for large mammals and furbearers where some changes in mortality risk may be regional (e.g., within population units).</p>
Duration	Medium to Long term	<p>The duration of effects on wildlife are driven by the re-establishment of native vegetation along the ROW, in particular treed habitat, which would not occur until well after decommissioning and abandonment, therefore the effects to most wildlife key indicators are long term. However, the re-establishment of herbaceous, shrub land and grassland habitat would occur following construction in the medium term, as a result the effects on wetland birds are medium to long term and on grassland birds are medium term.</p> <p>Residual effects on large mammals from increased access by humans and predators are expected to persist for the long term.</p>

Criteria	Assessment Rating	Rationale
Reversibility	Reversible	Effects to wildlife are expected to be reversible in the long term upon reclamation of the ROW.
Frequency	Largely continuous	Effects to habitat from vegetation clearing during construction would occur once and clearing for maintenance activities would occur periodically. Mortality risk from construction would occur once and from maintenance activities periodically, however, the primary causes of mortality risk (creation of access) would be ongoing and continuous due to the permanent ROW. Disturbance from permanent facilities such as compressor and meter stations would be continuous.
Likelihood	The proposed Project is highly likely to result in residual adverse effects by altering habitat, changing wildlife movement and increasing the risk of mortality.	
Significance	For wildlife, residual adverse effects are considered significant when there is a long-term or irreversible residual adverse effect that is predicted to exceed an acceptable biological threshold or standard, or is predicted to affect a population such that stated management or conservation objectives might not be attainable.	
Grizzly bear	EAO considered the medium magnitude of effects on grizzly bear, the sensitivity of grizzly bears to human caused disturbance and the long-term duration of these effects. EAO has proposed a condition requiring mitigation to address sensory disturbance and mortality risk to grizzly bears, including monitoring to determine the effectiveness of mitigation and adaptive management to address results of monitoring. In consideration of the above, including the proposed condition, EAO concludes that residual Project effects on grizzly bear are not likely to be significant.	
Caribou	EAO considered the high magnitude and long-term duration of potential residual effects on caribou, and the sensitivity of caribou to further human caused disturbance and concludes that adverse residual effects are likely to be significant. The context of caribou subpopulations is an important factor in EAO's determination of significance for Project and cumulative effects. Caribou populations have been declining in the area of the proposed Project (and throughout BC) and any residual loss of habitat, increase in mortality or increase in displacement or disturbance from critical habitat or important connections to critical habitat in this context has a serious impact on the potential to meet management objectives for	

Criteria	Assessment Rating	Rationale
<p>Mountain Goat</p> <p>Moose</p> <p>Furbearers, Bats, Amphibians and Birds</p>		<p>recovery of caribou subpopulations. The primary factors leading to EAO's rating of significance are the long-term potential impacts from the proposed Project of enhanced predator access to caribou. EAO recognizes that mitigation measures may be effective, but until proven through detailed monitoring that confirms the proposed pipeline corridor does not result in predator access, increased caribou mortality or displacement or disruption of caribou movement, cannot be relied upon to reduce effects to a non-significant level.</p> <p>EAO considered the medium magnitude of potential residual effects on mountain goat, and the potential long-term duration of those effects. With the Proponent's proposed mitigations, as well as conditions requiring development and implementation of Wildlife Management Plan, including pre-construction surveys and site-specific mitigation, EAO concludes that residual adverse effects would be not significant.</p> <p>EAO considered the low to medium magnitude of potential residual effects on moose and potential long-term duration of the effect. With the Proponent's proposed mitigations, as well as conditions requiring development and implementation of a Wildlife Management Plan and an Access Control Management Plan, EAO concludes that residual effects would be not significant.</p> <p>EAO considered the low magnitude of potential residual adverse effects on the remaining wildlife key indicators and medium to long-term duration. EAO concludes that residual effects would be not significant.</p>
Confidence		<p>There is low confidence in the significance determination for grizzly bear. It is likely that there would be adverse effects to grizzly bears resulting from the proposed Project. However, there is considerable uncertainty regarding the magnitude these effects at the landscape or sub-population level. There is also considerable uncertainty regarding the effectiveness of mitigation, either proposed or yet to be developed. In light of this uncertainty, EAO has proposed a condition requiring the Proponent to develop a Grizzly Bear Mitigation and Monitoring Plan, including effectiveness monitoring and adaptive management, as well as participate in a provincial Grizzly Bear Program that supports the conservation and management of regional grizzly bear populations.</p> <p>There is a moderate confidence in the significance determination for caribou. There is a good, general understanding of the effects of linear features and habitat disturbance on caribou populations. The effectiveness of mitigation related to access management has not been proven to be</p>

Criteria	Assessment Rating	Rationale
		<p>effective and it is uncertain the degree to which mitigation may be successful.</p> <p>There is high confidence in the significance determination for mountain goat based on a good understanding of the cause-effect relationship and availability of data for the proposed Project area.</p> <p>There is moderate confidence in the significance determination for moose, based on a good understanding of the cause-effect relationship, but moderate confidence in the effectiveness of mitigation related to access management. To address this uncertainty, conditions requiring an Access Control Management Plan, as well as a Wildlife Management Plan are proposed as a condition with requirements for monitoring the effectiveness of mitigation.</p> <p>There is high confidence in the significance determination for urbearers based on a good understanding of the cause effect relationship and data pertinent to the proposed Project area.</p> <p>There is moderate to high confidence in the significance determination for bats, based on the limited data pertinent to the proposed Project area, but high confidence in the mitigation proposed to identify and but high confidence in the mitigation proposed to identify and reduce potential effects on habitat features for bats.</p> <p>There is low confidence in the significance determination for amphibians, except coastal tailed frog which has high confidence. There is good understanding of cause-effect relationships and data pertinent to the proposed Project area, except that there is limited data related to hibernation habitat for western toad and effects to hibernating pond-dwelling amphibians.</p> <p>There is high confidence in the significance determination for birds based on a good understanding of the cause effect relationship and data pertinent to the proposed Project area.</p>

5.10.5 Cumulative Effects Assessment

Cumulative effects are expected to occur for wildlife key indicators as a result of the impacts of the proposed Project together with existing and reasonably foreseeable future activities and disturbances.

The current existing level of direct area disturbance within the wildlife RSA is 32.2% and the Application projected a cumulative disturbance of 36.4%. The proposed Project would contribute to 4.5% of the projected total future disturbance in the RSA. Cutblocks account for the majority of current disturbance within the RSA (over 60% of total) and the projected future disturbance (approximately 89%).

The Application predicts a decrease in effective habitat between 0.6% to 1.6% for mammal key indicators in the RSA, between 0.1% and 1.1% for amphibian key indicators and for birds there is a predicted increase of up to 1.0% for some key indicators and a decrease up to 2.6% for others.

The cumulative effects to grizzly bear and caribou are discussed further below.

Grizzly Bear

As previously discussed, the existing average motorized access density is above 0.6 km/km² in four of the GBPUs, and below 0.6 km/km² in one (see Table 5-13). The remaining GBPU, Bulkley Lakes has an average density at 0.6 km/km² which would increase to 0.65 km/km² as a result of the proposed Project and reasonably foreseeable future projects. The average motorized access density would increase by between 1.6 and 2.9% in all GBPUs except Bulkley Lakes which would see an increase of 9.9% as a result of the proposed Project and reasonably foreseeable future projects. The proposed Project would interact with existing and future disturbance increasing the motorized access density in localized areas from baseline conditions under 0.6 km/km² to over 0.6 km/km².

The total area of grizzly bear core security habitat would decrease a result of the proposed Project and reasonably foreseeable future projects by between 1.5 and 2.5% in all GBPUs except Nulki which is expected to see a decrease of 7%.

Spring and fall foraging habitat would decrease by 1.4% and 1% respectively in the RSA as a result of the proposed Project and reasonably foreseeable future projects.

Table 5-14: Predicted cumulative effects on linear density and core habitat area for GBPUs

GBPU	Baseline average access density (km/km ²)	Cumulative condition average access density (km/km ²)	Average access density increase	Total decrease in core habitat area
Hart	0.89	0.91	2.9 %	2.1 %
Parsnip	0.38	0.39	2.3 %	1.5 %
Nation	1.06	1.07	1.6 %	1.8 %
Nulki	1.70	1.74	2.1 %	7.1 %
Francois	1.08	1.12	2.9 %	1.6 %
Bulkley-Lakes	0.60	0.65	9.9 %	2.5 %

EAO agreed with the Proponent that additional mitigation to address Project effects, including contributions to cumulative effects, would be warranted to mitigate effects. Accordingly, EAO has proposed a condition that would require the Proponent to develop a Grizzly Bear Mitigation and Monitoring Plan, with the objectives of avoiding sensory disturbance to grizzly bear and avoiding incremental mortality risk to grizzly bear resulting from the Project. EAO has also proposed a condition that would require the Proponent to participate in a Grizzly Bear Program that supports the conservation and management of regional grizzly bear populations.

The magnitude of residual cumulative effects to grizzly bear are considered medium and effects of the proposed Project interacting with future projects and activities could extend throughout the GBPUs. The duration of effects on habitat are driven by the reestablishment of vegetation and could range from short to long term, the effects of increased access are considered long term. Residual effects are considered to be reversible provided that reclamation of disturbance takes place.

It is likely that residual cumulative effects would occur. Taking into consideration the mitigation for the proposed Project and that similar mitigation would likely be applied for other similar projects, cumulative effects to grizzly bear are not considered to be significant.

Caribou

As shown in Table 5-14, total cumulative disturbance from the proposed Project and future projects would increase functional disturbance to just over 32% in the Hart Ranges (increasing the disturbed area by 1.0%, 0.6% of which would be from the proposed Project); and approximately 48% in the Telkwa (increasing the disturbed area by 2.2%, 0.2% of which would be from the proposed Project).

Table 5-15: Predicted change in habitat in the caribou RSA

Caribou Range/ UWR/WHA	Area (ha)	Habitat Disturbance ^a	Baseline Conditions (ha)	Cumulative Conditions ^b		
				Cumulative (ha)	Incremental Change (ha)	% Change
Hart Ranges	1,246,057	Direct Anthropogenic Disturbance	136,010	136,485	475 ↑	0.3 ↑
		Functional Disturbance	392,656	396,489	3,834 ↑	1.0 ↑
		Undisturbed	853,401	849,567	3,834 ↓	0.4 ↓
Hart Ranges UWR u-7-003	492,222	Direct Anthropogenic Disturbance	13,856	13,957	101 ↑	0.7 ↑
		Functional Disturbance	58,129	60,856	2,727 ↑	4.7 ↑
		Undisturbed	434,093	431,366	2,727 ↓	0.6 ↓
Telkwa Range	310,131	Direct Anthropogenic Disturbance	60,482	61,059	577 ↑	1.0 ↑
		Functional Disturbance	143,042	146,236	3,194 ↑	2.2 ↑
		Undisturbed	167,090	163,896	3,194 ↓	1.9 ↓
Telkwa proposed caribou WHA 6-333	262,744	Direct Anthropogenic Disturbance	38,989	39,218	229 ↑	0.6 ↑
		Functional Disturbance	103,056	108,061	5,005 ↑	4.9 ↑
		Undisturbed	159,688	154,683	5,005 ↓	3.1 ↓
^a Direct anthropogenic disturbance is the area of anthropogenic disturbance (direct footprint). Functional disturbance is the area of anthropogenic disturbance buffered by 500 m, and fire <40 years. Undisturbed is the area of caribou range outside of functional disturbance (i.e., undisturbed habitat). ^b Cumulative conditions includes the baseline + Project + foreseeable future disturbances (with available spatial data). Presented area (ha) values are rounded. Incremental and percent change was calculated using the full (i.e., not rounded) values. ↓ represents a decrease and ↑ represents an increase.						

Within the Hart Ranges UWR (u-7-003), the existing disturbance is approximately 11.8% and proposed and future projects would increase to approximately 12.4%, with the Project contributing to approximately 1/10th of that disturbance (0.05%)

Within the proposed WHA, the proposed Project and future projects would increase the total existing disturbance from 39% to 41%, with the Project contributing to approximately 1/10th (0.2%) of that disturbance.

A requirement for a Caribou Mitigation and Monitoring Plan is proposed as a condition to detail a site-specific mitigation, monitoring and adaptive management approach. The

Proponent would also be required to provide a monetary amount to fund all or a portion of a program of activities that support caribou conservation and recovery of caribou ranges.

The residual effects of habitat disturbance, sensory disturbance and creation of access from the proposed Project would likely interact with reasonably foreseeable future projects to create cumulative effects. Taking into account the significant Project effects and the sensitivity of caribou to further disturbance cumulative effects to caribou are considered to be significant.

Taking into consideration the magnitude of the effects from the proposed Project and the extent of habitat disturbance within the RSA from the proposed Project and reasonably foreseeable future projects, the cumulative adverse effects to wildlife key indicators are considered not significant, with the exception of caribou.

5.10.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on wildlife and wildlife habitat, with the exception of caribou.

Residual effects to caribou are predicted to exceed an acceptable biological threshold or standard (i.e., critical habitat retention as stated in the federal caribou recovery plan), and to contribute to effects on caribou such that stated management or conservation objectives might not be attainable. After considering all relevant proposed mitigation measures, conditions, input from the Working Group, Aboriginal Groups, and the public, EAO concludes that the proposed Project is likely to result in significant adverse effects on caribou and also to contribute to significant cumulative adverse effects on caribou.

5.11 Vegetation

5.11.1 Background

The potential for the proposed Project to adversely affect vegetation was assessed in terms of two Valued Components: ecological communities of concern and plant communities of concern. The key indicators chosen for each VC are shown below.

Valued Component	Key Indicators
Ecological communities of concern	Native vegetation communities Ecological communities at risk
Plant species of concern	Plant species at risk Traditionally important plant species

The proposed Project would cross a range of vegetation communities, including but not limited to: old forests, Douglas fir forests, aspen forests, deciduous forests, alpine/subalpine areas and grasslands.

The Project would cross multiple biogeoclimatic zones (from east to west):

- Boreal White Spruce (KP 0 – KP 98)
- Englemann Spruce-Subalpine Fir (KP 84 – 614)
- Sub-Boreal Spruce (KP 73 – KP 575)
- Alpine Tundra (KP 613 – KP 614)
- Mountain Hemlock (KP 591 – KP 631)
- Coastal Western Hemlock (KP (630 – KP 665)

The LSA for vegetation is a 300 m wide corridor centred on the proposed route. The RSA is a 2 km wide corridor.

5.11.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The Proponent used a combination of desktop review of existing data and literature, Terrestrial Ecosystem Mapping (TEM), field surveys and available Aboriginal Traditional Knowledge to obtain information on vegetation in the study area. TEM was used to estimate the extent of vegetation types throughout the RSA and the amount of disturbance those vegetation types would undergo from Project construction and operations. Surveys (Survey Intensity Level 4 for the purposes of TEM) were conducted between June and August for rare plants and during the fall of 2012 through summer of 2013 for assessing baseline vegetation abundance and distribution.

The proposed Project would cross areas of the Central Interior that have been severely affected by mountain pine beetle. The salvage operations of beetle-killed trees are changing vegetation across the Central Interior and converting entire landscapes to early seral plant communities. The Application reports that roughly 2,226 ha, or 60%, of the proposed route crosses forests that have been affected by mountain pine beetle, with 30% of the proposed route crossing areas that have been severely affected.

The Proponent selected the proposed route to reduce, as much as possible, the amount of mature vegetation that would have to be cleared, and enable most of the construction clearing to occur in areas that have previously been disturbed by forest harvesting, utility corridors, industrial facilities, agriculture and rural/residential development. However, some vegetation clearing during the construction phase would need to occur in undisturbed habitats, including old forests, Douglas-fir forests, aspen forests, deciduous forests, subalpine/alpine areas and grasslands.

The Proposed route would cross approximately:

- 6680 ha (98%) of native vegetation, including 3466 ha of undisturbed native vegetation and 3214 ha in cutblocks;
- 21 ha (0.3%) of agricultural areas;
- 63 ha (0.9%) of non-vegetative areas; and
- 19 ha (0.3%) would cross anthropogenic areas that include roads, transmission lines and existing pipelines.

The Application notes that occurrences of non-native invasive plant species were recorded during vegetation field studies along the proposed route. These included species such as yellow hawkweed (*Hieracium* spp.), tall buttercup (*Ranunculus acris*), Canada thistle (*Cirsium arvense*), and orange hawkweed (*Hieracium aurantiacum*).

The potential effects of the proposed Project on vegetation would include:

- The clearing of native vegetation and alteration or loss of ecological communities during construction and the periodic brushing and disturbance of ground vegetation and soils during operations, resulting in maintenance of an early seral stage.
- The introduction or spread of invasive plants resulting from the disturbance of native vegetation and soil providing opportunities for invasive plants to establish, as well as the introduction of seeds and fragments of invasive plants by vehicles and equipment.

- The introduction or spread of forest pests as a result of pipeline and ancillary component development activities moving pests, providing pest habitat or providing alternative hosts.

Ecological Communities of Concern

The proposed Project would result in the clearing or disturbance of:

- 3466 ha of native vegetation;
- 613 ha of old forests, including 160 ha in Old-Growth Management Areas;
- 303 ha of Douglas-fir forests;
- 284 ha of aspen forests;
- 343 ha of deciduous forests;
- 41 ha of alpine/subalpine areas;
- 1.5 ha of grasslands; and
- Ecological communities at risk, including:
 - 5 red-listed ecological community types, covering 15 ha (including floodplains, fen and grasslands)
 - 34 blue-listed community types, covering 448 ha (including coniferous forest, wetlands and floodplains).

A total of 72 ecological communities at risk (16 Red-listed and 56 Blue-listed) have the potential to occur in the Vegetation RSA.

Two of the proposed meter stations (Wilde Lake and Vanderhoof) and three of the proposed compressor stations (Wilde Lake, Sukunka Falls and Goosly Falls) would be located on sites covered entirely with native vegetation. Another one of the proposed meter stations (Kitimat) and three of the other proposed compressor stations (Raccoon Lake, Clear Lake and Titanium Peak) would be on sites partially covered with native vegetation and partially covered with disturbed vegetation. The remaining two proposed compressor stations (Mt. Bracey and Segundo Lake) would be located on sites with disturbed vegetation.

During construction and operations, invasive seed and plant fragments could be introduced from vehicles and equipment, and Project activities could spread invasive plants by disturbing and moving soil. Facility sites, new access roads and storage yards would be highly susceptible to invasive plant infestations. The Application notes that biological, manual or chemical control of existing populations could be used.

Plant Species of Concern

A total of 143 plant species at risk (37 Red-listed and 106 Blue-listed) have the potential to occur in the Vegetation RSA. Two provincially red-listed species (lesser brown sedge

(*Carex adusta*) and Sphagnum moss (*Sphagnum annulatum*) and 15 blue-listed species (including whitebark pine) were identified in the vegetation RSA.

Whitebark pine was the only SARA listed plant species observed in the LSA. Two additional SARA listed plant species – Cryptic paw (*Nephroma occultum*) and oldgrowth specklebelly (*Pseudocyphellaria rainierensis*) – have the potential to occur in the Vegetation RSA. Both of these species are listed as special concern under SARA and on BC's blue list.

Whitebark pine (*Pinus albicaulis* Englem.) is an alpine/subalpine tree listed as endangered under SARA and is blue-listed by the Province. In the area of the proposed Project, whitebark pine is at the northern extent of its range. Threats to whitebark pine include white pine blister rust (an introduced fungal disease), mountain pine beetle and fire. Whitebark pine is an important food source for grizzly bears and the Clark's nutcracker, and the nutcracker is important in dispersing whitebark pine seeds. It was observed in 25 locations in the vegetation LSA; eight locations were on the proposed route, covering 36.8 ha.

Traditionally-important plant species are those used for traditional purposes that are identified by Aboriginal Groups whose traditional territories would be crossed by the proposed route. Aboriginal Groups use most of the plant species on the landscape for a variety of purposes, including medicinal, ceremonial and food. Examples of these species include lodgepole pine, spruce, cedar, white poplar, birch, willow, alder, chokeberries, blueberries, lichen and fungi.

At least 69 confirmed and 29 unconfirmed traditionally important plant species were identified by TEK participants during the Application's vegetation surveys. Measures to mitigate adverse effects to traditionally important plant species included:

- five locations to avoid or protect mature forest;
- six locations to avoid or protect diamond willow fungus;
- six locations to reclaim with pre-construction species (for saskatoon berries, blueberries, black willow, and existing vegetation);
- two locations to avoid or protect plants of medicinal value;
- three locations to allow for pre-construction plant harvesting;
- one location to prevent introduction of invasive plant species; and
- one location to protect standing trees that provide wildlife habitat

The proposed route would aim to avoid areas of special importance to Aboriginal Groups. If site or feature avoidance is necessary, the Proponent would determine site-

specific and appropriate mitigation in accordance with the Ecological Communities and Species of Concern Contingency Plan.

Proposed Mitigation and Monitoring

The Application states that the proposed route and ancillary site selection would be the primary mechanism for avoiding or reducing potential adverse effects on plant species and ecological communities of concern. Additional key mitigation and monitoring measures proposed in the Application include:

- Further field studies to assess the location of ecological communities and plant species of concern.
- Development and implementation of an Ecological Communities and Species of Concern Contingency Plan.
- Following best practices for clearing, invasive plant management, mountain pine beetle management, reclamation and maintenance.
- Placing woody material on the ROW after construction.
- Allowing areas to naturally re-vegetate or seeding areas with native seed mix.
- Avoiding the clearing of large trees and standing dead trees, where feasible.
- Post-construction compliance and effectiveness monitoring, and application of adaptive management as required based on monitoring results.
- Clearly marking species of concern within or adjacent to the Project footprint to ensure they are protected.
- Avoiding areas with whitebark pine trees by rerouting, limiting extra temporary workspace or boring under stands, where practical, especially in areas that contain several healthy, maturing and mature trees.

The Application states that all occurrences of plant species-at-risk where mitigation measures were undertaken and all occurrences of whitebark pine in the vicinity of the proposed Project would be further monitored to confirm implementation and effectiveness of mitigation. Additionally, all occurrences of whitebark pine in the vicinity of the proposed Project would be monitored for potential adverse indirect effects.

Natural vegetation would be promoted unless invasive plants or slope stability is a concern in which case appropriate native seed mix would be used to re-vegetate the area.

5.11.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the review of the Application, additional issues, potential Project effects and proposed mitigations were raised by regulatory agency and Aboriginal Group representatives. A non-exhaustive list of key issues and comments, specific to vegetation VCs, raised by these groups related to the following:

- scale and duration of baseline data collection;
- further details and rationale for post-construction monitoring;
- further details and information to better understand potential Project effects to OGMA's and Old Forest;
- potential impacts to whitebark pine and the Clark's nutcracker; and
- potential effects from ancillary facilities (including increased access facilitating the spread of invasive species).

Scale and Duration of Baseline Data Collection

Comments from regulatory agencies and several Aboriginal Groups expressed concern with regards to the scale and duration of baseline data collection. Specifically, that given the scale and duration of baseline data collection, it is possible that the location of and potential impacts to many ecological communities and plant species of concern in the LSA and RSA was not captured.

The Proponent has acknowledged that particular aspects of the receiving environment would be considered on a site-specific basis as construction planning and detailed engineering design advance and information is provided to the appropriate regulatory authorities during permitting. They have committed to undertaking additional fieldwork to assess the location of particular ecological communities of concern within the Project footprint. This program would be developed in consultation with regulatory agencies.

A proposed condition would require the development and implementation of an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application, including the mitigation proposed for ecological communities of concern and plant species of concern, Furthermore, a condition is proposed that would require pre-construction site assessment surveys, and development of site-specific mitigation for red- and blue-listed species and communities.

Extent of LSA

FLNR raised a concern that the assessment used a LSA which was narrower in some cases than the Application corridor. The LSA for the vegetation VCs was 300 m wide, centred on the proposed route; however, the Application corridor – the corridor within which the Proponent could construct the Project if a Certificate were granted – ranges from 150 m to 2 km wide. This could result in risks to resources that were not assessed as part of the LSA if the Project were to be constructed outside of the LSA boundary.

The Proponent responded that they conducted TEM throughout the vegetation RSA, which was 2 km wide, and would therefore encompass the Application corridor, and provided appropriate information to assess potential effects.

EAO believes the information provided in the Application is sufficient given that the Proponent would be required to develop and implement an Environmental Management Plan including an Ecological Communities and Species of Concern Contingency Plan, and would be required to conduct pre-construction site assessment surveys for red- and blue-listed plants and ecological communities and develop mitigation measures to address adverse effects.

Post-Construction Monitoring Program

Multiple questions and concerns were raised by several Aboriginal Groups and regulatory agency reviewers with regards to post-construction monitoring scope and duration, and reviewers identified post-construction monitoring as an important part of the mitigation approach for vegetation.

The Proponent has committed to a five-year Post-Construction Monitoring Program to understand the success of mitigation used during construction of the proposed Project and to ensure outstanding issues are investigated, resolved, addressed, and reported during Project operations. This program would be developed in consultation with regulatory agencies.

A proposed condition requires the implementation of a Post-Construction Monitoring Program as part of the EMP. Another proposed condition would require the Proponent to engage Aboriginal Groups in the development of the EMP. Furthermore, a condition is proposed that would require pre-construction site assessment surveys for red- and blue-listed species and ecological communities, as well as the development of mitigation measures to address adverse effects.

Pesticide Use

Several Aboriginal Groups, including Wet'suwet'en First Nation, raised concerns about the use of pesticides within their traditional territories.

The Proponent responded that they would consider other options of vegetation control in the development of their Invasive Species Management Plan.

EAO is proposing a condition to require the Proponent to consult with Aboriginal Groups and land owners in the development of the Invasive Plan Management Plan and on alternative methods of vegetation control requested.

Potential Impacts to Whitebark Pine and Clark's Nutcracker

Office of the Wet'suwet'en raised concerns about the potential impacts to whitebark pine and the Clark's nutcracker bird species. Office of the Wet'suwet'en also highlighted that reclamation of whitebark pine is challenging and monitoring may need to go beyond the planned five-year Post-Construction Monitoring Program. FLNR had specific recommendations for managing whitebark pine blister rust and identified the importance of monitoring the mitigation implemented for it. FLNR also confirmed the importance of implementing mitigation options discussed in the Application for whitebark pine if avoidance were not possible.

The Proponent committed to developing their program in consultation with the appropriate regulatory authorities and, should further action be required, the Proponent would work with the appropriate regulatory authorities to implement an adaptive management approach.

EAO is proposing a condition that would require the Proponent to describe the implementation plan for mitigation set out in the Application, provide a whitebark pine density analysis and identify additional mitigation, such as cone collection, propagation and planting.

Potential Impacts to SARA-Listed Lichen Species

Nak'azdli Band and Nadleh Whut'en First Nation raised concerns about cryptic paw lichen and old-growth specklebelly lichen, which are SARA-listed species, and are blue-listed by the Province.

The Application identified that these species have the potential to occur along the proposed route. However, they were not encountered during the Proponent's field surveys.

EAO is proposing a condition that would require the Proponent to conduct site assessment surveys for all red- and blue-listed plants and ecological communities, including cryptic paw lichen and old-growth specklebelly lichen, and develop mitigation measures to address adverse effects.

Details in Relation to OGMAs and Old Forest

In response to concerns raised during Application Review by FLNR and several Aboriginal Groups, including Nak'azdli Band and Nadleh Whut'en First Nation, EAO requested further information from the Proponent about the impacts of the proposed Project on specific OGMAs, Wildlife Tree Retention Areas (WTRAs) and the Prince George Timber Supply Area (TSA). Additional information was provided by the Proponent in memos titled OGMAs and WTRAs dated June 17 and June 24.

The additional information provided by the Proponent is summarized below.

- The Project footprint would cross 100 ha of the 2,405 ha of legally established OGMAs in the Current Use of Land and Resources LSA (or vegetation RSA) (4.2% incursion) and 60 ha of the 6,358 ha of non-legally established OGMAs in the CULR LSA (0.9% incursion).
- In total, 3,297 ha of WTRAs are located in the CULR LSA (or vegetation RSA) in 1291 forest cover polygons. The Project footprint crosses 157 ha, or 4.8%, of the WTRAs in this LSA, and would interact with 137 forest cover polygons.
- The Project footprint intersects 2,599 ha of the Prince George TSA; 749 ha (29%) are old forest and 572 ha (22%) are old interior forest.

EAO is proposing a condition to require the Proponent to adhere to any orders under provincial legislation which apply to an Old Growth Area, and where an Old-Growth Management Areas (OGMA) cannot be avoided, to prepare a proposal for replacement or recruitment of that area.

Further Details Regarding Ancillary Facilities and Associated Effects

Further details were requested by multiple reviewers, including regulatory agencies, local government, and Aboriginal Groups, including Wet'suwet'en First Nation, regarding the location and potential effects of the ancillary sites (e.g., staging areas, stockpile sites, access roads and construction camps) on vegetation and wetland resources. There was concern that these sites could potentially account for significant Project -related alteration of vegetation and wetland resources, particularly if rare species or ecosystems are affected.

The Proponent would be required to provide information about temporary ancillary facilities, including access roads, to OGC during permitting, and adhere to the requirements of the *Oil and Gas Activities Act* and regulations, including the Environmental Protection and Management Regulation. The Proponent committed to continue to apply the mitigation hierarchy as construction planning and detailed engineering design advances.

Proposed conditions for the development and implementation of the Wetlands Management Plan and as part of the EMP, the Ecological Communities and Plant Species of Concern Contingency Plan, would include consideration of all Project components, including ancillary sites.

Furthermore, a condition is proposed that would require pre-construction site assessment surveys for red- and blue-listed species and ecological communities and develop mitigation measures to address adverse effects.

5.11.4 Characterization of Residual Project Effects

After considering all relevant proposed mitigation measures, EAO concludes that the proposed Project would result in residual adverse effects on vegetation resulting from the combined effects of:

- The clearing and disturbance of ecological communities of concern and plant species of concern; and
- The alteration of ecological communities of concern and plant species of concern from the introduction or spread of invasive plants and forest pests.

EAO's characterization of the combined residual effects of the proposed Project on ecological communities and plant species of concern is summarized below, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Criteria	Assessment Rating	Rationale
Context	Low to High sensitivity	The resilience of ecological communities and plant species varies along the proposed route. Upland forests are expected to be resilient and regenerate well. Other communities such as alpine and sub-alpine ecosystems are expected to be less resilient.
Magnitude	Low – Medium	Magnitude varies depending upon the rarity, type and size of occurrence of ecological communities or plant

Criteria	Assessment Rating	Rationale
		<p>species and the mitigation that is feasible to implement. In areas where grading occurs within red-listed communities, the potential residual adverse effects may approach regulatory tolerance.</p> <p>Application of identified mitigations and the mitigation hierarchy are expected to reduce the effect magnitude to low – medium.</p>
Extent	LSA	The effects of the proposed Project are expected to be confined to the Project footprint with the potential for edge effects such as invasive plant spread and changes to light, moisture and wind conditions extending into the LSA.
Duration	<p>Medium to long term: native vegetation communities, aspen forests, deciduous forests, plant species of concern</p> <p>Long term: old forests, Douglas-fir forests</p> <p>Long term to permanent: alpine/subalpine habitat, grasslands, ecological communities at risk</p>	<p>The regeneration of native vegetation varies by community type and location. Shrub- and forb-dominated communities may regenerate in the medium term. However, grassland or forested communities, the facility sites, access roads and the permanent right-of-way may not regenerate until the long term or the abandonment phase.</p> <p>Old forests and Douglas-fir forests take longer to regenerate than deciduous forest types.</p> <p>Alpine/subalpine communities may not regenerate at all due to loss of soil and topography from blasting.</p> <p>Grassland communities may not be reclaimed to within the range that defines the red-listed rare communities.</p> <p>Ecological communities at risk may not regenerate due to the alteration of environmental requirements (light, soil nutrients and moisture).</p>
Reversibility	Reversible: native vegetation communities, aspen forests, deciduous forests old forests,	<p>Reversible:</p> <p>Residual effects to some shrub- and forb-dominated communities, grassland communities, forested communities and plant species of concern.</p>

Criteria	Assessment Rating	Rationale
	<p>Douglas-fir forests, plant species of concern</p> <p>Irreversible: alpine/subalpine habitat, grasslands, ecological communities at risk</p>	<p>Irreversible:</p> <p>Alpine/subalpine communities may not regenerate at all due to loss of soil and topography from blasting.</p> <p>Some grassland communities may not be reclaimed to within the range that defines the red-listed rare communities.</p> <p>Some ecological communities at risk may not regenerate due to the alteration of environmental requirements (light, soil nutrients and moisture).</p>
Frequency	Isolated to periodic	The main disturbance would occur during the construction phase, repeated intermittent disturbance may occur during the operations phase, and isolated disturbance may occur during decommissioning and abandonment phases.
Likelihood	High – The proposed Project is likely to result in residual adverse effects to vegetation.	
Significance	<p>Residual adverse effects are considered significant when there is a long-term or irreversible potential residual adverse effect with a magnitude that is predicted to exceed an acceptable biological threshold or standard, or is predicted to affect the indicator population such that stated management or conservation objectives might not be attainable.</p> <p>EAO considered the low-medium magnitude impact to ecological communities and plant species of concern, the medium to long-term effects and the reversibility to some communities and the potential for permanent and irreversible effects to other communities. EAO considered the mitigation and monitoring measures identified by the Proponent and the proposed condition requiring the development of the EMP which includes development and implementation of an ecological communities and plant species of concern contingency plan, development and implementation of an invasive species management plan, and post-construction effectiveness monitoring. EAO concludes that the proposed Project would not have significant residual effects on vegetation.</p>	

Criteria	Assessment Rating	Rationale
Confidence		<p>The level of confidence is determined by the understanding of the Project/VC interaction, the level of information relevant to the Project area and the understanding of the effectiveness of mitigation.</p> <p>The significance determination and likelihood for vegetation is determined with moderate confidence. EAO believes there is a good understanding of Project /VC interactions and effectiveness of mitigation. EAO took into consideration the TEM survey intensity level of 4 and the LSA boundary relative to the application corridor and considered the information provided with respect to the Project area to be sufficient to provide a moderate level of confidence in determining the significance and likelihood of residual effects.</p>

5.11.5 Cumulative Effects Assessment

The cumulative effects assessment and significance determination was completed within the context of relevant objectives of the six LRMPs and three SRMPs encountered along the proposed route. These objectives pertain to:

- The protection of red- and blue-listed communities and their habitats;
- Avoiding infrastructure development within those areas; and
- Maintaining biodiversity, wildlife trees, old forests and tree species composition in forests.

Since surface disturbances can affect ecological communities of concern and plant species of concern, existing activities and the proposed Project, could act cumulatively to increase disturbance of these VCs in the Vegetation LSA and RSA. The total existing disturbance within the vegetation RSA is just over 50,000 ha. The proposed Project would result in approximately 3,572 ha of disturbance and foreseeable future projects in the area would result in 5,676 ha of additional disturbance, for a total 18% increase in disturbance within the RSA from the baseline (Table 5-15).

Table 5-16: Existing and future aerial disturbance in the vegetation RSA

Land Use Feature	Baseline Case Existing Areal Disturbance (ha)	Coastal GasLink Pipeline Project Areal Disturbance (ha)	Foreseeable Future Areal Disturbance (ha)	Total Cumulative Disturbance (ha)
Cities/towns/communities	252.81	-	-	252.81
Airports/airfields	-	-	-	-

Land Use Feature	Baseline Case Existing Areal Disturbance (ha)	Coastal GasLink Pipeline Project Areal Disturbance (ha)	Foreseeable Future Areal Disturbance (ha)	Total Cumulative Disturbance (ha)
Primary roads	201.04	-	-	201.04
Quarries/mines/aggregates	231.57	-	-	231.57
Commercial/Industrial facilities/features or oil and gas facilities	1,770.53	93.43	296.73	2,160.69
Secondary roads	890.96	-	-	890.96
Railways	24.85	-	-	24.85
Well sites	16.94	-	-	16.94
Tertiary/access roads	1,033.68	-	0.18	1,033.86
Buildings	8.51	-	-	8.51
Recreational sites	137.76	-	-	137.76
Crop/pasture land	2,501.62	-	-	2,501.62
Cutline	1,704.38	-	-	1,704.38
Transmission/power lines	150.80	-	15.55	166.35
Oil and gas pipelines	123.27	3,478.85	599.01	4,201.13
Trails (recreation)	1.34	-	-	1.34
Cutblocks	41,065.91	-	4,764.62 ^a	45,830.53
TOTAL	50,115.97	3,572.27	5,676.09	59,364.33

^a Reasonably foreseeable future disturbance data for cutblocks was quantified based on non-spatial data. See Section 3, Effects Assessment Methods, for methodology on derivation.

It is expected that other operators in the Vegetation LSA and RSA would be subject to similar regulatory guidelines and will implement mitigation that is similar to that proposed for the proposed Project. Forestry companies would adhere to similar guidance, best practices and the objectives of the LMRPs.

Residual adverse cumulative effects would be considered significant when there is a long-term or irreversible potential residual adverse cumulative effect with a magnitude that is predicted to exceed an acceptable biological threshold or standard, or is predicted to affect the indicator population such that stated management or conservation objectives might not be attainable.

In determining the significance of cumulative adverse effects to vegetation, EAO has considered the cumulative disturbance to the RSA from the Project and reasonably foreseeable projects as well as the reversibility of potential adverse effects to vegetation

in the medium to long term. EAO considered that the residual cumulative adverse effects to alpine and subalpine communities, grassland communities, and ecological communities at risk may be irreversible, but that the magnitude of these effects is low to medium. EAO concludes that the cumulative residual adverse effects to vegetation within the RSA are not likely to be significant.

5.11.6 Conclusions

Considering the above analysis and having regard to the Conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on vegetation.

6. Assessment of Economic Effects

Potential economic effects of the proposed Project were examined with respect to two Valued Components, each with its own set of key indicators:

Valued Components	Key Indicator
Economy	Government revenue Contracts and procurement expenditures Community economic resilience
Employment and labour force	Employment (direct, indirect, induced) Training opportunities

For the economic effects assessment, the LSA was selected to include communities, including Aboriginal communities, where it can be reasonably expected that adverse economic effects might occur. The RSA extends that area to include the regional districts crossed by the proposed pipeline route.

6.1 Economy

6.1.1 Background

The brief summary here and in Table 6-1 provides a brief overview of the economic context for each regional district crossed by the proposed Project. The Application provides additional detail, including overviews of the socio-economic context for the Aboriginal Groups crossed by the proposed Project. The economic context helps explain where experienced and skilled industrial workforces exist along the proposed route, and where effects to existing sectors and business activities could occur.

- The Peace River Regional District has a diversified resource based economy that relies on agriculture, oil and gas exploration, energy generation (including wind power and BC Hydro's Peace River generating facilities), mining, forestry and tourism. The largest communities are the cities of Fort St. John and Dawson Creek and the Districts of Chetwynd, Taylor and Hudson's Hope.
- The economy of the Regional District of Fraser-Fort George depends on forestry, trade, transportation, education, tourism, mining and manufacturing (including wood processing and pulp and paper manufacturing). The City of Prince George is the largest community in northern BC, with a potential

workforce population of 64,865 people, or 78% of the regional district's total potential workforce. Other smaller communities include the District of Mackenzie and several unincorporated communities.

- The economy of the Regional District of Bulkley-Nechako relies primarily on forestry, mining, agriculture and tourism. The largest communities are the Town of Smithers and the Districts of Vanderhoof, Fort St. James and Houston. Other smaller communities include the Villages of Fraser Lake, Burns Lake and Telkwa.
- The economy of the Regional District of Kitimat Stikine depends on mining and metal processing (Rio Tinto Alcan), forestry, energy, fishing and transportation. The largest communities are the City of Terrace and the District of Kitimat.

Table 6-1: Selected 2011 data on labour force activity

Key Indicators by Regional District (RD) in RSA	Selected 2011 Data on Labour Force Activity in RSA					
	Workforce	Labour Force	Employed	Unemployed	Participation Rate	Unemployment Rate
Peace River RD	41,765	34,750	32,525	2,220	74.8%	6.4%
RD of Fraser-Fort George	64,865	51,355	46,195	5,160	69.2%	10.0%
RD of Bulkley-Nechako	26,260	20,855	18,665	2,190	67.8%	10.5%
RD of Kitimat Stikine	25,485	18,530	16,135	2,395	62.2%	12.9%
Sub-Total - RSA	158,375	125,490	113,520	11,965		
BC Total / Average		2,354,245	2,171,465	185,775	64.6%	7.8%

Note: The Proponent defines the workforce as including the total population between the ages of 15 and 65 years of age. The labour force is defined by Statistics Canada as individuals who are currently working and/or are available for work and actively seeking work. Data may not add due to rounding.

Source: Data provided in the Application in Appendix 2N (Economic Technical Report) of the Application.

6.1.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The effects assessment for the economy focuses on three key indicators: government revenues, contracts and procurement expenditures, and community economic resilience. Beneficial effects of the Project on government revenues, employment, contracts and procurement opportunities are described in section 1.5 of the Application and summarized in section 2.5 of this report. Two key economic concerns were identified that could potentially result in adverse residual effects to the economy:

- Limited participation in contract and employment opportunities for qualified Aboriginal and local contractors and residents.

- Potential adverse effects to community economic resilience through alteration of existing community economic patterns and disruption of guide outfitting, hunting, trapping and agricultural activities in the proposed Project areas.

The Application outlines mitigation measures to reduce the potential adverse effects of the proposed Project on the economy that include:

- Implementing procurement and communication strategies to enhance participation in contract opportunities and employment for qualified Aboriginal and local businesses and residents.
- Communicating information about construction schedules and adhering to a Traffic Control Management Plan to reduce construction-related traffic disruptions and corresponding potential adverse effects on local business operations.

6.1.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During Application Review, several Aboriginal Groups including Blueberry River First Nations, Lax Kw'alaams Band, Metlakatla First Nation, Nak'azdli Band and Nadleh Whut'en First Nation expressed doubt that their communities would benefit from contracting opportunities. Northern Health also expressed concerns that some population groups would not share in the benefits while shouldering a greater portion of the social costs.

In response to these concerns, the Proponent re-iterated their commitment to continue discussions with economic development representatives from Aboriginal and local communities to communicate Project requirements, potential contract opportunities and related qualifications, and to identify qualified Aboriginal and local businesses interested in providing relevant goods and services. Also, the Proponent referred to several training initiatives that would target local and Aboriginal populations (see the effects assessment and mitigation measures for the employment and labour force VC).

Concerns were also raised about the legacy impacts of the “boom and bust” economic cycle likely to result from Project construction including the potential adverse effects on vulnerable groups in local communities (mentioned by Northern Health, Saik'uz First Nation and several other Aboriginal Groups, and the public).

The Proponent responded that the economy effects assessment considered the short-term nature of the construction phase, and that the Proponent's assessment of potential effects on community quality of life took into account economic-related issues.

6.1.4 Conclusion

Considering the above information and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have any adverse effects on the economy.

6.2 Employment and Labour Force

6.2.1 Background

The proposed Project's effects on employment and labour force are assessed through two key indicators: employment (direct, indirect and induced) and training opportunities, focusing on how Project related demands for labour may adversely affect local labour markets and the potential for inequities in access to training opportunities.

6.2.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

The Application provides extensive background information on the number of jobs to be generated by the Project, the expected size of the construction workforce, the types of skills required to construct and operate the proposed pipeline and compressor stations, employment practices, and education and training programs. To summarize:

- Direct Project-related employment is expected to total 16,803 person-years for the construction phase, with 10,916 person-years of the total direct employment estimated to be generated in BC (see Table 2-5). The construction workforce is expected to comprise 2,000 to 4,000 personnel at any given time during the three- to four-year construction period. An on-site construction workforce of 4,000 workers would represent 3% of the 2011 labour force for the four regional districts making up the RSA and that would be crossed by the 650 km pipeline, and 33% of the RSA workers who were unemployed in 2011.
- The types of employment available are expected to fall into three broad categories: entry-level positions, trades and skilled labour roles, and technical and professional positions. For some of the positions, previous pipeline construction experience will be an important asset. In other cases, skills from related industries would be transferable (e.g., heavy equipment operators). Table 6-2 provides an estimate of the composition of the workforce by type of skill for each of eight land-based pipeline segments and for each compressor station.

Table 6-2: Estimated composition of direct land-based pipeline construction labour force

	Per Land-Based Segment (Low and High Range)		Per Compressor Station (Low and High Range)	
Supervisors and Field Administration	50	100	15	20
Welders and Pipefitters	150	200	40	50
Equipment Operators	300	400	10	15
Labourers	150	300	20	30
Drivers	150	200	10	20
Electricians			20	30
Boilermakers, Carpenters and Other			25	35
Total	800	1,200	140	200

Pipeline construction is expected to require between 5 and 19 months for different segments with the most active period in each main camp expected to last up to 5 months. Table 6-3 summarizes initial estimates of the location and capacity of each of the 10 main construction camps. The table also provides the estimated number of pipeline construction camp workers during the five-month most active period expected in each camp. Approximately 100 to 200 workers would also be required during mobilization and wind-down.

In addition to the 10 main construction camps, small and mobile “pioneer camps” of between 20 and 200 workers are expected to be required. Construction of compressor stations is less cyclical than pipeline construction with crew sizes of between 140 and 200 workers per compressor station, over an 18 to 20 month period, while the construction of meter stations for require approximately 5 months. The schedule of when compressor and meter stations would be built has not yet been determined.

During Project construction, 75% or more of the on-site pipeline construction workforce is expected to come from outside the RSA:

- The labour requirements for construction are expected to exceed the relevant labour supply in the RSA.
- As a result of the temporary nature of the construction work and the short period of time in any one segment, only a very small proportion of the construction workforce is expected to relocate to the RSA during construction.
- Given the temporary nature of the construction work in any one location, it is unlikely that many individuals with permanent employment would leave their current positions for temporary work during the construction phase.

Table 6-3: Proposed construction section and main construction camps

	Camp Capacity	Estimated Number of Pipeline Construction Camp Workers for the Most Active Period in Each Camp					Estimated % of Local Hires
		Month 1	Month 2	Month 3	Month 4	Month 5	
Camp 1 - Chetwynd	750	113	750	750	750	75	10%
Camp 2 - Prince George	500	75	500	500	500	50	23%
Camp 3 - Prince George	500	75	500	500	500	50	23%
Camp 4 - Prince George	1,200	760	1,200	1,200	0	0	19%
Camp 5 - Vanderhoof	500	75	500	500	500	50	39%
Camp 6 - Burns Lake	1,200	760	1,200	760	0	0	16%
Camp 7 - Houston	1,500	950	1,500	950	0	0	13%
Camp 8 - Houston	500	75	500	500	500	50	39%
Camp 9 - Terrace/Kitimat	200	30	200	200	200	20	44%
Camp 10 - Terrace / Kitimat	500	75	500	500	500	50	39%

Notes:

- The start of the five-month construction period is expected to be as follows for each main camp: June 2016 for camps 1, 2 and 3; October 2016 for camp 4; November 2016 for Camps 6 and 7; and June 2017 for camps 5, 8, 9 and 10; based on that schedule, three of the eight sections would be constructed during winter months and five would be constructed during summer months.
- Based on that schedule, the number of workers would peak in November 2016 at 3,900 workers.

During the Proponent’s consultation with communities, the following key concerns were raised by community representatives with respect to potential Project-related effects on employment and labour force:

- Some communities are experiencing skilled worker shortages and may not be able to supply services to the proposed Project during construction activities.
- Some communities may not have enough time to train local workers for skilled positions.

In response to these concerns, the Proponent proposed several mitigation measures targeted at potential Project-related effects on the skilled labour shortages in the RSA. The Proponent’s proposed approach is to build on past and current community investment partnerships and develop field program training opportunities and education strategies similar to those used by proponents for other projects. The Proponent’s mitigation measures targeted at the potential Project-related skilled labour shortage and training opportunities during construction include:

- Confirm Project workforce needs well in advance of Project construction with economic development organizations, employment centres and educational institutions.
- Provide opportunities for qualified workers currently apprenticing to obtain trades certification during Project construction.
- Develop and implement a training program focused on developing Project-specific skills. Short-term workforce readiness training directly related to the proposed Project would focus on assessing and identifying gaps, determining proper skills development, and developing processes to help local residents obtain construction-related employment.

Training programs at local institutions such as Northern Lights College and the College of New Caledonia where community-specific and industry-specific programs have been developed may also be available to prepare a skilled workforce for this Project.

6.2.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the Application Review, concerns were raised by Aboriginal Groups, communities and government agencies about the potential effects on employment and potential labour force shortages:

- Several community leaders (e.g., Regional District of Kitimat Stikine (RDKS), Regional District of Bulkley Nechako (RDBN) and others), Aboriginal Groups and others expressed concerns about the distribution of employment opportunities to existing RSA businesses and residents, with some Aboriginal Groups requesting quotas or target numbers of employees by community. Doubts were expressed that the Proponent's proposed mitigation strategies would be sufficient to provide opportunities for qualified Aboriginal and local contractors and residents to gain long-term benefits from the Project. There was also concern that training would not be delivered in time for local workers to take advantage of higher skilled Project-related jobs.
- Community leaders expressed concerns that existing employers may have difficulty sourcing labour as a result of Project labour requirements, particularly during construction when a relatively large workforce may be required.

The Proponent responded that since few already-employed workers would

be likely to leave their current place of employment for the short-term opportunities offered by Project construction, the Project would not likely result in major changes in existing community economic patterns or disruption in the RSA employment markets.

Community representatives are particularly concerned with the potential for several LNG pipelines and other Projects proceeding concurrently may hinder the participation of local businesses and communities in economic benefits that could be expected from Project construction. These concerns are further discussed in Section 6.2.5 on cumulative effects.

EAO proposes a condition that if an EAC is issued, the Proponent would be required to develop a Socio-Economic Effects Management Plan (SEEMP). The SEEMP would provide for monitoring and reporting on the effectiveness of the Proponent’s training, employment, and procurement programs, and would require consultation with Aboriginal Groups, local governments, and service delivery agencies.

6.2.4 Characterization of Residual Project Effects

The proposed Project would have the following residual effect on employment and labour force:

- The creation of a shortage of available labour for some skills.

The residual effect on employment and labour force is characterized as follows:

Criteria	Assessment Rating	Rationale
Context	Not sensitive/ Somewhat resilient	Except for the Peace River Regional District, the other three regional districts have moderately high unemployment rates and moderate to low labour force participation rates.
Magnitude	Moderate	Characterization of moderate magnitude takes into account implementation of a formalized monitoring and reporting process. A construction workforce of up to 4,000 workers would represent approximately 3% of the labour force of the four regional districts. However, the peak construction period is likely to attract workers from all over BC and elsewhere, particularly given the temporary nature of the construction work, and short peak construction period (approximately five months) in any one of eight pipeline segments. Use of up to 18

Criteria	Assessment Rating	Rationale
		construction camps would help mitigate adverse effects on local labour force.
Extent	Regional	Any potential adverse effects related to the economic environment would primarily be on communities and businesses in the four Regional Districts crossed by the proposed Project (Peace River, Fraser-Fort George, Bulkley-Nechako, Kitimat-Stikine).
Duration	Short term to medium term	The adverse effects of Project construction on the economic environment at the community level would cease once Project construction is completed. The duration of construction is medium term (e.g., three-to-four-year construction period), but in a specific pipeline segment, the highest magnitude effects are expected to be limited to several months in either 2015 or 2016.
Reversibility	Reversible	Reversible after construction ceases.
Frequency	Continuous	Would be continuous during construction but with varying magnitude.
Likelihood	The likelihood is high that some degree of adverse effects would occur during Project construction with respect to skilled labour shortages in the RSA economy.	
Significance	Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse residual effects on labour force and employment.	
Confidence	Moderate level of confidence in validity of assumptions and analysis and effectiveness of proposed mitigation strategies. This arises from the inherent difficulties in accurately predicting how local labour markets may respond to new events.	

6.2.5 Cumulative Effects Assessment

The Application's cumulative effects assessment focuses on the potential cumulative effects on skilled labour shortage in the RSA as this is the only measurable parameter where a residual adverse effect is expected. The assessment suggests that several proposed industrial projects in northern BC could produce effects potentially overlapping both geographically and temporally with those associated with Project construction. Given the relatively short peak construction period for the Project, especially for any particular segment, forecasting temporal overlap with other projects is highly speculative.

A complete list of projects and activities considered in the cumulative effects assessment is provided in the Application, and was established through consultation with Working Group members and the public during the pre-Application stage of the environmental assessment. The assessment refers to the following natural gas pipeline projects:

- Pacific Trail Pipeline – Chevron
- Westcoast Connector Gas Transmission Project – Spectra Energy
- PNG Looping Project – Pacific Northern Gas Ltd.
- Prince Rupert Gas Transmission Project – TransCanada PipeLines Limited

The Enbridge Northern Gateway Project (Northern Gateway Pipelines Limited Partnership) is also listed as potentially overlapping geographically with the Project particularly for the sections in the Regional District of Bulkley Nechako (RDBN) and in the Regional District of Kitimat Stikine (RDKS).

The Proponent's assessment suggests other types of projects that could overlap with the Project, including the Carbon Creek Metallurgical Coal Mine, Graymont Western Canada proposed quarry and lime mine projects, and the Rupert Peace Power Rocky Creek Energy Project, could contribute to labour shortages.

In BC's northeast, construction of the proposed Project's pipeline segment could produce effects overlapping both geographically and temporally with those associated with construction of proposed gas processing plants, additional natural gas production and the proposed BC Hydro Site C Project, which would all contribute to the demand for labour in that region. A recent drop in coal prices has led to the closure of several coal mines in the Peace Region and reduced the likelihood of new coal mine development in the near term. This may result in some degree of labour demand offset in that region.

In RDKS, construction of the proposed Project's pipeline segment could produce effects overlapping both geographically and temporally with those associated with construction of LNG export facilities proposed for Kitimat, including the LNG Canada facility to be associated with this Project.

The pipeline segment in RDKS is expected to be built with a section workforce based in two main camps in the Terrace/Kitimat area, one with a capacity of up to 200 workers, and the other with a capacity of up to 500 workers. Pipeline construction for that segment is expected to be concentrated over five months in the summer of 2017, during which the two camps would be operating at full capacity for three of those months.

Data on construction timing and size of the workforce expected to build other proposed LNG projects in the Kitimat/Terrace region is not yet available. Some \$5 billion in construction projects would be winding down between 2014 and 2017, which could provide some degree of labour demand offset in the Pacific Northwest (e.g., Rio Tinto Alcan Kemano Modernization Project, Northwest Transmission Line/Iskut Extension, and AltaGas Forrest Kerr and associated projects).

The BC Government, industry, Aboriginal Group communities, and other communities have embarked on several initiatives to identify potential adverse cumulative effects on labour markets to help mitigate labour shortages expected in northern BC and/or increase the proportion of potential benefits likely to accrue to local communities and Aboriginal Groups from the LNG sector. These include:

- British Columbia Natural Gas Workforce Strategy Committee – The committee includes representatives from major companies, industry associations and provincial government ministries. In July 2013, the committee released the BC Natural Gas Workforce Strategy and Action Plan, which details multiple strategies and actions on the local, regional, national and international front to help overcome issues that have prevented portions of the labour force from participating in regional employment. That report estimated that at peak construction, which could occur between 2016/2017 and 2021, some 21,600 jobs could be created in the building of up to five LNG export facilities and associated pipelines in northern BC.
- Premier's LNG Working Group – In September 2013, the BC Government established the Premier's LNG Working Group with representatives from organized labour, industry, Aboriginal Groups and the province to review the skills training and workforce planning issues associated with the LNG industry. In March 2014, this Working Group issued a detailed report outlining key strategies for addressing the potential skilled labour shortages likely to emerge as major proposed projects in the LNG and other sectors proceed to the construction phase.
- Northwest Readiness Project – In December 2013, the BC Ministry of Community, Sport and Cultural Development initiated the Northwest Readiness Project in consultation and collaboration with the BC Ministry of Jobs, Tourism and Skills Training. This project is key in ensuring provincial service providers and communities expected to experience significant population growth in the northwest region are prepared to meet infrastructure, health, safety and social

service demands as proposed new industrial projects move from concept to construction stages and beyond.

Drawing from data sourced from project proponents, and in consultation with a number of regional stakeholders, the Northwest Readiness Project Team has now begun to develop a standardized set of scenarios of probable employment and population growth resulting from major project development in the region to assist communities with service planning.

- Northwest Regional Economic Collaborative – The BC Jobs, Tourism and Skills Training Northwest Regional Economic Collaborative includes the Northwest Labour Market Partnership, Northwest Tourism Strategy, Regional Investment Readiness and Bio-Energy Investment Attraction. This group brings together the communities of Kitimat, Terrace and Prince Rupert, as well as the Aboriginal communities of Kitselas First Nation, Kitsumkalum First Nation, Haisla Nation, Metlakatla First Nation and Lax-Kw'alaams Band, to identify priority areas for regional collaboration and promote economic diversification across the region.
- Industry: BC LNG Alliance – The BC LNG Alliance brings together four major LNG proponents in the province to coordinate community relations and labour strategies related to the proposed LNG facilities in BC's northwest. They include: Petronas's PNW LNG, Shell Canada Energy's LNG Canada, BG Group's Prince Rupert LNG, and Chevron's Kitimat LNG project.

EAO proposes a condition that if an EAC is issued, the Proponent would be required to develop the SEEMP, which would include monitoring activities to inform provincial management of potential cumulative socio-economic effects relating to pipeline construction and other projects. Ministry of Community, Sport and Cultural Development (CSCD) has indicated that they would take a lead coordinating role.

EAO concludes that, during construction, there would be a high likelihood of medium magnitude cumulative adverse effects on the regional labour supply and demand balance, but that the effect would be short term during Project construction. Project construction could combine with other reasonably foreseeable developments to cause a reduction in the available labour pool for existing industries that would be noticeable and moderately modify the regional and local economic environment.

EAO also recognizes that there are considerable uncertainties relating to the location and timing of the effects given the lack of quantifiable data about the precise location, footprint, schedule and design of many of the reasonably foreseeable future

developments. The Proponent proposes to address potential residual cumulative effects from the Project on skilled labour shortages in the RSA through:

- monitoring the effectiveness of Proponent supported training programs; and
- communicating with economic development organizations to confirm employment conditions in communities and the broader region.

Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant cumulative adverse residual effects on employment and labour markets.

6.2.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), and initiatives undertaken by BC Government ministries and agencies, EAO is satisfied that the proposed Project is not likely to have any significant adverse effects on the economic environment.

7. Assessment of Social Effects

The potential adverse effects of the proposed Project on a number of socially valued components were examined under the following three topic areas:

Topic Area	Valued Component
Land and resource use	<ul style="list-style-type: none"> • Current use of land and resources • Domestic water supply
Infrastructure services	<ul style="list-style-type: none"> • Community utilities and services • Transportation infrastructure and services • Community quality of life
Traditional land and resource use	<ul style="list-style-type: none"> • Current use of land and resources for traditional purposes • Cultural sites

These impacts to the valued components and key indicators under these topic areas are discussed in the sections of this chapter.

7.1 Land and Resource Use

7.1.1 Background

Most of the proposed Project would be located on provincial Crown land, with approximately 4.5% of the proposed route crossing private (freehold) land. The proposed pipeline route does not cross federally owned or administered land.

Land and resource use includes the valued components of current use of land and resources and domestic water supply, each of which has several key indicators.

Valued Component	Key Indicator
Current use of land and resources	<ul style="list-style-type: none"> • Human habitation • Recreational use • Industrial activities • Guide outfitting • Hunting, fishing and gathering • Trapping • Agriculture • Forestry

Valued Component	Key Indicator
	<ul style="list-style-type: none"> • Tourism • Designated areas • Scenic viewing
Domestic water supply	<ul style="list-style-type: none"> • Domestic water supply quantity • Domestic water supply quality

The study areas for the Project footprint include the permanent pipeline ROW and all potential locations for the temporary construction camps and other construction workspaces. The LSA is a 2-km band centred on the proposed route and the RSA is a 30-km band centred on the proposed route.

7.1.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

This section summarizes Project-related effects on land and resource use, and key proposed mitigation as assessed in the Application.

Human Habitation

The Proponent consultation with more than 600 potentially affected landowners informed route revisions around the communities of Lone Prairie, Fraser Lake, Tschesinkut Creek, Bald Hill and Sukunka Valley. Construction of the proposed Project on private land could temporarily affect the use of and movement on private property.

The approximately 4.5% of private land crossed by the proposed Project is in the eastern 7.7 km near Groundbirch, the western most 5.8 km in the District of Kitimat (which includes several land parcels held under title to the Haisla Land Trust), and several shorter segments in the Regional Districts of Peace River, Fraser-Fort George and Bulkley-Nechako.

The Application indicates that no compressor station would have residential receptors within a 1.5 km radius, and indicated noise levels (as modelled by the Proponent) at the closest residential receptors would be below established thresholds. See the Acoustics section of this report for additional discussion of potential noise impacts.

A pre-construction survey would be conducted by the Proponent to refine the construction footprint, as warranted, to avoid encroaching on residences, farmsteads, granaries, sheds, dugouts or access roads on or adjacent to private property. Before the clearing, construction and operations phases, schedule information would be provided to potentially affected residents. The Proponent would implement an Access Control

Management Plan and Traffic Control Management Plan to avoid or reduce disruption on private land, and would undertake to respond to issues over the life of the proposed Project in a timely manner. The Proponent would negotiate damage settlements related to the location of the ROW on the private property, unresolved residual adverse effects, and activity restrictions. When natural gas activities are proposed on private land, part of the application process to the OGC includes the requirement to negotiate a surface lease agreement with the private land owner.

Recreational Use

Outdoor recreation opportunities are abundant throughout the land and resource use LSA and RSA. Rivers, lakes, mountains and forests support common summer activities, including hiking, biking, horseback riding, hunting, fishing, boating, canoeing, kayaking, swimming and wildlife viewing. Winter activities include downhill and cross-country skiing, snowshoeing, snowmobiling and ice fishing.

The Application presents baseline information on outdoor recreation trails, sites and features drawn from provincial inventory data sets, recreation guidebooks and Proponent communications with key informants. There are eight designated non-motorized use trails and four motorized use trails crossed by the proposed pipeline route, as well as two additional designated trails within the LSA. It is likely that several undesignated trails would also be crossed by the pipeline route.

No provincially designated recreation sites would be crossed by the proposed route, but eight recreation sites and recreation reserves are located within the LSA. The proposed route would cross five known river paddling routes.

Clearing, construction and reclamation of the proposed route would result in land disturbance that could alter recreational use sites, trails and paddling routes. During the construction phase, the use of localized areas may be temporarily restricted to protect human safety. In addition, access roads used to construct the proposed route may be temporarily closed. Adverse effects of Project operations on recreational use of lands would be primarily related to visual effects of the pipeline ROW at intersections with trails and streams, and in scenic areas. There would also be potential for facilitation of unwanted motorized access to previously non-motorized areas. The Proponent suggests several mitigation measures to reduce effects on outdoor recreation, primarily related to notification/communication regarding locations and timing of Project activities during Project construction, access control management, traffic control management, reclamation of disturbed areas following construction and mitigation related to scenic viewing.

Guide Outfitting

Guide outfitting relies on access to the land base during select seasons and depends on the presence of suitable habitat for target species (the most active guide outfitting period is typically during the fall).

The Application provides the locations and length of pipeline route traversing each of 16 potentially affected registered guide outfitting territories. Guide outfitters offer a variety of services and experiences to non-resident hunters, with big game hunting the dominant product offered. The six Game Management Zones crossed by the proposed Project hosted over 3,000 non-resident hunting days in 2011.

Disturbance associated with activities during the construction phase may affect the quality of the experience for those purchasing the services of guide outfitters if their operations are in proximity to the proposed route or access routes. In addition, construction phase activities could disrupt access to select areas used by guide outfitters.

The Proponent suggests several mitigation measures to reduce effects on guide outfitters during Project construction, primarily related to notification/communication regarding locations and timing of Project activities, as well as compensation for demonstrated damages.

Hunting, Fishing and Gathering

Hunting and fishing are prominent lifestyle activities for residents and visitors to the regions crossed by the proposed Project. Some of the most well-known and popular areas include the Sukunka Valley, Morice River, Kitimat River and Tchesinkut Lake. Gathering, particularly wild mushroom harvesting, is also prevalent but little public information is available on the extent of gathering activities.

The Application provides baseline data on hunting by BC residents for the 12 Wildlife Management Units, six Game Management Zones and 15 Limited Entry Hunt areas crossed by the proposed route. The most commonly hunted big game species are (in order of harvest) moose, elk, white-tailed deer, and black bear.

Five popular fishing lakes are located in the LSA, and 12 popular fishing rivers and creeks would be crossed by the proposed route.

Construction could temporarily affect hunting activities as a result of noise, land disturbance and access restrictions. Most of the land along the proposed route is actively used for hunting and as a result, disruption to hunting activities is expected to

occur in at least some areas during the active September to November hunting period. Concerns were also noted regarding the safety of pipeline workers during hunting seasons, as well as indirect impacts to hunting due to the potential Project effects on wildlife and wildlife habitat.

Construction may temporarily alter road access to preferred fishing locations, as roads are used to transport machinery and materials. Noise and dust may be generated in proximity to popular fishing areas, affecting the fishing experience in these areas. Concern was also noted regarding indirect impacts to fishing due to the potential Project effects on fish and fish habitat.

Mitigation measures to address potential Project effects on hunting and fishing activities include: public notification of Project activities and schedules using signage and local media outlets; an Access Control Management Plan; a Traffic Control Management Plan; and mitigation measures related to fish and wildlife. The Proponent's Environmental Management Plan includes a "no hunting/fishing" policy for employees.

Potential impacts to Aboriginal hunting, fishing and gathering are discussed in Part C of this report.

Trapping

Trapping activities are regulated through a system of registered trap line areas. Most trapping activity is focused in the winter and spring seasons (i.e., September to May). The registered trap line system sets harvest guidelines for beaver, fox, marten, mink, muskrat, raccoon, skunk, squirrel, weasel, lynx, bobcat, wolverine, fisher, otter, wolf and coyote.

A total of 32 trap line areas would be crossed by the proposed Project, each for distances ranging up to 30 km. The Application presents additional information regarding trapping seasons by species and the specific locations where individual trap line areas would be crossed.

Construction activities have the potential to affect access to trap lines and disrupt existing trapping activities. Pipeline construction in northern BC is expected to be carried out throughout the year, except during break-up in the spring. Based on the Proponent's current schedule, three of the eight pipeline sections would be constructed during winter months and five would be constructed during summer months (Table 6-3).

Pipeline operations are generally not expected to adversely affect trapping activities. While some preferred habitats for martin and fisher are expected to be lost to the

pipeline ROW, effects are expected to be low in magnitude with little effect on furbearer populations.

Proposed mitigation measures include: notification and communication with trappers regarding locations and timing of pipeline construction activities; a Trapper Engagement and Compensation Program for demonstrated economic losses; and several mitigation measures related to wildlife. The Proponent also commits to follow up with each trapper after completion of construction to verify whether there are any outstanding concerns. OGC has established notification and compensation requirements that oil and gas proponents must implement with registered trappers.

Potential impacts to Aboriginal trapping are discussed in Part C of this report.

Agriculture

Agriculture is an important economic activity along several portions of the proposed Project, and includes hay and crop production, and ranching.

The proposed route crosses approximately 21 ha of lands currently used for agriculture (i.e., cultivated, pasture) and 40.2 km (402 ha) of designated Agricultural Land Reserve (ALR) land. In addition, the proposed Wilde Lake metering and compressor stations would be located on 64 ha of ALR. The Application states that the proposed route crosses 16 active Crown range tenures in the Peace (48.4 km), Vanderhoof (43.3km) and Nadina (36.2 km) forest districts.

Construction has the potential to affect existing agricultural operations through crop losses, soil and drainage effects, introduction of invasive species, disturbances to cattle, fencing and irrigation, and disturbances to stockwater supplies. Concern was also expressed about the loss of agricultural land from compressor or meter stations. Some disturbance to grazing activities is anticipated during construction, but little impact is expected after reclamation following construction disturbance.

For agriculture crop production, proposed mitigation measures include:

- notifying and communicating with crop producers about activities and scheduling;
- repairing damage to irrigation and drainage infrastructure;
- implementing a Soil Handling and Erosion Control Plan and an Invasive Plant Management Plan; and
- ensuring compliance with the Agricultural Land Commission requirements regarding soil handling and reclamation on ALR land.

For disruption of grazing activities, proposed mitigation measures include:

- notifying and communicating with landowners and lessees about activities and scheduling.
- controlling the use and routes of motorized vehicles associated with construction activities;
- minimizing interference with natural drainage patterns;
- implementing a Reclamation Plan;
- installing fencing where warranted, in consultation with landowners and occupants;
- compensating for established damages resulting from Project construction; and
- employing weed control measures.

Forestry

The proposed pipeline route would cross the Peace, Prince George, Vanderhoof, Nadina and Kalum forest districts, and the Dawson Creek, Prince George, Lakes District, Morice and Kalum Timber Supply Areas (TSAs). In addition, the proposed route would cross two Tree Farm Licences (TFLs), eight woodlots, potential Aboriginal Group woodland tenures, a range of other forestry tenures and the Burns Lake Community Forest.

The Project is expected to have two types of adverse effects on forestry: reductions in short-term timber supply due to the loss of forested land base associated with the pipeline ROW, and temporary disruption or alteration of forestry operations in tenured areas during Project construction.

Construction of the proposed route would entail clearing forested areas along the Project footprint (generally 55 m, but up to 100 m in some areas), much of which overlaps the operational timber harvesting land base for forest tenure holders, including TSA licence holders, TFLs, woodlots, community forests, potential Aboriginal Group Woodland Licences and other forest licensees. A Reclamation Plan would be implemented by the Proponent to replant commercial tree species on temporary workspace in forested areas; the reclaimed ROW (32 m) would not be replanted with commercial tree species, but would be allowed to naturally regenerate except for a 10 m portion of the Project footprint where vegetation suppression would continue.

The Proponent intends to market merchantable timber that is harvested to clear the ROW, but there are certain cases when it may not be transported to a conversion facility, including when:

- merchantable timber is retained for use as rollback for on-site erosion control and access control;
- merchantable timber is used as corduroy during construction;
- the salvaging of merchantable timber is determined by a Registered Professional Forester or Registered Forest Technologist to not be operationally practical due to site-specific factors ;
- there is a risk that the recovery of fibre would cause damage to other resources in excess of the value of the fibre recovered; and
- merchantable timber cannot be removed in a safe manner.

Proposed mitigation measures are primarily regarding communication and coordination with tenure holders and forest managers to limit disruptions or plan for alterations to timber flows to markets. Any associated compensation would be in accordance with public land policy as described in “A Practical Guide to Effective Coordination of Resource Tenures” (Forestry, Lands and Natural Resource Operations, 2004).

Tourism

Tourism plays an important role in the RSA, offering many experiences, activities and attractions.

Commercial recreation operators generally receive one of two types of licences of occupation for recreation tenures on Crown land, including extensive use permits and intensive use sites. *Extensive use permits* include nature viewing, hiking, snowmobiling and ski touring. *Intensive use sites* include base camps, lodges and moorage facilities. The Application provides the locations and length of pipeline route crossings over four extensive use commercial recreation tenures. The Proponent estimates that in all cases the proportion of tenured land area crossed by the pipeline route is less than 1%.

The potential adverse Project effects include: disruption to tourism and commercial recreation activities from Project construction; and disruption to community festivals and events related to Project effects on the availability of temporary accommodation.

Mitigation measures include communication of construction schedules with tenure holders so they can relocate operations within their tenure during construction periods.

Effects on temporary accommodation are considered in section 7.2 of this Assessment Report, under Community and Regional Infrastructure and Services.

Designated Areas

The proposed pipeline route would traverse a number of planning areas:

- 6 Land and Resource Plan (LRMP) areas
- 3 Sustainable Resource Management Plan (SRMP) areas
- several First Nations land management plan areas
- 5 Official Community Plan areas, covering four regional districts and the District of Kitimat

Many of these areas have special management objectives concerning human activity and development. The Application details where the pipeline route overlaps with specific management zones designated by each of those plans. Specific areas noted where Project activities may conflict with established management objectives include: the Herd Dome Area-Specific Management Zone (ASMZ) in the Morice LRMP Area; an area designated as Environmentally Sensitive in the Kitimat Official Community Plan; OGMA (14 crossed); and UWRs (4 crossed).

The proposed pipeline route would not cross any municipal, regional, provincial or federal parks. The route passes near Sukunka Falls Provincial Park (0.7 km) and Burnie River Protected Area (0.1 km).

The Proponent suggests mitigation for potential adverse Project effects to the Herd Dome ASMZ relating to ongoing unauthorized motorized access using Project-created access points.

OGMAs are considered in more detail in the vegetation section of this report, while UWRs are considered in the wildlife section.

Other Industrial Activities

Other industrial activities include wind power, oil and gas, aggregate operations, and mineral and sub-surface resources.

The proposed pipeline route crosses 60 mineral tenures, 12 coal licences, one coal application area and three active aggregate pits.

Two operating mines and one proposed mine are located in the RSA. The Brule Coal Mine is approximately 5.2 km west of KP 91.0. The mine is an open pit mining

operation, owned by Walter Energy Western Coal, and the proposed route crosses two access roads to the mine. The Endako Mine, owned by Thomson Creek Metals, is an open pit mine located approximately 1.8 km south of KP 396.0, and the proposed route crosses the access road to the mine. The Sukunka Coal Mine, a proposed open pit and underground mine, is located approximately 9 km southeast of KP 100.0. The main access for Sukunka Coal is the Sukunka forest service roads and the proposed Project does not appear to cross it. From KP 117.2 to KP 119.8, First Coal Corp. (Xstrata/ Glencore) have adjacent coal licences that would also be crossed by the proposed Project.

The proposed pipeline would cross 14 other oil and gas pipelines, five oil and gas tenures, 14 hydro-electric transmission lines and one wind energy investigative use permit.

Mitigation measures are proposed to reduce or eliminate adverse effects from these crossings including avoidance of aggregate operations where practical, communication with potentially affected tenure holders, and compensation for demonstrated damages.

Scenic Viewing/Visual Quality

In BC, scenic landscapes are valued by both residents and visitors. Scenic viewing is an important aspect of recreation and tourism activities on BC's forest lands. Visual quality objectives (VQOs) identify the level of disturbance that would be acceptable on a viewscape. VQOs are established primarily to manage forestry activities on the landscape and are not designed to specifically consider oil and gas activity. Visual quality is not regulated by the OGC under the *Oil and Gas Activities Act*.

The Project footprint would overlap portions of 63 visually sensitive scenic areas with established VQOs. The resulting disturbance patterns on these landscapes for the ROW and compressor and workcamp sites would be classified as "unnatural" (i.e., linear or rectangular), based on the criteria applied to forestry activities. Much of this disturbance would remain evident for the duration of Project operations due to the ongoing suppression of vegetation.

Four areas crossed by the proposed Project footprint have a VQO designation of Retention, which permits no visually evident alteration to the landscape; and 25 areas crossed by the proposed Project footprint have a VQO designation of Partial Retention, which would be difficult to achieve with the unnatural geometric nature of the footprint disturbance (the Segundo Lake compressor station is located within a Partial Retention VQO designation).

The Proponent has attempted to avoid adverse Project effects on the highest visually sensitive areas through careful selection of the pipeline route alignment (e.g., no areas with established Preservation VQOs are crossed). The Proponent indicates that specific mitigation at particular viewpoints (e.g., trail crossings in areas with established VQOs) may be feasible through installation of visual barriers such as berms or vegetative screening.

Domestic Water Supply

Domestic water in the proposed Project area is available from groundwater or surface water sources and extracted for domestic, industrial, agricultural and recreational purposes.

The proposed Project has the potential to adversely affect existing domestic water sources during the construction phase. This could occur through a reduction in water quality as a result of elevated sediment levels, increased demands on community water systems to supply construction camps, or alterations to existing infrastructure, such as wells or points of diversion. The assessment of the proposed Project effects on domestic water supply is provided in earlier sections (5.7 and 5.8) of this report.

There are 48 registered water wells located within 1 km of the proposed pipeline route, none of which is “encroached” upon, meaning that none of the water wells identified spatially overlaps the proposed Project. Also noted are 22 points of diversion within the LSA, none of which would be overlapped by the proposed Project footprint.

No community watersheds designated under the *Water Act* are crossed by the pipeline route, or located in the LSA.

The Proponent proposes several mitigation measures, including a monitoring program for owners of shallow domestic wells located within 200 m of the proposed route. The program would determine water quantity and water quality before and during construction, and provide for alternative sources of potable water if water quality would be adversely affected during construction.

7.1.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During Application Review, concerns were raised by government agencies, Aboriginal Groups, and the public about Project-related effects on current land and resource use.

Some of the key concerns raised during Application Review are summarized in this Section. Section 7.1.5 of this report provides additional information on the assessment of cumulative effects on current land and resource uses.

Human Habitation

During Application Review, the Proponent continued to engage with landowners to resolve outstanding concerns and identify mitigation strategies. This information was reported in the Proponent's third public consultation report, submitted to EAO during Application Review. No significant issues were raised by government agencies, Aboriginal Groups or the public during Application Review.

Guide Outfitting and Tourism

At the request of EAO during Application Review, the Proponent conducted an analysis of the potential interaction between the proposed pipeline route and the BC Recreation Features Inventory. This analysis did not identify any additional important recreation features that could be affected by the Project that had not been previously identified through other information sources.

Also at the request of EAO during Application Review, the Proponent provided additional information on the four commercial recreation tenures expected to be disturbed, indicating that less than 1% of each tenured area would be disturbed. The Proponent also indicated that as of June 2014, no feedback on potential Project effects had been received from any of the four commercial recreational tenure holders, although the Proponent has committed to continue their engagement activities with these stakeholders.

During Application Review, a guide outfitter requested their camp be relocated and compensation provided. Negotiations with the Proponent are ongoing (Public Consultation Report 3, Activity dated March 7, 2014).

No significant issues were raised by government agencies, Aboriginal Groups or the public during Application Review.

Hunting, Fishing, Gathering, Trapping, and Recreational Use

During Application Review, concerns were raised by Aboriginal Groups and the public with respect to the potential effects of increased road and ROW access during Project construction and operations on hunting, fishing and gathering, as well as trapping activities. In general, the concerns related to the need to balance the social desire for increased recreational access against potential adverse effects on established hunting,

fishing, gathering and trapping activities. During the public comment period, comments were also received from the Northwest Fish and Wildlife Association, requesting that wildlife population inventories be updated prior to Projects commencing, in particular for grizzly bear and mountain goat.

The Proponent indicated that the Traffic Control Management Plan and Access Control Management Plan would include access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. Temporary access used during construction would be deactivated and reclaimed following construction to discourage increased access during the operations phase, subject to approval by regulators. The Proponent committed to monitoring the effectiveness of access management measures as part of the Post-Construction Monitoring Program described in Section 9 of the EMP (Appendix 3-A). EAO is proposing a condition requiring the Proponent to develop and implement a no-hunting, no-fishing, no-trapping, and no-plant gathering policy for its employees during work hours. Another proposed condition would require the Proponent to notify all known tenure holders that may be affected by the Project, at least six months prior to carrying out activities.

Agriculture

At the request of EAO, the Proponent clarified that the only meter and compressor station sites that would be located on the ALR are those at Wilde Lake, and that these sites would account for 64 ha of the 402 ha of ALR impacted by the proposed Project.

The Proponent also clarified that during Project operations only the ALR land overlapped by the Wilde Lake stations would be removed from potential or existing agricultural production, and ALR land overlapping the proposed pipeline would be returned to full agricultural production once the post-construction reclamation phase is complete.

Forestry

During Application Review, FLNR and others raised several concerns related to the use of merchantable timber to be harvested from the Project construction footprint, and the potential for long-term effects related to reductions in THLB. EAO and OGC entered into discussions with the Association of BC Professional Foresters (ABCPF), the Council of Forest Industries (COFI), and BC Timber Sales (BCTS) to better understand the concerns of the industry.

In response to these and other concerns, EAO requested additional information from the Proponent on the area to be cleared from the THLB within each forest management unit, the gross volume of merchantable timber volume by management unit, and the long-term effects of the pipeline corridor on timber supply. Supplementary information was provided by the Proponent, including Table 7-1, which presents the impact to THLB in each management unit. In order to take a conservative approach, the construction clearing estimates are for a 100-m cleared ROW, while generally only a 50- to 60-m ROW would be required construction clearing.

Table 7-1: Summary of the Project footprint in THLB and non-THLB, by administrative unit

Administrative Unit	Total Area (ha)	THLB Area (ha)	Construction Clearing (100 m)			Reclaimed ROW (32m)	
			THLB cleared (ha)	Non-THLB cleared (ha)	% of THLB cleared	THLB cleared (ha)	% of THLB cleared
Dawson Creek TSA ^a	2,300,000	758,200	513	79	0.07%	160	0.02%
Prince George TSA	7,970,000	3,096,125	2,237	89	0.07%	790	0.03%
Lakes TSA ^a	1,100,000	523,909	536	34	0.10%	199	0.04%
Morice TSA ^a	1,500,000	648,956	1,312	90	0.20%	386	0.06%
Kalum TSA ^{a, b}	522,700	81,000	1178	8	0.15%	67	0.08%
TFL48 ^a	643,239	356,756	818	15	0.23%	239	0.07%
TFL41 ^{a, b}	201,939	31,558	362	75	1.1%	101	0.3%
W1790 ^c	595	N/A	0.5	4	0.08%	0	0.0%
W1528 ^c	805	N/A	23	0.05	2.8%	9	1.1%
W1418 ^c	858	N/A	7	0	0.8%	3	0.4%
W1706 ^c	795	N/A	16	0.05	2.1%	7	0.9%
W0125 ^c	733	N/A	19	0.1	2.6%	8	1.1%
W1690 ^c	991	N/A	12	2	1.2%	5	0.5%
W0950 ^c	712	N/A	14	0	2.0%	6	0.8%
BLCF ^{a, c}	92,000	N/A	277	N/A	0.3%	N/A	N/A

^a Adjusted by EAO based on review of FLNR data; all other information is from: June 24, 2014 TransCanada Technical Memo in response to Information Request.

^b The Gross Area, THLB and AAC for TFL 41 and Kalum TSA were substantially reduced in 2012. Estimated Project effects are likely overstated for these management units as some of the estimated Project footprint is likely outside of the updated management unit boundaries.

^c Calculations are THLB cleared as a percent of the total area, as total THLB area estimates are not available.

Although there appear to be some inaccuracies in the estimates, Table 7-1 shows that the THLB impacts of the reclaimed ROW would be modest (substantially less than 1%) for most management units with the exceptions of woodlots where the THLB effects may be around 1% of the total area. Over time, additional encroachment would be allowed on the pipeline ROW, with the general requirement that at least 5 m on either side of the pipe must be kept clear of trees to allow for aerial monitoring.

During Application Review, FLNR, RDBN, ABCPF, COFI and others expressed concern with log and wood fibre utilization. The Proponent committed to continued dialogue with

appropriate regulatory authorities in the development of clearing and timber salvage planning, and the resulting merchantable and residual fibre use.

In consideration of the potential effects of the proposed Project on forestry activities and the issues raised during Application Review, EAO proposes a condition that requires the Proponent to develop a Timber Salvage Strategy to ensure appropriate management of merchantable and non-merchantable timber. In addition, EAO proposes a condition that the Proponent engages timber tenure holders in the development of a Timber Salvage Strategy and Access Control Management Plan to mitigate associated adverse effects on the forest sector. FLNR, ABCFP, COFI and BCTS were engaged in the development of these proposed mitigation measures to reduce the potential effects of the proposed Project on forestry operations.

Designated Areas

During Application Review, concerns were raised by government agencies, by several Aboriginal Groups, and the public about the Project-related effects and cumulative effects of multiple projects, on several designated areas including:

- the proposed Telkwa Caribou Wildlife Habitat Area (WHA);
- the Herd Dome Area Specific Management Zone (SMZ) in the Morice area;
- the Anzac River Valley Resource Management Zone (RMZ) in the Prince George area;
- the River Corridor Special Management Zones in the Dawson Creek area; and
- the potential effects on Old-Growth Management Areas (OGMAs).

The Proponent produced Technical Memos at the request of EAO that included additional information and suggested additional mitigation strategies as follows:

- The Proponent's efforts to avoid the proposed Telkwa Caribou WHA reduced the overlap to a small section of the southwest corner of the proposed WHA. The Proponent also committed to work with regulatory agencies to identify opportunities to address potential adverse Project-related effects on the Telkwa Caribou where the proposed pipeline route traverses the WHA (e.g., development of compensation or offsets).
- The Proponent acknowledged the potential residual Project-related adverse effects on the Herd Dome Area SMZ and reiterated the mitigation strategies presented in the Application.
- The Proponent provided mapping of the Application corridor in relation to OGMAs. The Proponent indicated that it expects guidance and direction from FLNR and OGC about the appropriate approach and required

permitting to address the temporary Project footprint during construction as well as pipeline routing in OGMA's.

EAO is proposing a condition that would require the Proponent to develop a Caribou Mitigation and Monitoring Plan. This condition and EAO's assessment of effects to caribou are discussed in more detail in the section 5.10 of this report.

Impacts to the Herd Dome Area SMZ, the Anzac River Valley RMZ and the River Corridor SMZ would be required to be minimized as part of the regulatory process undertaken by the OGC. Residual effects to these areas would occur as a result of the proposed Project, but no further mitigation is required by EAO.

EAO is proposing a condition to require the Proponent to adhere to any orders under provincial legislation which apply to an Old Growth Area, and where an Old-Growth Management Areas (OGMA) cannot be avoided, to prepare a proposal for replacement or recruitment of that area.

Industrial Activities

During Application Review, FLNR and others also expressed concerns that the pipeline route would cross access roads to several mines, aggregate pits, and other industrial projects including projects outside the RSA. For example, disruption of road access could be a concern to Huckleberry Mine even though the mine is near Ootsa Lake, some distance south of the RSA boundary.

The Proponent responded that they have committed to developing a Traffic Control Management Plan and an Access Control Management Plan as part of the permitting process for Project construction, and would continue to engage tenure holders prior to construction as part of the ongoing implementation of the Public Consultation Plan. EAO has also proposed a condition regarding the development of these plans.

On July 15, 2014, EAO received a letter of concern from Thompson Creek Metals Company, an operator of the Endako Mine Project near Fraser Lake, regarding the safety of locating the proposed pipeline near an active open pit mine, and the potential interference with mining operations from construction of pipeline infrastructure and ancillary sites. Currently, the planned construction footprint is approximately 103 ha across tenures held by Thompson Creek Metals. EAO requested additional information from the Proponent, which included:

- a summary of consultation activities with Thompson Creek Metals Company;
- a map clearly showing how all infrastructure from the proposed Project could impact mineral licences and leases associated with the Endako mine Project, as well as estimates of the areas impacts;
- an explanation of whether and how the proposed Project would be compatible with the rights currently held by the Endako Mine Project and a discussion of any direct or indirect impacts of the proposed Project on the rights held by Endako Mine Project; and
- mitigation measures proposed by the Proponent and the impact of these measures.

Along with the provision of this information to EAO, the Proponent has been in further discussion with Thompson Creek Metals Company. Discussion has identified the desire by Thompson Creek Metals for the routing of the proposed pipeline to be as far north in the Application Corridor as possible in order to lessen the impact on Thompson Creek Metals' tenures. The Proponent has indicated that the current proposed routing through the tenures is aligned with an existing road and powerline, as well as Highway 16 and that it is expected that this routing would avoid or reduce potential adverse effects on operations of the mining company. However, they have committed to engaging in a more detailed review of potential overlap of activities. Ongoing implementation of the Proponent's Public Consultation Plans, and further discussions, would continue as part of the construction planning to mitigate concerns.

Scenic Viewing/Visual Quality

During Application Review, FLNR requested that the Proponent consider the design concepts for the ROW clearing to mitigate the visual effects of straight linear boundaries created by the pipeline ROW, especially in Retention or Partial Retention VQOs. The public also raised concerns regarding visual effects of the proposed Project. The BC Government's Visual Landscape Design Manual was noted as a source of guidance on techniques to address this type of visual disturbance. FLNR also suggested the Proponent monitor visual changes and VQO achievement by following the FLNR Visual Quality Effectiveness Protocol.

The Proponent responded that the proposed pipeline route was aligned to avoid community viewsheds and parallel existing linear disturbance, where practical. However, as a pipeline project required linear clearing it may conflict with some VQOs. The Proponent would review the Visual Landscape Design Manual and consider the use of design concepts, where practical.

At the request of EAO, the Proponent also provided additional information on scenic areas crossed by the proposed route by polygon number to facilitate the assessment of cumulative effects from several pipeline projects.

EAO proposes a condition that the Proponent develop a Visual Quality Management Plan in consideration of FLNR's Visual Landscape Design Training Manual (1994), prior to construction. The plan should demonstrate consideration of FLNR policy where the Project footprint intersects with scenic areas, and describe efforts made to support achievements of VQOs.

7.1.4 Characterization of Residual Project Effects

After considering all relevant proposed mitigation measures, EAO concludes that the proposed Project would result in the following residual adverse effects on current land and resource use:

- Human habitation: Alteration and disturbance of privately owned lands, including disturbance of properties owned by Haisla Nation.
- Designated areas: Unauthorized motorized recreational activity in the Herd Dome Area-Specific Management Zone (ASMZ) using Project-created access points. (Alteration of OGMA's is assessed in the vegetation section of this report.)
- Forestry: restriction in long-term timber supply and alteration of forestry operations in tenured areas during construction
- Other socio-economic activities (i.e., agriculture, guide outfitting, tourism, recreational use, hunting, fishing, and gathering): disruption and alteration of activities due to impacts from noise, visuals, access and some direct site disturbance
- Visual quality: variation from current visual quality objectives in some visually sensitive areas.

Summarized below is EAO's assessment of the expected residual effects of the proposed Project on current land and resource uses, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Criteria	Assessment Rating	Rationale
Context	All: Moderate sensitivity and resiliency	Most areas in the region have a moderate level of sensitivity and resiliency to disturbances to land and resource uses. The proposed Project would be located in regions that have a long history of resource activity, including forestry, mining, agriculture, tourism and oil and gas, as well as other socially important activities, including human habitation, recreational uses, hunting, trapping, fishing and gathering.
Magnitude	<p>Habitation: Low</p> <p>Designated Areas: Medium</p> <p>Forestry: Low to medium</p> <p>Other activities: Low to medium</p> <p>Visuals: Medium</p>	<p>Habitation: After compensation for direct disturbances, residual effects are expected to be of low magnitude, and related to noise and other long-term inconveniences.</p> <p>Designated Areas: The magnitude of effects is considered to be medium for the Herd Dome Area-Specific Management Zone (ASMZ) during construction (noise, dust, heavy equipment, helicopters and motorized vehicle access, which would end upon completion of construction) and during operations due to the long-term presence of the pipeline ROW (increased access and unnatural appearance).</p> <p>Forestry: The potential Project effects on alteration of forestry operations in tenured areas during construction are considered to be low to medium in magnitude due to access constraints and alterations of harvesting plans. The potential long-term effects on timber supply are considered low in magnitude as less than 1% of the timber harvesting land base of each major licence is expected to be unavailable for forestry for the duration of the Project.</p> <p>Other activities: During construction, the Project disruption of activities is considered to be medium in magnitude due to noise, access restrictions and disruptions to visual aesthetics. The potential effects from increased access along the proposed route (mainly during construction but some increased access during operations) are considered to be low in magnitude after mitigation which includes compensation (to commercial activities) for demonstrated damages. After compensation for direct disturbances, residual effects are expected to be of low magnitude, and related to noise</p>

Criteria	Assessment Rating	Rationale
		<p>and other long-term inconveniences.</p> <p>Visuals: The magnitude of effects on visual quality (alteration of visually sensitive views) is expected to be medium as the cleared Project footprint would likely be visible as an unnatural disturbance in many scenic areas, and inconsistent with established VQOs in many of the more visually sensitive areas. However, it is acknowledged that VQOs were established in relation to forestry activity and do not consider the design constraints of oil and gas projects.</p>
Extent	All: Project footprint to regional	Extent would range between effects limited to Project footprint (e.g., alienation of specific parcel of agricultural land, timber clearing) and more regional effects where disruptions during construction and the existence of the right-of-way could affect activity and/or enjoyment of land and resources (e.g., recreational uses, guide outfitting, visual quality).
Duration	All: Short term to long term	The duration of adverse effects from Project construction would generally be short term, but the duration of adverse effects from the existence of the right-of-way and compressor and metering stations would persist for the life of the Project (e.g., recreational trails, alienation of agricultural lands, alienation of THLB, disruptions to designated areas and scenic viewing).
Reversibility	All: Reversible	Activity disturbance effects are expected to be reversible once construction is complete. Operations impacts would be reversible following decommissioning.
Frequency	All: Occasional to continuous	The adverse effects during construction range between occasional (e.g., noise-related effects on activity) and/or continuous for the length of the construction period. The adverse effects during operations would be continuous (30 years or more).
Likelihood	The likelihood is high that some degree of adverse effects on land and resource use would occur during Project construction and during operations.	
Significance	Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse residual effects on land and resource use.	
Confidence	There is a medium level of confidence in validity of assumptions and analysis and effectiveness of proposed mitigation strategies.	

EAO characterization of potential effects on domestic water supply is addressed in sections 5.7 and 5.8 of this report, on surface and groundwater effects, respectively.

7.1.5 Cumulative Effects Assessment

The Proponent's assessment of potential cumulative effects on land and resource uses suggests that several proposed Projects in northern BC, which includes the RSA, could produce effects potentially overlapping both geographically and temporally with those associated with the Project.

Some of the Proponent's findings regarding cumulative effects on land and resource uses include:

- It is unlikely, although possible, that other known reasonably foreseeable future developments would be proposed to be constructed on the same land parcels of privately owned lands and/or specific areas (e.g., Haisla Nation fee simple lots, specific areas of the Pine Creek Covenant and/or agricultural land parcels).
- There could be incidences where effects from several projects overlap in both time and space with effects from the proposed Project, particularly where the proposed route parallels existing linear disturbances. For example, the same visually sensitive areas could be crossed by more than one project.
- It is likely that some of the reasonably foreseeable future developments would occur within the wider land and resource RSA; and, while they would not necessarily overlap spatially with the Project footprint, they could contribute to cumulative disturbances to nature-based activities at the regional scale. For example, even where Project footprints of individual projects do not overlap:
 - some of the same regional lakes and creeks used for fishing could be disturbed by more than one project;
 - there could be cumulative increased access to wildlife populations, which could result in increased hunting in areas that were previously not considered productive hunting areas; and
 - the cumulative loss of long-term timber supply and THLB could substantially affect a specific TSA or other management unit.

However, generally there is a lack of quantifiable data about the precise location, footprint, schedule and design of many of the reasonably foreseeable future developments.

To help address potential residual cumulative adverse effects on land and resource uses, the Proponent proposes to communicate with government agencies and stakeholders to help mitigate any adverse cumulative effects. For example, the Proponent suggests communicating with:

- landowners and residential developers to negotiate damage settlements related to Project activities;
- the Haisla Nation to receive updates on the status of the fee simple lots;
- registered guide outfitters, trappers and commercial recreation tenure holders to confirm appropriate mitigation and reclamation; and
- the FLNR and BC Parks to determine the potential cumulative effects on the Herd Dome ASMZ, trails and use areas crossed by the proposed route, forest tenures, visually sensitive viewsapes and OGMAs.

During Application Review, some concerns were raised about the need to quantify Project-related residual effects on land and resource uses in order to facilitate assessment of cumulative effects expected from other pipeline projects being proposed for northern BC. EAO has identified potential for cumulative effects on:

- guide outfitting;
- hunting, fishing and gathering;
- trapping;
- forestry;
- designated areas (including the Herb Dome ASMZ and OGMAs); and
- scenic viewing.

To facilitate further analysis of cumulative effects on land and resource uses by FLNR and other agencies as the projects proceed through planning and construction, EAO has asked each proponent proposing a linear corridor to provide information that would support the cumulative effects assessment.

EAO is satisfied that the mitigation strategies suggested by the Proponent, together with mitigation strategies and initiatives by the provincial government and others, would be sufficient to mitigate the cumulative effects to a satisfactory level.

7.1.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on land and resource use.

7.2 Community and Regional Infrastructure and Services

7.2.1 Background

Project effects on Community and Regional Infrastructure and Services are examined with respect to three Valued Components, each with its own set of key indicators:

Valued Components	Key Indicators
Community Utilities and Services	<ul style="list-style-type: none">• Emergency services• Health care services• Recreational facilities• Waste management facilities• Housing and commercial accommodation• Social services• Education services• Government services
Transportation Infrastructure and Services	<ul style="list-style-type: none">• Traffic• Navigability of waterways
Community Quality of Life	<ul style="list-style-type: none">• Community quality of life

The LSA is a 2-km band centred on the proposed route, as well as boundaries of communities, including Aboriginal communities, where it can reasonably be expected that direct adverse effects from the proposed Project would occur. The RSA is an 80-km band centred on the proposed route.

7.2.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

Potential Project effects on Community and Regional Infrastructure and Services relate primarily to the expected influx of construction workers and associated activity during the Project construction period.

Community Utilities and Services

Emergency Services – The Application provides an overview of emergency services in the LSA/RSA and the ability of existing services to meet potential increases in demand from the Project:

- A shortage of fire protection personnel may exist in several communities, for example, in Taylor, Chetwynd, Mackenzie and most communities in the RBDN.

- A shortage of RCMP personnel may exist in several communities, for example, in Dawson Creek, Fort St. John and Prince George.
- A general shortage of ambulance units appears to exist in the LSA communities.

The construction and operations of the Project have the potential to increase demand for local emergency services, including police, fire and ambulance:

- During the construction phase, a short-term increase in population could result in more traffic, criminal activity, and drug and alcohol use, putting increased pressure on emergency resources to deal with specific issues and provide adequate safety for the public.
- During operations, the effects would likely be negligible except during an accident or malfunction, such as a pipeline leak, failure or explosion.

Construction camps and other work facilities that are outside municipal and regional district fire protection areas are not protected by local fire departments. The Application indicates that the construction camps would have on-site emergency personnel, on-site fire suppression equipment and on-site senior medical providers and first-aid personnel in accordance with WorkSafe BC regulations, which would help mitigate the potential effects of camp-related demand for LSA emergency services. Also, for the construction of the proposed Project, the Proponent indicates that their prime construction contractor would provide Project-specific ambulance service.

The Proponent also proposes several crime prevention strategies and workforce drug and alcohol corporate policies to mitigate potential adverse effects related to crime incidence and unhealthy behaviours.

Health Care Services – In the Application, the Proponent lists medical services available in each LSA community and reports that many of these facilities and services do not expect capacity challenges due to an increase in a temporary workforce. Municipal representatives in the District of Chetwynd and City of Terrace expressed concerns to the Proponent that hospitals located in those communities are in need of upgrades, do not have the capacity to perform major operations, and are facing a doctor shortage. The Proponent expects that 10 main construction camps would be established near several municipalities along the route including Chetwynd and Terrace.

The Proponent reported that their experience in other areas of North America has shown that the influx of workers has generally not created stress on local services during construction of long linear projects. This is due in part to the on-site services provided. For example, for the proposed Project, the Proponent indicates that they plan

to provide basic health services (i.e., flu shots, first aid, basic medications) and support their workers seeking access to additional social services by providing on-site medical staff support, and information on help lines or online services.

Social Services – The Application reports that some municipalities may not have the infrastructure to cope with increased demands on social services (e.g., drug and alcohol clinics, counselling programs, emergency shelters, mental health and addiction services and social workers) and some services may not operate during hours that can accommodate the Project workforce. Municipal representatives in the City of Terrace, near two proposed main camp locations have expressed concern to the Proponent that alcohol and drug addiction clinics are at capacity.

During the construction period, the proposed Project workforce would reside away from their homes and families in construction camps for extended periods of time (i.e., two to four months), which could affect their health and mental well-being, and while the Proponent has specific drug and alcohol policies in place, there remains potential for substance abuse. The Proponent proposes several strategies to mitigate the potential effects on social services including housing the workforce in construction camps which include recreational facilities, support for access to counsellors, and developing appropriate camp policies.

Waste Management Facilities – In their Application, the Proponent describes waste management facilities available throughout the LSA and identifies several areas where the systems are at or near capacity, and/or are not available to accept industrial waste.

In establishing work camps, the Proponent would be required to comply with all regulatory requirements regarding waste management and disposal and to submit their applications within the timeframes required by the various regulatory agencies. Determining which local systems might be used as part of camp operations would be part of more detailed planning by the Proponent as the Project proceeds through construction.

The Proponent commits to engaging local municipalities and regional districts to understand available capacity before construction of the proposed Project.

Recreational Facilities – Recreational amenities located in the LSA include golf courses, fitness centres, sports fields and swimming pools. Representatives from the District of Fort St. James and the City of Terrace reported that community recreational facilities are at capacity and unable to handle increased usage. There is no construction camp location proposed near Fort St. James, but issues could arise near Terrace or other

communities where recreational facilities may not be able to handle the potential increase in use by the proposed Project workforce during the few months where construction activity is at its peak.

The Proponent proposes to continue to communicate with municipal recreation facility operations to confirm the proposed Project construction and workforce schedules to ensure municipal recreational providers have sufficient notice regarding possible increased use, recognizing that workers would have only one day off a week. Also, workers would have access to recreational facilities in the construction camps including on-site exercise equipment and access to electronics such as television, movies, telephone and internet access.

Housing and Commercial Accommodation – Factors driving the potential Project-related effects on housing and commercial accommodation are as follows:

- A construction workforce of between 2,000 and 4,000 personnel is expected to be required at any given time during the three-to-four year construction period;
- Approximately 35% of workers are expected to have their families staying nearby in the summer;
- Six camps may be occupied near capacity during the summer months while the other four are scheduled to be occupied near capacity during winter;
- The 10 main construction camps are expected to have sufficient capacity to lodge the construction workforce including employees and contractors; and
- While construction-related personnel are expected to be lodged in the 10 main construction camps, non-construction personnel such as CGL representatives may require commercial accommodation in LSA communities.

Several LSA communities have identified a shortage of rental housing and/or commercial accommodation including Fort St. John, Taylor, Hudson's Hope, Fort St. James, Vanderhoof, Houston, Telkwa, Terrace and Kitimat. Concerns relating to housing shortages were also reported by LSA Aboriginal communities.

When the proposed Project construction schedules are more definite, the Proponent plans to engage in early communication with hotel associations, commercial accommodation providers (e.g., campgrounds, hotels and motels, and RV parks) and Chambers of Commerce to ensure that accommodation providers are able to plan for any potential increase in activity, including options for hosting workers' families.

Educational Services – The Application describes the range of educational facilities located in the LSA including elementary and secondary schools as well as higher educational learning centres. Due to the temporary nature of the construction workforce, no issues were identified related to potential residual adverse effects on LSA educational services.

Government Services – Service BC Centres offer government services to LSA residents on behalf of provincial ministries, agencies, Crown corporations and other levels of government and private sector organizations. During the Proponent’s consultation process, no issues were identified related to potential adverse effects on the availability and use of government services.

Transportation Infrastructure and Services

This section focuses on potential adverse effects to road and water transportation, as the Application indicates that the proposed Project would not be expected to have adverse effects on rail transportation or local and regional airports after implementation of the following mitigation measures:

- The Proponent would install the pipeline under railways with boring techniques that should not disturb the railway bed nor rail movement patterns.
- The Proponent would communicate with CN Rail to address potential issues related to shipping pipe materials.
- The Proponent identified the major RSA airports and noted that only Northwest Regional Airport (YXT), which is located south of the City of Terrace, currently has little capacity to meet additional passenger demand.
- The Proponent proposes to communicate with local and regional airport authorities to inform them of Project schedules and to use community media outlets to announce the location and schedule of construction activities to reduce impacts on access to air travel by residents.

Traffic on Highways and Local Roads – During the Proponent’s consultation, the following road segments were identified as potential areas of concern by municipal and Aboriginal representatives:

- Highway 97, and in particular the Pine Pass region, where traffic shows a 64% increase in the past 10 years;
- Highway 29, near Chetwynd;
- Highway 16 (from Prince George to Burns Lake),
- Highway 35 (from Burns Lake to Francois Lake),

- Colleymount Road, Lone Prairie Road, and Owen Lake and Morice River forest service roads, and
- Kitamaat Village Road (the only paved road providing access to and from the Kitamaat Village for vehicles).

Until construction plans and construction scheduling are finalized, it is difficult to assess the exact extent of Project-related traffic on highway segments and potential areas of concern.

To address vehicle traffic concerns, the Proponent commits to developing a Traffic Control Management Plan and several mitigation and safety measures (e.g., use flaggers to alert drivers of construction activity, install signage on access points, use multi passenger vehicles to transport workers to and from construction camps, restrict vehicular traffic to approved routes, and require construction personnel to obey traffic, road use and safety laws).

Navigability of Waterways – Some of the watercourses crossed by the proposed route may be used as travel routes for vessels, including motorboats, rafts, canoes and kayaks, but during the Proponent’s consultation, “no issues were identified during discussions related to installing a pipeline at navigable waterways.”

When construction of water crossings occurs during the summer, watercourses that support water-based recreation activities would likely be temporarily affected and access by recreation users along the watercourse may be restricted.

Further information on proposed stream crossings is provided in Section 5.6 (Fish and Fish Habitat) of this report.

Community Quality of Life

The proposed Project has the potential to affect the existing quality of life in communities, both positively and negatively. This section considers the broader potential adverse effects of the proposed Project that could alter existing conditions in communities.

Factors driving potential Project-related effects on community quality of life during construction include:

- Impacts to transportation networks.
- Presence of a large temporary workforce at the proposed main camp locations.

- Potential interactions between existing residents and construction workers accessing community amenities and services on their day off.
- Construction related noise, dust, vibration and adverse visual effects, potentially affecting outdoor pursuits.
- Impacts on economic sectors discussed in Section 6.1, as well as subsistence harvesting and plant gathering activities conducted by Aboriginal Groups (discussed in Part C).

During operations, the primary adverse effect on community quality of life is expected to be the linear disturbance that would be on the landscape for the long term. The proposed pipeline route uses existing disturbances, including existing and proposed pipelines, railways, power lines, all-season public right-of-ways and previously disturbed areas to the extent possible, but the Application reported that some residents feel that the proposed Project reduces their quality of life.

The Application noted the commitment to construct the proposed Project in a safe and responsible manner by adhering to all WorkSafe BC safety standards on work sites during construction, and the Proponent's Health, Safety and Environment Commitment. Mitigation outlined in other social and economic sections of this report would also be implemented.

7.2.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

This section summarizes the key concerns raised during Application Review regarding Project-related adverse effects on community utilities and services, transportation infrastructure and services, and community quality of life.

LSA Community Utilities and Services

Emergency services, social services and recreational facilities – During Application Review, several Working Group members, including the Nak'azdi Band/ Nadleh Whut'en First Nation, the Regional District of Bulkley Nechako and others, raised concerns about the ability of the existing emergency infrastructure and services, recreation and community social resources to meet the demand that may result from Project-related direct, indirect and induced effects.

Concerns raised during Application Review that pertained to emergency services, crime prevention services, social services and recreational facilities were primarily associated with camp operations. Members of the Working Group and the public were particularly

concerned with the proposed scale of camp capacity relative to the size of nearby communities and the effects these relatively large camps would have on the demand for emergency and other community infrastructure and services.

The Application reported the maximum capacity of each main construction camp, but to estimate the camp-related effects on the demand for services, the expected number of workers residing at each camp would be more relevant than camp capacity. As a result of EAO's information requests during Application Review, the Proponent provided information on the number of construction workers expected at each camp on a monthly basis.

The information provided during Application Review by the Proponent showed that while the camp capacity may be large relative to the size of the nearby community (e.g., capacity of 1,200 workers at camp #7 near Houston), the Proponent expects to use full camp capacity for a relatively short period of time, in some cases only one or two months. For example:

- Camp #6 in Burns Lake would be most active for only 3 months in fall 2016 when between 760 and 1,200 workers would be residing at the camp.
- Camp #1 near Chetwynd would be most active for 5 months in 2016, lodging an approximate peak of 750 workers in July, August and September 2016 and about 100 workers in June and October 2016.
- Outside the peak period, between 100 and 200 workers for each of the 8 pipeline sections would be required during mobilization and wind-down.
- While the main camps are expected to have a combined capacity of 7,350 workers, the number of workers residing at the camp is expected to peak at about 3,900 workers in November 2016 (see Table 6-3 of this report).

As a result of the temporary nature of the construction work and the short period of time in any one segment, the mainly in-migrant construction workforce (estimated at some 75% of the total workforce based on information provided by the Proponent during Application Review) is not expected by the Proponent to relocate to the RSA during construction, with or without their families. Uncertainty remains related to the potential of workcamp-related demands for community infrastructure and services including: emergency response and protection services (e.g., fire protection, crime prevention); recreational facilities; and social and community services (e.g., child care, counselling services).

A requirement for a Socio-Economic Effects Management Plan (SEEMP) is proposed by EAO as a condition to address the potential effects on community

infrastructure and services and identify an adaptive management approach for effects on communities, including workcamp-related demand for emergency and social services and effectiveness of Proponent's mitigation strategies (e.g., fire protection, crime prevention).

Municipal Infrastructure – During Application Review, EAO requested the Proponent to quantify camp-related demands on municipal infrastructure. The Proponent was able to quantify waste volumes by type of waste (i.e., solid waste, cardboard, hazardous waste, water and liquid waste) for each of the 10 main camps, information which is shown in Table 7-2.

Table 7-2: Estimated waste by type and camp

	Solid Waste (m3)	Cardboard (m3)	Cans and Bottles (000)	Hazardous Waste (kg)	Water (million litres)	Liquid Waste (million litres)
Per Person Day in Camp	0.01	0.14	2.60 (each)	0.04		
Camp 1 - Chetwynd	1,092	10,449	190	2,926	18.3	18.3
Camp 2 - Prince George	728	6,964	127	1,950	12.2	12.2
Camp 3 - Prince George	728	6,964	127	1,950	12.2	12.2
Camp 4 - Prince George	1,416	13,543	246	3,792	23.7	23.7
Camp 5 - Vanderhoof	728	6,964	127	1,950	12.2	12.2
Camp 6 - Burns Lake	1,219	11,657	212	3,264	20.4	20.4
Camp 7 - Houston	1,523	14,571	265	4,080	25.5	25.5
Camp 8 - Houston	728	6,964	127	1,950	12.2	12.2
Camp 9 - Terrace/ Kitimat	291	2,786	51	780	4.9	4.9
Camp 10 - Terrace / Kitimat	728	6,964	127	1,950	12.2	12.2
Total	9,181	87,826	1,599	24,592	153.8	153.8

During the Application Review, EAO requested the Proponent to identify which local waste disposal systems would be used to deal with liquid and solid wastes from the construction camps and what would be the capacity change on those systems. The Proponent responded that this cannot be determined until construction plans are more defined.

Communities and regional districts are concerned that an efficient approach to waste disposal may not be possible without sufficient planning lead time (mentioned by RDBN, BC Ministry of Environment and others).

In response to these concerns, the Proponent has indicated their willingness to work closely with municipalities and regional districts to allow sufficient planning in advance of Project construction regarding camp requirements for municipal infrastructure (e.g., waste water, drinking water, waste disposal). EAO is

proposing a condition for the development of a Socio-Economic Effects Management Plan (SEEMP) that sets out a requirement for a formalized engagement process to ensure early and timely engagement by the Proponent with municipalities and regional districts on water supply and waste management strategies.

Health care services – The Northern Health Authority and others expressed concerns during Application Review about the potential increase in demand on health infrastructure and services during construction (including demand associated with physical health and mental health). The primary concerns relate to the potential increase in demand from the proposed construction camps.

During Application Review, EAO requested that the Proponent provide quantitative estimates of Project related medical incidents per year, the types and frequency of health services that workers could require over and above services provided on-site or in construction camps, and other Project-related effects on health care services, emergency and other services.

In response to those requests, the Proponent provided historical injury rates related to their operations and estimates of potential annual injury rates among the Project workforce as summarized in Table 7-3.

Table 7-3: Estimated number of injuries during construction

	TransCanada rates per 100 full-time workers per year		Estimated number of cases for construction workforce based on contractors' rate over the construction period	
	Employees	Contractors	2,000 workers	4,000 workers
Total Recordable Cases	0.57	1.75	35.0	70.0
Away from Work Cases	0.14	0.29	5.8	11.6

As shown on the above table, the Project's construction workforce of between 2,000 and 4,000 workers during construction may incur between 5.8 and 11.6 Away from Work Cases (AWC) incidents per year. These cases may or may not result in medical service requirements beyond services provided in construction camps.

The Application indicated that medical facilities in the RSA, and in particular the District of Chetwynd and City of Terrace may not have the capacity to accommodate Project related demands for health care services. Information

provided during Application Review by the Proponent suggests that while the main camp near Chetwynd would have a capacity of up to 750 workers and the two main camps for the Terrace/ Kitimat region would have a combined capacity of up to 700 workers, the peak numbers of workers expected at each camp would be limited to a few months during pipeline construction.

As a mitigation strategy, the Proponent proposes to develop several plans to prevent accidents and reduce the risks of injury to workers during construction including the Emergency Services Plan, the Traffic Control Management Plan and the Spill, Fire Suppression and Adverse Weather Contingency Plans. During Application Review, the Proponent re-iterated their commitment to staff the Project facilities with sufficient numbers of emergency medical personnel and other services. Also, the Proponent proposes to communicate before the construction phase with local and regional health care and social service providers to identify service gaps and resulting issues, and to continue these discussions as part of the recommended monitoring and follow-up programs.

EAO is proposing a condition requiring the development of a Socio-Economic Effects Management Plan (SEEMP) that sets out a requirement for a formalized engagement process to ensure early and timely engagement by the Proponent with municipalities, regional districts, and the Northern Health Authority.

Housing and commercial accommodation – Concerns were raised during Application Review by several Aboriginal Groups and local communities, regional districts and others about the Project-related effects on housing availability as follows:

- Uncertainties relating to locations and size of proposed construction camps – During construction, the accommodation plan for primary workers is to build 10 main construction camps to lodge between 2,000 and 4,000 workers. The Proponent has not yet finalized the locations and magnitude of proposed construction camps (e.g., number of workers at each camp and for how long).
- Risks associated with mitigation strategies regarding housing of construction workers – There are risks that a greater than assumed proportion of construction workers may choose to reside in nearby communities rather than in the construction camps, which could create supply and demand imbalances for temporary housing in RSA communities (e.g., hotels, motels, rental units, RV parks, campgrounds). Given the potential for labour supply and demand imbalances during construction, the Proponent may not find it feasible to enforce housing policies directing all in-migrant construction workers to reside in construction camps.

- Campgrounds and recreational facilities – Workers and their families may utilize campgrounds and recreational facilities during the summer months, which would create opportunities for campground operators, but would also potentially cause adverse effects for local residents and visitors.
- Indirect and induced effects – The magnitude of the potential Project-related indirect and induced effects on housing availability on RSA communities particularly when potential cumulative effects are considered is unknown, although cumulative effects on housing costs from LNG-related development is already a reality in several communities.
- Project-related effects on non-market housing units – During Application Review, concerns were raised (e.g., by Northern Health, Regional District of Kitimat Stikine and several Aboriginal Groups) that the Project may indirectly increase the demand for non-market housing units from low-income individuals as the cost of market housing rises, particularly when potential cumulative effects are considered

In response to these concerns, during Application Review the Proponent provided preliminary camp locations and estimates of numbers of workers at each camp and re-iterated their commitment to engage in early communication with accommodation providers once Project construction schedules are confirmed.

Table 7-4 compares the information provided by the Proponent during Application Review on the location, scale and proposed start of substantial construction activities at each camp, with data provided in the Application on existing commercial accommodation facilities in several LSA municipalities.

Table 7-4: Commercial accommodation in LSA municipalities and proposed Project camp locations, and construction schedule

Municipality	Commercial Accommodation Facilities ^{a)}	Estimated Room Availability	Campsite Availability ^{b)}	Maximum Camp Capacity and Camp Number (#)	Scheduled Start of 5 Month Peak Construction
District of Taylor	4	28	117		
City of Fort St. John	21	1,074	N/A		
City of Dawson Creek	33	680	400		
District of Chetwynd	19	400	N/A	750 (#1)	June 2016
District of Hudson's Hope	12	169	116		

Municipality	Commercial Accommodation Facilities ^{a)}	Estimated Room Availability	Campsite Availability ^{b)}	Maximum Camp Capacity and Camp Number (#)	Scheduled Start of 5 Month Peak Construction
District of Tumbler Ridge	10	230	175		
District of Mackenzie	5	155	43		
City of Prince George	59	2,000	500	1,000 (#2 & #3) 1,200 (#4)	June 2016 Nov. 2016
District of Vanderhoof	26	120	N/A	500 (#5)	June 2017
District of Fort St. James	8	122	26		
Village of Fraser Lake	13	32	N/A		
Village of Burns Lake	6	76	104	1,200 (#6)	Nov. 2016
District of Houston	8	146	63	1,500 (#7) 500 (#8)	Nov. 2016 June 2017
Village of Telkwa	3	14	20		
Town of Smithers	17	400	168		
City of Terrace	37	480	370	500 (#9) 200 (#10)	June 2017 June 2017
District of Kitimat	18	171	89	Included above	

Notes:

a) Commercial accommodation facilities include hotels, motels, bed and breakfasts, resorts, lodges, campgrounds and RV parks.

b) Campsites include full hook-up sites, tenting areas and cabins.

During Application Review, Northern Health, the District of Fort St. James, Nak'azdli Band, Nadleh Whut'en First Nation and others raised concerns that communities near construction camps may have a greater than anticipated number of in-migrant direct, indirect and induced workers relocating temporarily to communities near the Project, resulting in an increase in what is sometimes referred to as a "shadow population" (i.e., individuals who may be residing in or near the communities on a temporary basis in RVs, hotels, apartments and/or other living arrangements, with and without their families).

Table 7-4 shows that for several communities that may have nearby construction camps associated with the Project, any substantial ratio of people (workers, family members or visitors) requiring temporary accommodation in communities, relative to the number of workers in the camps, would strain the current accommodation capacity.

The Proponent responded that the provision of construction camps to house the temporary workforce, as well as the temporary nature of the construction workforce, would likely ensure that an influx of temporary workers would not create a strain on rental housing supply or rental prices (see effects assessment

on community infrastructure and services). The Proponent indicated that mitigation measures in the economy effects assessment such as communicating the construction schedule and contract requirements before the start of the construction period would help manage expectations and avoid altering existing community economic patterns. The potential Project effects on temporary disruption of resource-based activities are assessed as part of the land and resource use effects assessment.

EAO is proposing a condition for the development of a Socio-Economic Effects Management Plan (SEEMP). Based on the current information available on proposed camp locations, the SEEMP would likely provide detailed information on housing availability, housing affordability, and Project-related effects on “shadow populations” for the following communities: Chetwynd, Hudson’s Hope, Prince George, Vanderhoof, Burns Lake, Houston, Terrace and Kitimat.

Transportation Infrastructure and Services

During Application Review, the Ministry of Transportation and Infrastructure (MOTI) and other Working Group members raised concerns about Project-related effects on traffic volumes and the RSA transportation infrastructure.

EAO requested additional estimates of Project-related traffic volumes on major highways and roads within the LSA. The Proponent provided initial estimates of Project-related one-way traffic trips during construction by Project component (e.g., pipeline construction along right-of-way, pipe stockpiling).

Until construction plans and construction schedules are finalized, it is difficult for the Proponent to be more specific about Project-related traffic on highway segments and potential areas of concern. (As described previously in this section, the Proponent’s consultation had identified several road segments as potential areas of concern to municipal and Aboriginal Group representatives.)

During Application Review, the Proponent re-iterated that the Proponent’s proposed Access Control Management Plan, Traffic Management Plan and associated permitting processes would address these issues.

Community Quality of Life

During Application Review, there concern was raised by some smaller communities, such as Burns Lake, Haisla Nation, other Aboriginal Groups, Northern Health and others that establishing relatively large construction camps near relatively small

communities could result in increases in organized crime, drug and alcohol abuses and other unhealthy behaviours.

The Nak'azdli Band, Nadleh Whut'en First Nation and other communities expressed concern that workers would visit communities during their weekly day-off, which could bring benefits in terms of local spending, but could have adverse effects on community quality of life.

In response to these concerns, the Proponent pointed to several mitigation strategies proposed in the Application including their workforce drug and alcohol policies, crime prevention policies, support for access to counselling at the main camps and other mitigation measures.

During Application Review, reports on outcomes from other construction camps of similar scale and in similar settings were sought to gain a better understanding of the risks of adverse effects posed by the location and scale of the construction camps to sensitive receptors in the LSA/RSA communities. For example, more evidence was requested on successful measures taken in other construction camps and their nearby communities to counter specific types of potential adverse effects from large construction camps. (These concerns were raised by Northern Health, RDKS, RBDN, Blueberry River First Nations, and several other Aboriginal Groups.)

The Proponent responded that their Application took into account TransCanada's extensive experience in building pipelines but that additional information to what was provided in the Application was not available.

EAO is proposing a condition that would require the Proponent to develop a Socio-Economic Effects Management Plan (SEEMP) that would include provisions for the Proponent to monitor Project effects as the Project proceeds through ROW preparation and pipeline construction, and adapt mitigation strategies to respond to any Project-related crime incidence, drug and alcohol abuse, or other adverse effects on LSA/RSA communities. The SEEMP is expected to include on-going monitoring and reporting of Project effects.

7.2.4 Characterization of Residual Project Effects

EAO finds that the risks of adverse effects to community utilities and services, transportation infrastructure and services, and community quality of life are primarily associated with the Project construction phase. After considering all relevant proposed mitigation measures, EAO concludes that the proposed Project would result in the

following residual adverse effects on community and regional infrastructure and services:

- Increased demands put on community utilities and services (i.e., emergency services, health care services, recreational facilities, waste management facilities, housing and commercial accommodation, and social services)
- Increase vehicle traffic may increase transportation congestion
- Some risk of altering existing community quality of life

Summarized below is EAO's assessment of the expected residual effects of the proposed Project on community and regional infrastructure, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Criteria	Assessment Rating	Rationale
Context	Moderate resiliency and sensitivity	The Project would be located near communities that have past or present experience with industrial activity in their vicinities and a history of supporting resource-based industries, which contributes to the resiliency of the communities to Project effects.
Magnitude	Utilities and services: Low to medium	<p>Utilities and services: The magnitude of potential effects on community utilities and services is expected to be of low to medium magnitude overall, but may require monitoring and adaptive management.</p> <p>As main camps are largely self-contained the magnitude for emergency services, housing and accommodation and waste management facilities is considered to be generally low, but may be medium for smaller communities such as Burns Lake, Chetwynd/ Hudson's Hope, or Houston, which may be more challenged to meet increased demands.</p> <p>The requirements for off-site health care and social services (e.g., hospitals and health care facilities, drug and alcohol counselling services) appear relatively low after implementation of mitigation measures including suggested additional monitoring and adaptive management.</p> <p>The impact on recreational facilities is considered low as workers would have only limited time off and on-site recreational facilities and activities would be available.</p>

Criteria	Assessment Rating	Rationale
	Transportation Infrastructure: Medium	Based on the limited data provided by the Proponent, the magnitude of potential Project effects on vehicle traffic is likely to be medium in magnitude relative to existing traffic, as a result of Project related demands on highways as well as secondary and Forest Service roads.
	Quality of Life: Low	The magnitude of potential adverse effects on quality of life is considered to be low given the size of the workforce relative to most nearby communities, the expected Project related effects on other socio-economic and health VCs, and the implementation of mitigation measures and adaptive management if necessary.
Extent	Community and regional	The effects to utilities and services and quality of life would be primarily within local community population centres, but would also be experienced at the regional level. Transportation impacts would be on specific routes within the regions.
Duration	Short term to medium term	Effects on the social environment at the community level would cease once Project construction is completed. The duration of construction effects would be medium term (e.g., three- to four-year construction period), but in a specific pipeline segment the highest magnitude effects are expected to be limited to several months in either 2015 or 2016.
Reversibility	Reversible	Residual adverse effects on communities are expected to be reversible once Project construction is completed.
Frequency	Continuous	The adverse effects would be continuous during construction but with varying magnitude.
Likelihood	The likelihood is high that some degree of adverse effects would occur during Project construction with respect to communities and regions.	
Significance	Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse residual effects on community and regional infrastructure and services.	
Confidence	Moderate level of confidence in validity of assumptions and analysis and effectiveness of proposed mitigation strategies, particularly in consideration of the requirements for on-going monitoring and adaptive management.	

7.2.5 Cumulative Effects Assessment

The most likely projects to have residual effects that may overlap geographically and temporally with those of the Project include:

- the other four LNG pipeline projects proposed for northern BC (i.e., Pacific Trail Pipeline project, Westcoast Connector Gas Transmission project, Pacific Northern Gas project and Prince Rupert Gas Transmission project);
- the Enbridge Northern Gateway Project (Northern Gateway Pipelines Limited Partnership);
- in BC's northeast, the construction of proposed gas processing plants, additional natural gas production, and the proposed BC Hydro Site C project;
- several mine and other industrial projects mentioned by the Proponent such as Graymont Western Canada proposed quarry and lime mine project and the Rupert Peace Power Rocky Creek Energy project; and
- in the RDKS, the construction of the LNG export facilities proposed for Kitimat including the LNG Canada facility to be associated with this Project.

For the cumulative effects assessment on the Community and Regional Infrastructure and Services VCs, the primary driver of potential residual adverse cumulative effects is likely to be multiple construction camps in proximity to a community.

The main construction camps for this Project are proposed to be located near the communities of Chetwynd/ Hudson's Hope, Prince George, Vanderhoof, Burns Lake, Houston, Terrace and/or Kitimat, although the Proponent has not finalized the exact location of each camp, the number of workers at each camp and the timing of the most active period during which each camp would be used.

Several of the other natural gas pipeline projects and/or the Northern Gateway pipeline project also plan to establish camps in or near the same communities being considered for this Project, with the possible exception of Vanderhoof. As is the case with this Project, the exact location, timing and scale of the other proposed construction camps are unknown.

The BC Government, industry, Aboriginal communities and other communities have embarked on several initiatives to identify potential cumulative effects on community and regional infrastructure and services expected from this and other natural gas pipeline and other projects, and develop mitigation strategies to address these effects.

Section 6.2.5 of this report described initiatives that focused at least in part on the potential cumulative effects on skilled labour shortages in the RSA.

There are several other initiatives that specifically target community readiness and the establishment of infrastructure and services at the community and regional levels.

These include:

- BC Government Community Readiness Initiatives and Grants from Northern Development Initiative Trust – Grants totalling up to \$1 million are being provided to help local governments in BC's northwest plan for economic growth associated with LNG developments and industrial expansion. Two grant programs, at up to \$500,000 each, will assist communities to develop plans for Asset Management Capacity Building and Community Land-Use Planning. The grants are available to Terrace, Prince Rupert, Kitimat, Port Edward, Regional District of Kitimat Stikine, and the Skeena-Queen Charlotte Regional District.
- Fair Share Agreements – In BC's northeast region, the Fair Share Agreements provide for provincial royalties in the oil and gas sector to be reallocated to municipalities in the Peace River RD to support infrastructure development; and
- Other Initiatives – Several government funded projects and initiatives such as Western Diversification, Community Futures, the Northern Development Initiative Trust make strategic investments in initiatives that enhance and strengthen businesses and communities of northern BC.

The relatively large workforces and construction camps proposed for this Project and other industrial projects being proposed for northern BC could result in adverse cumulative effects on community utilities and services, transportation infrastructure and services, and community quality of life.

EAO recognizes that there are considerable uncertainties relating to the geographical and temporal overlap of effects from multiple projects given the lack of quantifiable data about the precise location, footprint, schedule and design of many of the reasonably foreseeable future developments. EAO also recognizes that in any given location, Project construction activity levels associated with medium magnitude social effects are likely to occur over a period of several months. This increases the challenge of forecasting potentially important temporal overlaps or adjacencies in effects from other projects, particularly pipeline projects with similar short-term peaks in construction activity levels.

The Proponent proposes to address potential residual cumulative effects from the Project on community and regional infrastructure and services in the LSA/RSA communities through implementation of mitigation during the construction phase such as housing the proposed Project workforce in construction camps and the implementation of several management plans including the Access Control Management Plan, Emergency Response Plan (ERP), Environmental Management Plan (EMP), and Traffic Control Management Plan.

EAO has proposed a condition for the Proponent to develop a Socio-Economic Effects Management Plan (SEEMP) to address risks and uncertainties identified in the Environmental Assessment process regarding Project effects on socio-economic values including the Project's contribution to cumulative effects. As part of the SEEMP, the Proponent would be required to monitor and report upon the actual economic and social effects of the Project once underway and adjust accordingly if required. The condition reports would be relied upon to assist local, regional and provincial governments in planning for capacity adjustments to infrastructure and services, as well as contribute to ongoing cumulative effects monitoring by governments and government agencies.

EAO determines the magnitude of cumulative residual adverse effects to be medium in magnitude as Project construction would combine with other reasonably foreseeable developments to cause an increase in demand for community and regional infrastructure and services, which in some LSA/RSA communities could exceed existing infrastructure capacity. The effects would pertain to the LSA/RSA, be short term in duration (during construction), continuous and reversible.

EAO is satisfied that the adoption of the Proponent's mitigation strategies, supplemented by initiatives by the provincial government and others that are documented in this section of the report would be sufficient to mitigate the Project's contribution to cumulative adverse effects on the LSA/RSA community and regional infrastructure and services. EAO concludes with moderate confidence that the Project residual adverse cumulative effects on community and regional infrastructure and services would not be significant.

7.2.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse effects on community and regional infrastructure and services.

7.3 Traditional Land and Resource Use

7.3.1 Background

Traditional land and resource use refers to the current use of Crown lands by potentially affected Aboriginal Groups for traditional purposes, including the extensive land and water bases on which activities take place, a broad view of where and how people move in the landscape, and how it is used and where. This section provides a high level assessment of the potential adverse effects of the proposed Project on traditional land and on resource use. EAO has considered potential effects of the proposed Project on traditional land and resource use and impacts on Aboriginal rights to hunt, fish, trap and gather, on an Aboriginal Group-by-Group basis (see Part C of this report).

The Application considered the following valued components under traditional land and resource use.

Valued Component	Key Indicator
Current Use of Land and Resources by Traditional Purposes	Subsistence activities (e.g., hunting, trapping, fishing and gathering)
	Subsistence resources
	Trails, travelways, habitation sites
Cultural Sites	Gathering places
	Sacred areas

The LSA is the area where there is a reasonable potential for localized Project-related effects to affect existing traditional land and resource use (e.g., trapping, hunting, fishing and gathering areas) and is informed by the LSAs of the relevant valued components. The RSA is the area where the direct and indirect influences of other land uses and activities could overlap with Project-related effects. Both the LSA and RSA boundaries are informed by the aquatic environment, atmospheric environment, wetlands, vegetation, wildlife and heritage resources, and are mapped in the Application.

The Proponent discussed and initiated Traditional Land and Resource Use (TLU) studies with Aboriginal Groups, based on an indicated interest in participating in these studies and provided funding to assist Aboriginal Groups that elected to conduct their own community-directed TLU studies. Aboriginal Group representatives were asked to contribute to the discussion of potential adverse effects of the proposed Project on TLU and to participate in the discussion of potential mitigation to reduce these potential adverse effects. Additional information on TLU studies initiated by Aboriginal Groups is referenced in each Aboriginal Group section in Part C.

7.3.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

Members of Aboriginal Groups continue the practice of hunting, fishing, plant gathering, trapping and snaring for food and pelts. Hunting and wildlife sites are areas where large mammals such as elk, moose, deer, caribou and bear are commonly harvested.

Aboriginal members continue the practice of trapping and snaring for food and pelts, which may or may not be located within registered trap lines.

The practice of traditional fisheries relate to the species harvested, fishing techniques, and the nature of specific lakes and rivers. Fishing areas include watercourses and waterbodies often near staging areas or access points to the water.

Many Aboriginal Group members harvest medicinal, ceremonial and food source plants. Plants are gathered in a variety of environments, including old forests, along watercourses and in mountainous areas.

Travel corridors are important for conducting traditional activities and accessing cultural landscape features. Trails include well-defined all-terrain vehicle (ATV) and snowmobile corridors, navigable waterways, river portages, and historic foot, dog sled and pack horse pathways. Travelways can also refer to a watercourse that is used to access traditional land use areas, where a trail is used for land-based access to traditional land use areas. Habitation sites include traditional campsites, cabins and settlements.

Cultural sites represent Aboriginal Groups' long-term connection to the land, water and cultural community. They are areas where those groups are able to participate in and continue practices and activities conducted by past generations, and areas for which collective knowledge is held and the environment is used according to tradition.

Gathering places have historical, ceremonial, cultural and economic significance to Aboriginal Groups. Sacred areas include burials, vision quest locations, rock art panels, birth locations and ceremonial places, among others.

During construction, access and use patterns would be expected to change and reduced access may occur during periods of site-specific maintenance. Despite the implementation of the proposed mitigations below, traditional land and resource users may still be unable to use, or be deterred from using, certain areas at times during construction and operations. Compressor station locations may have impacts during construction and operation, as noise throughout operations effects may impact enjoyment and use in the immediate vicinity of the station.

The locations of subsistence resources, and trail and travelways were approximated based on known locations of historical harvesting areas, where information was

available at the time some submitting the Application. The Proponent committed to continuing to work with potentially affected Aboriginal Groups to complete TLU studies to identify hunting, trapping, fishing, and plant gathering sites, as well as trails, travelways and habitation sites, and to seek to mitigate effects to these sites wherever possible.

A complete list of mitigations related to the current use of land resources for traditional purposes VC is presented in Tables 16-4 and 16-11 of the Application. Key mitigation measures proposed in the Application include:

- Distributing construction schedules, maps and other relevant information on anticipated trail, road and area closures to Aboriginal Groups and potential user groups to inform them of the presence of construction activity, potential access restrictions and noise disturbance in recreational areas.
- Notifying trappers, before construction and on an ongoing basis to confirm the timing and location of proposed Project activities and paying losses in accordance with the Trapper Compensation Schedule.
- Completing pre-construction TLU discussions with Aboriginal Groups to identify hunting, fishing, plant gathering, trapping sites, and sites of cultural importance that warrant mitigation.
- Reducing the amount of land disturbance by using previously disturbed areas, as much as practical, for stockpiles and temporary construction camp sites.
- Implementing the Access Control Management Plan and the Heritage Resource Discovery Contingency Plan.

7.3.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

Part B of this Assessment Report (and the Proponent's Application) presents the assessment of adverse effects to environmental, social, economic, heritage, or health valued components, and their significance. Part C reports on consultation with Aboriginal Groups, and presents an assessment of the seriousness of potential impacts on Aboriginal Interests and the nature of the Aboriginal Interests that may be impacted, and the resulting conclusions about whether or not the Crown's duty to consult and accommodate Aboriginal Groups has been met.

These two parts each have a different purpose, apply somewhat different methodologies, and focus on slightly different types of information. Consideration of the

proposed Project's impacts to traditional land and resource use, and any associated impacts to Aboriginal Interests are considered in Part C of this report, on an Aboriginal Group-by-Group basis.

During Application Review, comments and concerns were raised by a number of Aboriginal Groups regarding traditional land and resource use. These comments are considered and discussed in Part C.

7.3.4 Characterization of Residual Project Effects

The Aboriginal Groups Consultation section of this report (Part C) presents a complete analysis of the impacts of the proposed Project on Aboriginal Interests. As such, the residual effect of the proposed Project on traditional land and resource use is not presented in this section.

7.3.5 Cumulative Effects Assessment

The proposed Project has the potential to interact with existing and reasonably foreseeable future disturbances to have cumulative effects on traditional land and resource use. These potential cumulative impacts are considered by EAO in Part C of this report.

7.3.6 Conclusions

Conclusions regarding how the proposed Project would impact current land and resource use and Aboriginal Interests are presented in Part C of this report.

8. Assessment of Heritage Effects

8.1 Heritage Resources

8.1.1 Background

Heritage resources are the physical remains of past human activities, as well as sites and resources of value or importance to human populations. The Application assessed the effects of the Project on heritage values with respect to four Valued Components:

- Archaeological sites;
- Historic sites;
- Architectural sites; and
- Palaeontological sites.

Potential adverse heritage effects could include:

- reduction or loss of heritage sites (archaeological, historical, paleontological or architectural) or elements of these sites;
- reduction or loss of heritage value associated with archaeological sites; and
- increased access to heritage sites.

The LSA for heritage resources is the same as the Project footprint, while the RSA considers the Borden blocks crossed by the proposed Project. (A Borden block is used throughout Canada to track archaeological sites and the artefacts that come from them, and each block measures approximately 16 km by 16 km.)

Historic and architectural sites protected under the *Heritage Conservation Act* (HCA) are provincially regulated by the Heritage Branch of FLNR. Historic places may also be formally recognized and protected under the *Local Government Act*, and regulated by local governments. Historic sites are those defined by the BC Archaeological Assessment Guidelines, and Architectural sites refer to modern (post-1846) sites; and it is acknowledged that not all post-1846 sites are architectural.

8.1.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

BC has a robust regulatory regime to protect and mitigate impacts to heritage resources. Archaeological sites in BC are protected under the HCA, and FLNR's Archaeology Branch is the primary agency responsible for administering the HCA and

maintaining the Provincial Heritage Site Register. Section 13 of the HCA specifies that an individual (or corporation) must not “damage, excavate, dig in or alter, or remove any heritage object” from a heritage site, unless under a permit issued by the Minister pursuant to Sections 12 and 14. For the proposed Project OGC would issue any Section 12, site alteration permits.

The Proponent was required to undertake an Archaeological Overview Assessment (AOA) before submitting the Application. The overview assessment, which involved developing an “archaeological potential” model to guide fieldwork, found that most of the land crossed by the proposed route has the potential for heritage sites.

In-office and field observations contributed to the Proponent’s evaluation of archaeological potential, using listed criteria such as terrain, forest cover, and proximity to potable water. Some Aboriginal Group participants contributed to the assessment during Traditional Ecological Knowledge (TEK) studies. During the field studies along the proposed route, participants identified several areas of archaeological potential based on knowledge of ideal conditions for campsites and hunting grounds. Lands near water sources were considered ideal since these water sources attract animals that could be hunted. Sites that were relatively flat, provided a high vantage point, or featured reasonable cover from visibility and weather were also considered ideal for camping and hunting.

The Proponent is presently completing the required Archaeological Impact Assessment (AIA). The primary objectives of the AIA are to:

1. identify and evaluate archaeological resources within the Project area;
2. identify and assess all impacts on archaeological resources that might result from the Project; and
3. recommend viable alternatives for managing unavoidable adverse impacts, including a preliminary program for implementing and scheduling impact management actions and, where necessary, conducting surveillance and/or monitoring.

The AIA methodology includes a visual survey augmented by subsurface testing, to identify subsurface archaeological resources and the significance of archaeological sites, and systematic data recovery, to further assess archaeological sites. For historic resources, AIA methodology would include context study, historical research including review of aerial photographs and archival maps, consultation with local/regional governments and Aboriginal communities, and review of community heritage registers.

The Application identified that there are a number of previously recorded sites within 1,000 m of the proposed Project, which include:

- 30 artifact scatters
- 3 habitation sites
- 1 fishing feature
- 5 cultural depressions
- 6 ceremonial and religious sites
- 8 transportation sites
- 27 culturally modified trees
- 2 historic structure sites

The Application states that as of October 1, 2013, a total of 3,170 subsurface tests have been excavated at 218 locations within the proposed Project footprint. Among the heritage resource sites identified were 30 previously unrecorded archaeological sites and 5 previously unrecorded historic sites. No impacted architectural sites have been identified.

The proposed Project footprint was surveyed by a qualified palaeontologist for potential fossil sites. Low-level helicopter flights focused on areas containing sedimentary bedrock of an appropriate age to contain fossils, as well as gravel pits exposing glacial surficial cover that could contain Ice Age fossils. The survey identified sites of concern located at the eastern extent of the proposed Project, including a dinosaur track. No legally designated fossil sites were identified in the Project footprint. The Proponent will include a full palaeontological report with the final AIA.

Avoidance of heritage resources is the primary mitigation recommended for the proposed Project. If avoidance is not feasible, site-specific mitigation plans would have to be developed in consultation with FLNR (e.g., Archaeology Branch, Heritage Branch) as appropriate to the nature of the site, and informed by discussion with affected Aboriginal Groups.

Key measures to mitigate the heritage impacts would include:

- Completing AIA site investigations.
- Developing a Heritage Resources Discovery Contingency Plan, in the event of discovery of heritage sites during the impact assessment. (The contingency plan would include the requirement for construction at that location to be halted immediately, the Environmental Inspector to be notified, and the Archaeology Branch, Heritage Branch, and/or OGC to be consulted.)
- Prohibiting the collection of any archaeological resources.

- Monitoring selected areas during construction where there is high palaeontological potential, according to the recommendations of a professional palaeontologist.
- Removing identified palaeontological resources, as recommended by the professional palaeontologist.

8.1.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

In response to requests from the Advisory Working Group, the Proponent provided additional information regarding the methodology for assessing potential effects to heritage values, outlined further mitigation strategies and provided additional detail regarding the heritage regulatory process. (Technical Memo on Heritage Resources, May 13, 2014).

During Application Review the Proponent submitted their Aboriginal Consultation Report #3, in which they committed to the following additional mitigation measures:

- All culturally modified trees (CMTs), or suspected CMTs, would be recorded using Level I CMT Site Recording Forms in conjunction with BC Archaeological Site Recording Forms, following standards outlined in the Archaeology Branch's *Culturally Modified Trees of British Columbia: A Handbook for the Identification and Recording of Culturally Modified Trees* (2001).
- The Proponent's mitigation states that identified CMTs would be flagged for avoidance and managed in accordance with FLNR guidelines.
- The Proponent would not conduct grading at known archaeological sites unless approval was received by the OGC or Archaeology Branch.

During Application Review, comments were raised by FLNR, Yekooche, Nak'azdli Band, Nadleh Whut'en First Nation, Halfway River First Nation and Metlakatla First Nation. FLNR's comments mostly requested additional clarification or provided clarification of the regulatory or policy requirements. Yekooche and Halfway River provided similar comments, primarily seeking additional detailed archaeological assessment, which will be made available to Aboriginal Groups as part of the AIA process. Several Aboriginal Groups expressed concern about the potential cumulative loss of archaeological and heritage resources in their territory and requested the Proponent engage Aboriginal Groups on mitigation measures if an impacted site cannot be avoided.

The Proponent responded that avoidance is always the preferred means of mitigation. When avoidance is not feasible, mitigation for a site would be developed on a case-by-case basis in consultation with the appropriate regulatory authorities and applicable Aboriginal Groups and if any previously unknown archaeological sites are encountered during construction, then the Heritage Resource Discovery Contingency Plan would be implemented.

In response to the Proponent's conclusion of no potential residual effects on heritage resources, the Archaeology Branch clarified that permits would not automatically protect the archaeological site from any adverse effects, and direct impacts to some sites could be expected. In some cases, a permit would require complete excavation of a site before construction so that information could be extracted from that site. Ground-altering activities within an archaeological site are, by definition, an adverse impact, whether the alterations are caused by excavation or construction. Information from the site may be harvested via excavation, which does contribute to overall information on archaeological values and therefore mitigates the physical loss of the site to some extent. However, information is inevitably lost during excavation, as an assessment cannot collect 100% of the data at an archaeological site.

With only a partially completed Archaeological Impact Assessment, neither EAO nor the Proponent can at this time fully quantify the specific number of archaeological sites that would potentially be impacted by the proposed Project. However, EAO notes that protection under the *Heritage Conservation Act*, which includes a stringent permitting process, consultation requirements, and mitigation measures for potentially affected sites, are set out by the Heritage Branch, the Archaeology Branch and OGC.

8.1.4 Characterization of Residual Project Effects

The proposed Project would have the following residual effect on heritage resources:

- The disturbance of some archaeological sites, and loss of some site-specific archaeological information.

Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is likely to have negligible to no residual adverse effects to heritage resources.

The residual effect on archaeological resources is characterized as follows.

Criteria	Assessment Rating	Rationale
Context		Heritage resources are protected under the <i>Heritage Conservation Act</i> . Mitigation measures for potentially affected sites would be determined in consultation with the Heritage Branch and Archaeology Branch, and may take the form of avoidance, systematic data recovery, and/or construction monitoring to avoid or reduce the loss of scientific data resulting from site destruction.
Magnitude	Low to medium	Generally impacts would be avoided or largely mitigated (and therefore of low magnitude), but there is potential to affect portions of archaeological sites of moderate or high value. However, information collection should generally mitigate these impacts to be relatively low.
Extent	Project footprint	Generally limited to portions of the Project footprint that are having direct ground disturbance.
Duration	Permanent	Any archaeological values not collected would likely be permanently destroyed.
Reversibility	Irreversible	Any permanent losses would be irreversible.
Frequency	Once	Disturbance to archaeological sites would occur only one time (i.e., during construction ground disturbance)
Likelihood	There is a moderate to high likelihood that some archaeological resources would be adversely affected.	
Significance	<p>EAO notes that heritage resources are protected under the <i>Heritage Conservation Act</i> and the mitigation measures for potentially affected sites would be determined in consultation with the Heritage Branch, Archaeology Branch and OGC.</p> <p>Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse residual archaeological effects.</p>	
Confidence	<p>Limitations on the effects assessment include the difficulty to accurately identify the presence of archaeological resources within the Project footprint. The AIA will increase the confidence in the assessment.</p> <p>Confidence in the overall effects assessment is high, given that provincially required mitigation programs would be conducted and would be based on input from Aboriginal communities and regulatory bodies.</p>	

8.1.5 Cumulative Effects Assessment

Given the localized nature of the potential impacts on archaeological resources, and in consideration of information made available in the Application and during Application Review, EAO does not anticipate any significant cumulative effects to heritage resources as a result of effects of the proposed Project interacting with effects of past, present and reasonably foreseeable projects and activities.

8.1.6 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have significant adverse residual archaeological effects. The proposed Project is likely to have negligible to no residual adverse effects on other heritage resources.

9. Assessment of Health Effects

9.1 Human Health

9.1.1 Background

Human health and ecological health were evaluated in the Application using a human health and ecological risk assessment framework. The Application considered how proposed Project-related changes to the quality of ambient air, water, sediment, soil, and noise levels could impact health risks. For this assessment, the Proponent drew from the assessments conducted for acoustics, air quality, soils, aquatics and surface and groundwater. As ecological health has been assessed in other sections of this report (Acoustics, Air Quality, Water Quality and Soil Capability) EAO has assessed only human health values in this section.

Human health effects were assessed in relation to compliance with the BC *Public Health Act*, which is the responsibility of the BC Ministry of Health. Health Canada's mandate includes the protection of human health from exposure to chemicals and noise. Guidelines and objectives for air quality, water quality, soil and sediment quality and noise levels are discussed in those sections of this report.

9.1.2 Project Issues and Effects and Proposed Mitigation Identified in the Application

A brief description of potential impacts to human health is provided below with cross-references to other sections, where relevant.

Noise – The proposed Project could result in increased noise levels, leading to disturbance of residents during construction and operations, although noise mitigation proposed would be compliant with OGC and Health Canada requirements. Section 5.1 of this Report describes the proposed Project's potential acoustic impacts. Given the level of effect, the proposed Project would not have noise-related impacts to human health.

Air Quality – The proposed Project could result in increased concentrations of one or more criteria area contaminants (CACs) or of Particulate Matter. Section 5.2 of this report describes the proposed Project's potential air quality impacts. Given the level of effect, the proposed Project would not have air quality-related impacts to human health.

Water Quality – The proposed Project could result in increased concentrations of chemicals or total suspended solids in local streams, lakes or wells from: fuel or other

chemical spills; surface transport of particulates or blast residues from topsoil stockpiles; erosion of trenches or roadways; leaching from acid rock drainage; or historic contaminated site sources. Section 10.2 of this report discusses accidents and malfunctions. Sections 5.7 and 5.8 of this report describe the proposed Project's potential for impacts to surface water and groundwater. Given the level of effect, the proposed Project would not have water quality-related impacts to human health.

Soil Quality – The proposed Project could result in increased concentrations of chemicals in surface soils during construction and operations because of minor fuel spills, other chemical spills, or leaching from acid rock drainage sources. Section 10.2 of this Report discusses accidents and malfunctions. Section 5.4 of this report describes the proposed Project's potential for impacts to soil quality. Given the level of effect, the proposed Project would not have soil-related impacts to human health.

Country Food Quality – Adverse changes to surface soils, water or sediment ,as described above, could result in chemical transfer from soil to vegetation and on up the food chain to wildlife and then humans who consume traditional and country foods, which could lead to adverse human health effects. Several potential direct impacts to country foods were identified in the Application including application of pesticides or herbicides and disturbance of chemicals within the environment. Chemicals identified within the environment include trees treated with arsenic historically to manage mountain pine beetle populations and soil contamination at the site of the former Methanex methanol facility situated at the pipeline terminus near Kitimat. The Application notes that soil chemical levels at the Methanex site are well below the standards in the Contaminated Sites Regulation for aquatic life.

Given mitigation measures proposed to protect soils and sediment, water, vegetation and wildlife, the Application proposes few additional mitigation measures specifically to protect traditional and country food quality. However, the Application does propose controlled/limited use of short half-life herbicides and managed handling of trees treated historically to manage mountain pine beetle populations. The Application also recommends that site excavation and construction at the former Methanex site ensure soil handling in accordance with instructions detailed in the site investigation report.

Section 7.3 of this report describes the potential Project's effects on traditional and country food availability as a result of the construction and operations. Given the level of effect, the proposed Project would not have country foods-related impacts to human health.

9.1.3 Project Issues and Effects and Proposed Mitigation Identified During Application Review

During the Application Review, the Working Group and the public raised concerns about the potential effects of the proposed Project on human health.

West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation questioned why nearby residences were used as primary receptors of potential effects on human health instead of the people using the immediate area or employees of the proposed Project.

The Proponent clarified that it considered the residences in the assessment because those would have the longest exposure durations.

Members of the public raised concerns regarding the proposed Project's impacts to groundwater and air quality which could impact human health. Mitigation measures proposed to respond to these are provided in section 5.8 and 5.2 of this report.

Nak'azdli Band and Nadleh Whut'en First Nation raised concerns with worker safety and health from unstable terrain areas. The Proponent clarified that the *Oil and Gas Activities Act* and regulations, as well as the OGC's *Environmental Protection and Management Regulation* would require engineering detail to manage this concern.

West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band, Doig River First Nation, Nak'azdli Band, and Nadleh Whut'en First Nation raised concerns about the potential effects of chemical herbicides used during Project construction being ingested by people gathering wild plants, by herbivores and having an impact on fish.

The Proponent has committed to not using pesticides or herbicides in the traditional territories of Aboriginal Groups that oppose their use. EAO has proposed a condition regarding the use of pesticides and herbicides on private land and in Aboriginal Group traditional territories.

Members of the public raised concerns regarding the proximity of the compressor stations to gardens, drinking water and livestock. Broad concerns were also raised regarding the proposed Project's impacts to wild food including game, mushrooms and berries.

EAO is satisfied that these concerns have been adequately considered and assessed in other parts of this report and the Proponent's Application.

Nak'azdli Band and Nadleh Whut'en First Nation raised concern with the conclusion that there would be no residual impacts to traditional and country foods from ARD-producing substrate. Section 5.7 considers potential Project contribution to ARD.

The Proponent indicated that a revised assessment of human health impacts would be undertaken to address any water quality issues should any direct impact to country foods or health be predicted.

Nak'azdli Band, Nadleh Whut'en First Nation, and Blueberry River First Nations raised a concern that no cumulative effects assessment was undertaken on traditional and country food quality changes as a result of the bioaccumulation of contaminants through the food chain.

The Proponent did not to undertake a cumulative effects assessment, as the proposed Project is not expected result in any material amount of contamination to environment, and therefore would not result in any bioaccumulation.

Nak'azdli Band, Nadleh Whut'en First Nation, and Blueberry River First Nations requested that the Assessment consider perceived contamination of food and medicine as an effect pathway related to construction and operation activities that produce noise, dust, and other pollution.

The Proponent has committed to engage with Aboriginal Groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation, and EAO has proposed an associated condition. It is anticipated that this ongoing engagement could, at the request of an Aboriginal Group, include fact-sharing and education aimed to address the perceived contamination of foods in and around the proposed Project area.

9.1.4 Characterization of Residual Project Effects

Residual effects in relation to air quality and acoustics have considered potential impacts to human health. See section 5.1 (Acoustic Environment) and section 5.2 (Air Quality) for additional detail.

Given the analysis and mitigation provided in other sections of this report, and taking into consideration the proposed mitigation measures to avoid and minimize potential impacts to human and ecological health and considering proposed mitigation measures to avoid and minimize contaminant availability in the environment, as well as

recognizing the Environmental Assessment Certificate conditions and federal and provincial permitting requirements, EAO concludes that the proposed Project would not likely result in any residual adverse effects on human and ecological health.

9.1.5 Conclusions

Considering the above analysis and having regard to the conditions identified in the TOC and the CPD (which would become legally binding as a condition of an EAC), EAO is satisfied that the proposed Project is not likely to have any adverse effects on human and ecological health, beyond those residual effects assess in previous sections related to noise and air quality.

10. Accidents, Malfunctions and Effects of the Environment on the Proposed Project

10.1 Background

During the construction or operation of the proposed Project, unplanned events could occur resulting in impacts to environmental, social, health, heritage or economic values. Unplanned events could arise from accidents or malfunctions associated with Project activities, or could be the effects of environmental processes on Project components or activities. Chapter 21 of the Application describes Accidents and Malfunctions and Chapter 22 of the Application describes Effects of the Environment on the Project.

The potential occurrence of unplanned events was assessed in the Application using a risk-based approach, according to the likelihood and consequence of the occurrence. The Application considers scenarios for each of the potential unplanned events and ranks the risk of each according to the likelihood of the scenario arising and the potential consequence or severity of the scenario arising.

During review of the Application, Working Group members were actively engaged in considering questions related to potential risks associated with the proposed Project. General questions raised related to accidents or malfunctions included: safety, transportation of materials, the effects of spills and fuel storage, the use of biodegradable fuels, sediment releases to during construction, pipeline failures, incident response procedures and liability, and explosions. General questions raised related to the effects of the environment on the proposed Project included: the effects of forest fires, flooding and erosion risk, landslides and slope stability, seismic events, and acid rock drainage. Responses and clarifications were provided by the Proponent during meetings and through written questions-responses within the Working Group tracking table and associated technical memos.

Members of the public also raised general concern regarding possible impacts to people and the environment from an accident, a malfunction or an effect of the environment on the proposed Project.

The following sections identify possible unforeseen events, describe the contexts within which they could arise and the potential impacts of each event. The sections present a summary of key mitigation measures proposed to address each event and EAO's conclusion on the significance of the risk posed by accidents or malfunctions and of the effects of the environment on the Project.

10.2 Accidents or Malfunctions

The Application considered the following potential accidents or malfunctions to have a medium to high unmitigated potential risk:

- spills
- pipeline leak or failure
- fire or explosion
- motor vehicle accident
- sediment release into a watercourse and
- acid rock drainage / metal leaching

The Application also details potential effects from power outages, flyrock from blasting and acid rock drainage / metal leaching, which were predicted to pose a low risk to Valued Components. A summary of questions and responses regarding acid rock drainage / metal leaching is provided in section 5.7 of this report.

10.2.1 Spills

Spills primarily present a risk during construction, where a release of hazardous materials in the vicinity of the Project or into a watercourse could occur. Without the application of mitigation measures hazardous materials could impact soils, fish and wildlife habitat, surface and ground water. The results of a major spill could also impact land use including traditional land use, cultural and recreational sites, and human and ecological health.

Key mitigation proposed to address spill hazards include:

- Implementation of relevant EMPs including: the Environmental Management Plan, Spill Contingency Plan, Chemical and Waste Management Plan, and Emergency Response Plan which include a combination of incident prevention measures, safety devices and emergency response planning and procedures to ensure public safety and prevent environmental damage.
- Implementation of best management practices to avoid incident management such as:
 - requiring that all construction vehicles carry spill prevention and clean up materials and that personnel are trained in use of containment and cleanup equipment;
 - follow best practices for storage and handling of hazardous materials and fuels; and

- keeping equipment and fuel handling away from sensitive receptors, such as watercourses, vegetation and riparian areas.

MOE requested clarification on fuel handling measures, and the Proponent confirmed that they would not typically store fuel on the proposed Project ROW, and that secondary containment would be in place at fuel storage locations.

In response to Working Group members concerns, MNGD clarified that HDD stream crossings are completed using non-toxic drilling fluid comprised of bentonite clay, water and a small amount of polymer. The loss of containment of drilling fluids during HDD involves the fluid migrating from the pipeline bore to the surface through fractures in the overlying rock or through pore space in the overlying till. OGC indicated that there is no serious potential for human health impacts. This type of accident could result in a temporary increase in turbidity or clay deposition within the streambed and resulting adverse effects to fisheries.

MNGD explained that the loss of drilling fluids is considered a spill, and that spill response procedures would be required in the event of the loss of drilling fluids from an HDD including notification, response, and mitigation measures. In addition to preventative measures undertaken by the Proponent, regulatory prevention measures include the submission of geotechnical crossing information to OGC during permitting which are reviewed for fish habitat and riparian issues and for geotechnical information by qualified specialists.

10.2.2 Pipeline Leak or Failure

Sweet natural gas is considered non-toxic and has low solubility in water. In the event of a natural gas pipeline rupture, pressurized gas within a natural gas pipeline would rapidly dissipate into the atmosphere, with little potential effect to the surrounding environment. The primary impact would be the additional release of methane (CH₄).

As a result of the SCADA systems required for pipelines, the release of natural gas would be minimized, and the impact to overall GHG emissions would be minimized.

A major rupture of a natural gas pipeline resulting in a release of highly pressured gas in proximity to an ignition source which could result in an explosion and have a similar impact to that of a fire, as described in section 10.2.3 of this report.

During the construction of the proposed Project, there is a possibility that Project machinery could accidentally hit and rupture a third-party crude or sour gas pipeline. A rupture and release of sour gas or crude oil could result in adverse effects to fish or

wildlife and their habitats, wetlands, vegetation, current use of land and resources including for traditional purposes, and human health and property.

Mitigation proposed to prevent, prepare for and respond to a third-party pipeline leak or rupture include:

- Identify all third-party pipelines before the start of construction and reach appropriate agreements with third-party operators and follow best practices for minimum separation between pipeline trenches.
- Coordinate with emergency response agencies to ensure that appropriate communications, understanding and cooperation are in place before the start of construction.
- In the event of a pipeline leak or failure, activate the Proponent's Emergency Response Plan and dispatch emergency personnel to the site.

During the Working Group meetings for the proposed Project, a number of questions were raised by Aboriginal Groups regarding how the pipe would avoid corrosion and other mitigation measures, including monitoring, to protect pipeline integrity and avoidance of pipeline leak or failure.

The Proponent's SCADA and cathodic protection systems, for monitoring external corrosion, would be monitored 24 hours, 7 days a week throughout the life of the proposed Project. The Proponent would also run inspection tools internal to the pipe that would monitor pipe thickness or other abnormalities.

10.2.3 Fires or Explosions

A fire or explosion could occur where a combination of a fuel source, oxygen source, and source of ignition is available. Fuel sources associated with the proposed Project include natural gas, engine fuels, hydraulic oils, and natural fuel sources such as vegetation. Ignition sources include forest fires and lightning strikes as well as human sources.

A fire or explosion could adversely impact aquatic and wildlife habitat and vegetation, loss or damage to property and human health and safety.

Mitigation proposed to prevent and respond to fires or explosions include:

- Implement fire safety and response training for all personnel including the use of fire-fighting equipment, proper disposal of hot or burning material (including cigarettes).

- Maintain all construction equipment in good working condition.
- Ensure that necessary fire-fighting equipment is available on-site.
- Manage storage and burning of cleared vegetation according to best management practices.
- Develop and adhere to a Fire Suppression Contingency Plan during a fire or high fire hazard conditions.
- Incorporate best management engineering design and construction methods and ensure

10.2.4 Motor Vehicle Accidents

Motor vehicle accidents during Project construction or operations could adversely affect health and wellbeing of workers or the public, could cause property damage, or could result in spills. The worst-case scenario of a potential motor vehicle accident would be death of a person or wildlife. Vehicle collisions with wildlife are considered in section 5.10 of this report. Accidental spills and fires are discussed separately within this section.

Mitigation proposed to prevent and respond to motor vehicle accidents include:

- Ensure construction activity occurs in surveyed right-of-way, approved temporary workspace, existing roads and approved shoo-flies.
- Implement safety training on the requirements of the operation of Project-related vehicles, including speed restrictions.
- Transport workers between construction camps and the worksites using multi-passenger vehicles.
- Actively manage vehicular movements during construction.

10.2.5 Sediment Releases into Watercourses

A sediment release in a watercourse could occur from the release of drilling mud during trenchless crossing installation under a river (e.g., horizontal directional drilling). A release of large amounts of sediment in the event of an accident or malfunction could adversely impact aquatic life and habitat, vegetation, wetlands and/or wildlife and drinking water.

Section 5.6 of this report discusses the potential effects of sediment release into watercourses during construction activities and describes concerns raised during Application review.

Mitigation proposed to prevent and respond to sediment releases include:

- Implementation of relevant EMPs including the Directional Drilling Procedures and the In-stream Drilling Mud Release Contingency Plan.
- Implementation of standard trenchless crossing measures where a trenchless crossing is planned or the implementation of a contingency crossing method.
- Implementation of a monitoring plan that combines water quality monitoring with other monitoring methods.

Section 5.6 of this report provides an overview of measures to mitigate riparian habitat loss or alteration and to reclaim wetlands in the event of a drilling mud release.

10.3 Effects of the Environment on the Proposed Project

Environmental processes assessed with respect to their potential to affect the proposed Project and result in effects to Valued Components include:

- Extreme weather events
- Natural seismic events
- Fire
- Slope stability and mass wasting events
- Future climate scenarios
- Forest pests and pathogens
- Marine clays
- Flooding

10.3.1 Natural Seismic Events

Seismic conditions from northern Vancouver Island to Haida Gwaii and the area west of Kitimat are largely influenced by the oceanic Pacific Plate and most of the seismic events near the coast are associated with the Queen Charlotte Fault. Seismic events are less common on the mainland coast in Kitimat and eastward. The proposed Project could experience potential adverse effects related to natural seismic events, including ground motion, liquefaction, and active fault rupture. The potential adverse effects from natural seismic events include displacement and loading of pipeline at a fault crossing, pipeline uplift, leading to flexural strain and possible exposure of the pipeline; and dynamic loading and straining of the pipeline due to differential ground motion.

To decrease the likelihood and consequence of seismic effects on the proposed Project, the Proponent proposes to undertake:

- fault-crossing mitigation;
- aboveground design with heavy-wall pipe;
- special trench geometry and backfill;
- buoyancy control to prevent pipeline uplift in areas where liquefaction may occur;
- densification or compaction of soil; and
- increased drainage to decrease soil saturation.

10.3.2 Fire

Factors that influence the probability and magnitude of wildfires include vegetation type, ignition source, and weather conditions, including relative humidity, air temperature, forest moisture, precipitation, wind speed and wind direction. The potential effects of fire on the proposed Project would be a delay of construction or maintenance activities during construction and operations including shut down procedures as detailed in sections 10.2.2 and 10.2.3.

The Proponent would follow a Fire Response Plan and Environmental Management Plan.

10.3.3 Slope Stability and Mass Wasting Events

Landslides and other mass wasting processes are naturally occurring along the proposed Project route or could be induced by construction of the proposed Project or as a result of earthquakes or other events. The potential effects of slope stability and mass wasting events identified by the Proponent include loading, deformation, or exposure of the proposed pipeline during construction and operations.

Project design measures in consideration of slope stability include:

- stabilization measures including prompt re-vegetation of slopes
- cut and slope grade measures
- strain relief excavation
- surface water controls
- deep burial of the pipe; and
- measures to protect the pipe and ditch where necessary

Follow-up terrain monitoring is also proposed post-construction to identify and conduct maintenance along the length of the pipeline during operations.

10.3.4 Extreme Weather Events

The proposed Project would cross a diverse landscape, including areas with high elevation where extreme weather events, such as large snowfalls, high winds, lightning and high amounts of rain, can occur. The potential adverse effects from extreme weather events include delays in construction schedule; and disturbance or obstruction of right-of-way access to Project facilities. Construction schedule delays could impact the Proponent's ability to work within wildlife or fishery timing windows.

Project design measures in consideration of extreme weather include:

- Installation of diversion berms, erosion controls (including re-vegetation);
- Adjusting pipeline burial depth;
- Optimize the construction schedule; and
- Implementation of an Adverse Weather Contingency Plan including corrective management following extreme weather.

10.3.5 Future Climate Scenarios

Changes in global climate conditions are affecting BC's landscapes, communities and economic activities. Extreme weather may intensify and adversely affect critical infrastructure. Effects of extreme weather events, wildfires and landslides are discussed individually in this chapter, and mitigation measures are described.

Mitigation for changing weather and climate scenarios would be captured through implementation of the Environmental Management Plan. Adaptive management through the Project lifecycle from pre-construction surveys through post-construction monitoring and maintenance, would enable real-time consideration of changing climate conditions.

10.3.6 Forest Pests and Pathogens

Tree removal as a result of mountain pine beetle infestation may cause alteration of the natural hydrological conditions because of increased total runoff. The hydrologic effects of tree removal because of mountain pine beetle infection could adversely affect the Proponent's ability to reclaim areas affected by forest pests or pathogens.

The Proponent would conduct post-construction monitoring and engage in further reclamation activities, as warranted, to mitigate the effects of hydrologic effects of tree removal because of mountain pine beetle.

10.3.7 Marine Clays

During the retreat of the glaciers, marine clays were deposited in the Kitimat River valley up to 160 m above the current sea level. The mineralogy, chemistry and grain size of the marine clays make them more susceptible to earth flow failures, especially on seepage slopes with high pore-water pressure. Marine clays would be crossed by the last 4 km of the proposed Project route near Kitimat. Marine clays may create strain on the pipeline from lateral loading or loss of support due to flow or ground instability on the proposed ROW.

To mitigate the potential effects of strain on the pipeline from lateral loading by marine clays, the Proponent would conduct additional geotechnical field characterization and further refine the route to avoid areas of marine clay. Where necessary, ground condition improvements would be made.

10.3.8 Flooding

The proposed Project crosses many valleys, some of which are intersected by major rivers, and several areas along the route are prone to flooding. The effects of flooding on the proposed Project include exposure, damage or rupture of the pipe; and obstruction of the ROW and access to proposed Project facilities.

The proposed Project would be designed to withstand a minimum of 1:100-year flood. Project design would incorporate route and construction schedule optimization and, where warranted, deep burial of the pipeline and installation of diversion berms and buoyancy controls would occur. A Flood and Excessive Flow Contingency Plan would also be developed and implemented where necessary (see section 11 of this report for more information on the plan).

10.4 Summary and Conclusion

Project design measures such as strategically placed engineered pipe protection, route placement and other design mitigation would be used to lower the likelihood and reduce the severity of any accident, malfunction or effect of the environment on the proposed Project.

Prior to the commencement of construction activities, the Proponent would be required to develop an Environmental Management Plan (EMP) for implementation throughout the Projects' lifetime which would address preparedness, prevention and response to an accident or malfunction or an effect of the environment on the Project. The Environmental Management Plan is described in section 11 of this report.

Based on the combination of Project design measures, implementation of EMPs, and recognizing the recommended Certified Project Description and Table of Conditions (which, if a Certificate is approved, would become legally binding), EAO is satisfied that neither accidents or malfunctions nor effects of the environment on the proposed Project is likely to pose significant risk to environmental, social, economic, health or heritage VC's associated with the Project.

11. Environmental Management Plan

An Environmental Management Plan (EMP) would be required to minimize adverse environmental effects throughout the proposed Project's lifespan. Specifically, the EMP is a framework to communicate and implement mitigation measures and best management practices, and to support compliance with applicable legislation, terms and conditions of permits, and approvals and authorizations issued in relation to the proposed Project, including an EAC, if issued. A conceptual EMP was included in Appendix 2-A of the Application.

11.1 Environmental Management Plans and Follow-up Programs

The Proponent's EMP would:

- outline environmental protection measures and mitigation related to proposed Project activities
- provide recommended measures for carrying out construction activities to reduce adverse environmental effects; and
- serve as reference information to the construction staff and personnel to support decision-making, and provide links to more detailed information.

Environmental monitoring would be a key component of the EMP to ensure that construction conditions, field management and when necessary, compliance with the proposed Project's environmental commitments, approvals, permits and licences are adhered to. In addition, environmental inspectors would document effectiveness of mitigation, recommend any alternative mitigation, identify issues, as they arise and report on the progress of the status of the mitigation measures post-construction.

Contingency plans would be included in the EMP with specific instructions, measures and strategies for addressing unplanned environmental issues, should they arise during construction. The following contingency plans are proposed in the Application:

- Spill contingency plan
- Adverse weather contingency plan
- Flood and excessive flow contingency plan
- Wet soils contingency plan
- Fire suppression contingency plan
- Soil handling contingency plan
- Directional drilling procedures and instream drilling mud release contingency plan
- Ecological community and species of concern discovery contingency plan

- Wildlife species of concern discovery contingency plan
- Heritage resource discovery contingency plan
- Traditional land use sites discovery contingency plan

Management plans would include guidelines and procedures to support the mitigation activities identified in the EMP for chemical and waste management, access and traffic control management, hydrovac cutting handling, contaminated soils and other management issues of the proposed Project. The following management plans are proposed in the Application:

- Chemical and waste management plan
- Traffic control management plan
- Access control management plan
- Hydrovac cutting handling plan
- Contaminated soils management plan

Post-construction monitoring would be detailed in the EMP as a follow-up measure to ensure that the mitigation measures applied have been effective. Post-construction monitoring would include an assessment of disturbed and reclaimed (e.g., revegetation, erosion control and weed problems) areas within the Project area disturbed by construction, including access routes, and an assessment of other specific environmental issues identified by regulatory agencies, landowners, land users or other stakeholders. The Application proposed monitoring activities related to vegetation, rare plants, wetlands, and wildlife. EAO's proposed conditions would require a number of other specific areas for monitoring.

Emergency Response Plans would be included in the EMP as a guideline for the Proponent to ensure a prompt and coordinated response to emergencies. The plans would apply to all phases of the proposed Project, including emergencies that result from natural hazards (e.g., forest fires and flooding) or route development work.

Safety and Security plans would provide direction to enable compliance with WorkSafe BC regulations and adherence to applicable standards and codes, including those of Coastal GasLink and the Canadian Standards Association.

A detailed list of the plans and programs required to support development of the proposed Project, as well as preliminary draft environmental management plans (terrestrial/marine) are provided in the Application. Implementation of the details set out

in the Application and any additional plans would be appended to the Table of Conditions, should an EAC be issued.

11.2 Issues Raised During Application Review

A summary of specific issues raised by Advisory Working Group members related to the implementation of mitigation and Environmental Management is provided below.

Themes of interest to Advisory Working Group members and members of the public included: effective implementation of proposed mitigation measures; the importance of qualified professionals oversight on the implementation of mitigation; and the importance of ongoing monitoring to confirm mitigation efficacy in combination with mitigation adaptation, as needed.

West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band, Doig River First Nation, and Metlakatla First Nation raised the concern that the imperfect implementation of the mitigation measures proposed within the Application could result in adverse effects which are not a predicted outcome of the Environmental Assessment process. They requested that implementation of mitigation be undertaken by experienced professionals, with sufficient resources to do the job effectively, and that post-EAC be done to refine the Environmental Management Plan.

MOE, FLNR and Wet'suwet'en First Nation requested that mitigation strategies be monitored for effectiveness during and following their implementation and that the professional qualifications of environmental inspectors be ensured.

The Proponent committed to retain the services of Resource Specialists (individuals with the technical expertise and experience to assess site-specific conditions within the ecoregions traversed by the Project) for site-specific mitigation planning for the construction phase. Resource Specialists would develop site-specific mitigation in collaboration with the Environmental Inspector(s), Construction Manager, the Proponent and appropriate regulatory authorities.

The Proponent committed to undertake construction and post-construction monitoring to ensure effective and where necessary adaptive management is undertaken and to ensure that post-construction the mitigation measures have been effective.

Wet'suwet'en First Nation, West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band, Doig River First Nation, and Metlakatla First Nation indicated an

interest in details of the environmental management plans in advance of a decision on the EA Certificate. Haisla Nation questioned whether the EMP would be a Certificate Condition.

The Proponent provided a conceptual level EMP in the Application, and would be required to develop the detailed EMP and all associated plans for delivery and review to Aboriginal Groups and regulatory authorities prior to the start of the relevant stages of work.

West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation requested that the Proponent ensure the implementation of a communication plan that would work for remote communities where members may be on the land for extended periods.

The Proponent would continue to engage with Aboriginal communities during construction and operations as per the Aboriginal Consultation Plan.

West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band, Doig River First Nation, and Metlakatla First Nation requested meaningful inclusion of Aboriginal Interests into the mitigation development and implementation process including site-specific mitigation (and monitoring) in all high-priority areas. These would include detailed commitments that recognize the specific concerns and sensitivity in key areas, and that Aboriginal communities be directly involved with reviewing, approving and overseeing the plans.

The Proponent indicated that site specific plans would be developed during construction planning and detailed engineering design for high priority (e.g., water body crossings) areas. EAO proposes a condition that would require that the Proponent engage with Aboriginal Groups in the development of the management plans; however the approval of the plans would rest with the legally responsible authority.

Nadleh Whut'en First Nation and Nak'azdli Band questioned whether the Proponent's emergency response plan was continuously improved.

The Proponent explained that in the event of an emergency, they would complete an Emergency Management Corporate Program Manual Debrief. The process identifies issues associated with different phases of the emergency. Issues are tracked and incorporate in the program review process. This document provides

a guideline to leverage learnings from maintenance projects within Operations and Engineering. Lessons learned are successful if the Proponent:

- avoids repeating mistakes;
- identifies best (or better) practices;
- transfers knowledge that can be immediately applied; and/or
- makes systemic changes to continuously improve company work practices.

MOE stated that site-specific or high risk construction tasks such as watercourse crossings, would need to have construction environmental management plans (CEMPs) developed following detailed design phase. These plans would need to address erosion and sediment control. In addition, watercourse crossing plans may require approval by regulatory agencies.

Section 7 of the Proponent's EMP includes resource-specific mitigation that has been developed for sensitive environmental features including watercourse crossings. Site-specific designs for watercourse crossings would be developed as construction planning and detailed engineering design advances. Required information would be provided to the appropriate regulatory authorities during permitting. Appendix C of the EMP provides information about the Proponent's Soil Erosion Contingency Plan, and EAO would require the Proponent to develop and implement the EMP as a legally binding condition. (Also see section 5.6.3 for more information on watercourse crossing mitigation.)

11.3 Compliance Reporting

The Proponent would be required to report on compliance in relation to any EA Conditions, at the periods specified in the EAC. Compliance reports would be provided to the appropriate regulatory authorities and other parties for review. Compliance reports would be submitted to EAO and made available publically on EAO's website.

PART C – ABORIGINAL CONSULTATION REPORT

1. EAO Consultation Process: Overview

The Government of British Columbia is legally obligated to consult and, if necessary, accommodate asserted or established Aboriginal rights including title, or treaty rights (“Aboriginal Interests”) that may be impacted by provincial decisions. In *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73, the Supreme Court of Canada established that the Crown is required to consult with Aboriginal Groups¹⁰ with respect to Crown-authorized activities that might affect Aboriginal Interests, and that the extent (or level) of the consultation is proportionate to preliminary assessments of the following factors:

- strength of the case for the claimed Aboriginal rights (including title) that may be adversely affected; and
- seriousness of the potential impact of contemplated Crown action or activity on Aboriginal Interests.

The extent (or level) of the Crown’s obligation to consult is described in the *Haida* case as lying on a spectrum from notification to deep consultation. The environmental assessment (EA) process is not a rights determining process in relation to asserted Aboriginal rights or title. Instead, a key objective of the EA process is to identify potential adverse effects of proposed projects on Aboriginal Interests and explore measures to avoid, mitigate or otherwise appropriately address such effects.

On March 8, 2013, the Environmental Assessment Office (EAO) issued a section 11 Order which specified the consultation activities that both EAO and the Proponent would undertake with all Aboriginal Groups potentially affected by the proposed Project.

At the initial stages of EA for the proposed Project, EAO relied primarily on the proximity of the proposed Project to an Aboriginal Group’s asserted traditional territory to determine whether an Aboriginal Group would be included on Schedule B or C:

¹⁰ “Aboriginal Groups” means the Treaty 8 First Nations, First Nations, and other aboriginal entities as identified on Schedule B and Schedule C of the section 11 order (the “Order”) issued March 8, 2013 or subsequently amended from time to time, to be consulted in accordance with Part G of that Order. The Order can be found at http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_35419.html.

- Those Aboriginal Groups with Aboriginal Interests within 2 km of the proposed Project were listed in Schedule B; and
- Those within 30 km of the proposed Project were listed in Schedule C.

Aboriginal Groups in Schedule B of the section 11 Order were consulted at the deeper end of the consultation spectrum, and were provided the following opportunities:

- participation in the Working Group;
- participation in meetings to identify and discuss both Aboriginal Interests that may be affected by the proposed Project and potential measures to avoid, mitigate, address or otherwise accommodate impacts;
- review and comment on key documents, including the draft Valued Component (VC) document, draft Application Information Requirements, the Proponent's Application for an Environmental Assessment Certificate, and two drafts of EAO's Assessment Report including this Part C Aboriginal Consultation Report, and the Proponent's Aboriginal Consultation Reports; and
- submission of a document outlining the Aboriginal Group's views on the Assessment Report, to be included in the package of materials sent to Ministers when the proposed Project is referred for decision.

Aboriginal Groups in Schedule C of the Order were consulted at a lower level on the consultation spectrum, and were provided the following opportunities:

- notification of key milestones – such as the issuance of the Application Information Requirements, acceptance of the Application for review, timing of public comment periods (including open houses), referral of the final Assessment Report to Ministers and the resulting decision;
- invitation to meet with EAO to discuss any Aboriginal Interests in the proposed Project area; and
- invitation to review and comment on two drafts of EAO's Assessment Report, including this Part C Aboriginal Consultation Report, and other draft referral materials.

The Section 11 Order also required the Proponent to develop and implement an Aboriginal Consultation Plan and subsequent Aboriginal Consultation Reports, to the satisfaction of EAO.

EAO considered Treaty 8 rights to hunt, trap and fish and the *prima facie* claims to Aboriginal title and Aboriginal rights to hunt, fish, trap and gather plants adjacent to, and generally around, the proposed Project.

Consideration was given to the areas where Treaty 8 rights were historically exercised and initial assessments of the strength of the Aboriginal rights and title claims were conducted and discussed with Aboriginal Groups identified on Schedules B and C starting in the winter of 2012-13. As a result of these discussions, several modifications to the section 11 Order were made during the EA:

- Blueberry River First Nations and Doig River First Nation were moved from Schedule C to Schedule B (February 21, 2014);
- Gitga'at First Nation was added to Schedule C (February 21, 2014); and
- Cheslatta Carrier Nation was added to Schedule C (May 13, 2014).

EAO has considered all comments received from Aboriginal Groups, including relevant information provided by Aboriginal Groups during the Application Review. During all stages of the EA, issues, comments and concerns raised by Aboriginal Groups submitted via correspondence including issues raised during Application Review process (or raised directly at meetings or in working groups) in relation to the proposed Project were forwarded to the Proponent for tracking and response, as required. Input from Aboriginal Groups was received through participation in Working Group meetings, teleconferences, direct meetings with EAO and/or the Proponent and written correspondence (letters or emails).

EAO reviewed the adequacy of the Proponent's responses to all comments received from Aboriginal Group representatives in the Working Group and recorded in the Issues Tracking Table. EAO required the Proponent to update the Issues Tracking Table and supporting Technical Memos as appropriate and EAO considered the comments and issues in the development of its Assessment Report. In addition, EAO arranged specific Working Group meetings and offered to meet with Aboriginal Groups to review responses and any additional concerns of Aboriginal Groups. Prior to referring the Application to Ministers, EAO provided the final tracking tables, completed to EAO's satisfaction, to Aboriginal Groups and other Working Group members.

An initial draft of this Report was provided to Aboriginal Groups participating in the Working Group on August 14, 2014 to demonstrate how EAO considered all Aboriginal Groups' comments received up until August 1, 2014. Comments and feedback on the draft received up until September 9, 2014 were considered in the second draft of this Report. A final draft of this Report was provided to Aboriginal Groups in the Working Group for review on September 12, 2014, and comments and feedback received until October 6, 2014 were considered in the final Report.

1.1 *Tsilhqot'in Nation v. British Columbia*¹¹

On June 26, 2014, the *Tsilhqot'in Nation v. British Columbia* (*Tsilhqot'in*) decision was released by the Supreme Court of Canada. The decision clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846 (the time of assertion of European sovereignty). In addition, the case set out considerations for government when consulting Aboriginal Groups regarding potential impacts on asserted Aboriginal title claims.

As is typical for significant legal cases such as these, government is taking time to examine the implications including the legal, policy and public interest considerations. The proposed Project was at the 107th day of the 180 day application review period when the *Tsilhqot'in* decision was released.

EAO originally was scheduled to provide the assessment report to Ministers for the proposed Project on September 8, 2014. As a result of the *Tsilhqot'in* decision, EAO extended the EA review period until October 8, 2014 to examine the decision implications on this proposed Project, and specifically:

- reassessed the strength of claimed Aboriginal title overlapping the proposed Project on the basis of the tests set out in the *Tsilhqot'in* decision, for the purpose of confirming appropriate level or depth of consultation;
- included the results of that reassessment in this report as it relates to each Aboriginal Group with asserted title claims overlapping the proposed Project;
- sought Aboriginal Group's perspectives on both the preliminary assessments of strength of Aboriginal claims and seriousness of impacts, as well as proposed accommodations, through the provision of a draft version of this report; and
- considered other approaches being taken by government that may be relevant to the accommodation for potential impacts to Aboriginal Interests.

The Aboriginal Groups who have been assessed as potentially having strong Aboriginal title claims overlapping the proposed Project (post-*Tsilhqot'in*) were already included on Schedule B of the section 11 Order prior to the *Tsilhqot'in* decision and have been consulted at a deeper consultation level throughout the EA.

EAO is not a body for determining rights, including rights to Aboriginal title, nor does EAO have all of the necessary information to make such a determination. For the

¹¹ For a list of the information sources that EAO considered in conducting this section of the assessment, see Appendix C.1.

purposes of this Report, EAO's assessment of whether Aboriginal Groups may have a *prima facie* claim to Aboriginal title is intended solely to inform the level of consultation required for each Aboriginal Group.

2. LNG Project Context

2.1 Common Concerns

This section summarizes common concerns raised by Aboriginal Groups throughout the EA process, and EAO's response to those concerns.

Environmental assessment timelines, number of projects, and capacity of Aboriginal Groups to participate in the assessment process

In February 2013, two Liquefied Natural Gas (LNG) related projects were in the early stages of assessment by EAO. By February 2014, there were four LNG-related pipelines and three export facility projects in northern British Columbia in various stages of review by EAO, as well as an amendment request for a Certified project. These projects, in addition to upstream natural gas development, mining, forestry and other natural resource development proposals in BC's north, have resulted in increased consultative activity with Aboriginal Groups and a corresponding increase in the requirement to respond to and participate in multiple processes.

EAO heard extensive concerns expressed by most Aboriginal Groups involved in the proposed Project about the volume and pace of the work that made it challenging for them to effectively participate in the EA.

To address these concerns, EAO:

- offered a VC Guidance training session in the summer of 2013 for Aboriginal Groups across northern BC, to provide a deeper knowledge base to participate in and understand how EAO conducts impact assessments;
- provided grant funding in lump sum amounts to Aboriginal Groups, based on all proposed projects related to LNG rather than providing smaller amounts for each proposed project, to enable more effective use of funds for each Aboriginal Group;
- appointed a First Nations LNG Lead to support both project-specific consultation and strategic-level regional workshops for Aboriginal Groups;
- encouraged proponents and Aboriginal Groups to discuss capacity funding to enable Aboriginal Groups to be engaged in technical review, community dialogue, and identification of information requirements, project reviews and responses to key documents throughout the Project review. EAO understands that initial funding for project engagement was offered and in most cases

provided by the Proponent to Aboriginal Groups, and all but one Aboriginal Group accepted negotiated consultation agreement funding;

- throughout the process, considered and, where appropriate, granted timeline extensions for participating Aboriginal Groups in response to their direct requests;
- organized several regional forums (described in more detail in section 4.5 below) with Aboriginal Groups to discuss all the proposed LNG-related projects together – addressing regulators roles and the regulatory process, broad government policy matters and initiatives – and to give Aboriginal Groups the opportunity to express their concerns on all the projects in a common forum; and
- worked to ensure that Working Group meetings, public open houses and public comment periods were scheduled in advance to avoid overlap and to provide notice to make it easier for those with an interest in multiple projects to participate in meetings about the Project.

Public concerns over the potential impacts of multiple pipelines in the BC north have been increasing. In response, EAO undertook a Pipeline Corridor Analysis (PCA), a strategic level assessment developed as a collaboration involving EAO, the BC Oil and Gas Commission (OGC), Ministry of Forests Lands and Natural Resource Operations (FLNR), and Ministry of Environment (MOE) to identify how the proposed pipeline corridors may overlap known and legally-designated resource values on the land. Potential overlap between the pipeline corridors and a given resource value does not equal impact, but awareness of potential overlaps allows users to focus their attention on certain locations or values of greater potential risk.

EAO introduced the PCA to Aboriginal Groups at the May 29 - 30, 2014 workshop in Prince George, described below, and a link to the tool was subsequently shared with Aboriginal Groups¹² for their review and use.

EAO has adopted a planned approach to the multiple proposed LNG-related projects to ensure specific project EAs are conducted in the context of proposed LNG development. This approach enables Aboriginal Groups, communities and stakeholders in Northern BC to have opportunities to participate in both project-specific EAs and the discussion of cross-project potential impacts and benefits.

This approach includes a Memorandum of Understanding between EAO and OGC that:

- streamlines project reviews to the extent practicable to avoid duplication of work for participants in the EA process;

¹² http://forsite.ca/pca/pca_login.html

- coordinates Aboriginal Groups' engagement to address strategic and operational questions at the same time;
- coordinates consultations including the sharing of strength of claim information, key concerns brought forward by Aboriginal Groups and responses from EAO provided during Project review; and
- ensures the compliance and enforcement regime is robust throughout regulatory review and, if approvals are granted, that enforcement action is effective.

Each of these initiatives is intended to support Aboriginal Groups, communities, stakeholders and public engagement in the review of proposed LNG-related projects by bringing a strategic lens to project specific reviews.

Adequacy of the effects assessment including VC selection and baseline study methodology

During the EA, several Aboriginal Groups expressed concern about the adequacy of the effects assessment, including VC selection and baseline study methodology.

Before an initial draft Application Information Requirements (AIR) was developed, EAO required the Proponent to produce a VC selection document in February 2013, which was made available for review and comment by the Working Group. EAO continued to extensively consult with all Working Group members on several versions of the draft AIR before issuing the AIR.

For the purposes of determining the appropriateness of the information in the Application, EAO was satisfied that the Proponent's Application contained the information as set out in the AIR.

If an Environmental Assessment Certificate is issued and the proposed Project proceeds to permitting, the Proponent would be required to complete additional baseline and field studies to fulfill permitting requirements. In addition, EAO proposes a number of conditions that would entail additional study prior to permitting, including a requirement for the Proponent to update Environmental Management Plans presented in the Application. The Proponent will be required to continue to consult with and involve Aboriginal Groups in development of the various plans and in refinements prior to required submissions to regulators. Plans would also be updated prior to and during construction based on site-specific conditions.

Conversion of a natural gas pipeline to an oil pipeline

Many Aboriginal Groups expressed deep concern that the proposed pipeline could be converted from natural gas to oil and that the potential adverse effects associated with transmission of oil were not being assessed as part of the EA.

The Certified Project Description, which is a schedule of the EA Certificate, describes the components of the proposed Project, and specifically states that the proposed Project would be a natural gas pipeline. If an EA Certificate is issued for the proposed Project, the Proponent must adhere to the EA Certificate, including the legally-binding Certified Project Description.

Current regulations and potential technical issues (e.g. steep terrain of the proposed natural gas pipeline route and lack of electrical availability to operate oil pumping stations) would deter the conversion of natural gas pipelines. To convert a current natural gas pipeline for the purposes of transmission of oil would require either an amendment to the EA Certificate or a new EA process. In addition, new permits would be required from OGC and, in a situation where a pipeline crosses provincial boundaries, the National Energy Board.

Although significant technical challenges and regulatory requirements already exist, the Province has committed to pursuing legislative options to prohibit natural gas pipelines being converted to oil transmission, in response to Aboriginal Groups' concerns arising in the EAs for new natural gas pipelines.

Location of construction camps and ancillary facilities

Many Aboriginal Groups expressed concern that the site-specific effects of potential construction camps and ancillary facilities were not specifically assessed during the EA.

To construct the proposed Project, ancillary sites, such as access roads, temporary bridges, storage areas for equipment and pipe, as well as construction camps to house workers, would also be required.

Provincial regulation of major projects occurs in stages – the Province is committed to consulting potentially affected Aboriginal Groups at each stage. EAO is of the view that it can make a conclusion about the seriousness of impact of a project even where additional detail is forthcoming at subsequent stages. During the EA, EAO directed the Proponent to assess the potential effects of the proposed Project on VCs in the area of the proposed Project footprint, the local study area, and the regional study area. If an EA Certificate is

granted, the OGC would be responsible for permitting the proposed Project during the detailed design stage of the proposed Project.

The EA has included the consideration of ancillary sites, including proposed compressor and meter stations, storage areas, access roads, and the preliminary locations of construction camps, by territory, as described in Part B Section 2.2.1 of this Report. The specific footprints were not included because the locations for these would be finalized during the construction planning and detailed engineering design and in many cases the locations are informed by Proponent-led discussions with Aboriginal Groups.. If an EA Certificate is granted, the OGC would be the primary provincial agency responsible for permitting ancillary facilities.

The Proponent is required to reclaim the proposed Project area post-construction. Conditions of the EA Certificate would require that the Proponent carry out its environmental management program as detailed in Section 25 and Appendix 2A of the Application.

EAO has included a condition that would require the Proponent to continue to engage with Aboriginal Groups regarding issues and site-specific mitigation post-EA. This could include discussions on the state of the land base, including any concerns regarding use of the proposed Project area, and Access Control Management Plan that requires the Proponent to provide information on all access (temporary and permanent) requirements.

EAO notes that, should the EA Certificate be granted for the proposed Project, OGC would consider ancillary sites during permitting, including worker camps, laydown, and storage areas. Specifically, OGC would need to consider a pipeline permit application for the proponent to undertake any proposed pipeline activity, whether within an existing right-of-way or over new Crown land or private land. As part of a pipeline application to OGC, companies are required to prepare Construction Plan(s) in accordance with the *Oil and Gas Activities Act* (OGAA) Section. 24 (1) (b). The Construction Plans include locations, dimensions and areas of short term (less than two year tenure) ancillary sites (decking sites, temporary workspaces, shooflies, etc), and would be shared with all Aboriginal Groups as part of the consultation packages.

Longer term ancillary sites required for longer than a two year term are not encompassed in a pipeline application. These ancillary sites would be considered under a separate Crown land authorization requiring permitting review for environmental impacts, rights holder notification, an archaeological assessment and consultation with Aboriginal Groups. These long term sites also must be properly deactivated. Upon closure of the construction camps, waste disposal works must be closed and the site

must be restored to the satisfaction of the Regional Waste Manager of the Environmental Protection Division. Closure requirements generally include placement of adequate cover over ash pits and/or refuse sites, removal or filling of septic systems, capping of wells and general cleanup. Sewage effluent from lagoon systems must not be discharged (i.e., by "squeezing" or pump-off) without prior approval of the Regional Waste Manager, Environmental Protection Division.

If satisfied that the Application met regulatory standards, the OGC would provide Crown land authorizations for camps required by the permit holder. OGC does not regulate other aspects of the camp such as industrial waste, open burning, transportation, water supply or camp construction.

Cumulative effects

Aboriginal Groups expressed concerns about the inadequacy of assessing cumulative effects of past, present and reasonably foreseeable industrial activity in their traditional territory. Specifically, many Aboriginal Groups sought a cumulative effects assessment of their territory, relative to their respective Aboriginal Interests. Throughout the review, EAO set out to address Aboriginal Groups' concerns regarding cumulative effects as they relate to assessing the seriousness of impact of the proposed Project on Aboriginal Interests.

EAO considered the potential cumulative impacts on Aboriginal Interests when assessing the seriousness of impacts on Aboriginal Interests. EAO drew on relevant information provided by the Proponent regarding cumulative effects assessment of VCs, as well the potential impacts of the proposed Project on Aboriginal Interests. Cumulative effects are examined and assessed in each VC section of Part B of this Report.

EAO also organized a regional workshop for Aboriginal Groups on May 29 - 30, 2014 that included presentation of the new Cumulative Effects Management Framework intended to guide natural resource operational decisions in BC.

Synchronous permitting

Aboriginal Groups have raised issues regarding synchronous permitting, including the short timeframes required to respond to the OGC permit application requests, lack of capacity to respond to such requests and concern that permits would be issued before a decision is made on whether to issue an EA Certificate.

Synchronous permitting is a component of the Memorandum of Understanding between OGC and EAO. It is a flexible approach, giving proponents the opportunity to have the

EA and permitting processes proceed in tandem. This creates timeline efficiencies with the permitting processes if an EA Certificate is issued.

While synchronous permitting has similar attributes to concurrent permitting, the former proceeds without legislated timelines for decisions on the permits following any issuance of an EA Certificate. A permit for a pipeline or facility (and associated authorizations) cannot be issued by the OGC in advance of an EA Certificate, but the permit applications can be considered simultaneously.

The synchronous permitting process does not lessen opportunities for Aboriginal Groups to participate and comment on permit applications that are before the OGC; rather it enables an approach where Aboriginal Groups can work with both regulators at one time to reduce the burden of multiple meetings with multiple agencies.

The OGC will rely on the information developed and shared in the EA process to understand any broader concerns raised by Aboriginal Groups that could necessarily inform permitting decisions and required consultation with Aboriginal Groups.

2.2 Pipeline Benefit Discussions and Other LNG-Related Initiatives

The Province, led by the Ministry of Aboriginal Relations and Reconciliation (MARR) has approached Aboriginal Groups potentially affected by this proposed Project, and other LNG-related projects, to discuss initiatives that would provide financial, environmental and training benefits as outlined below.

Economic Benefits

The Province has actively pursued opportunities to discuss economic benefit sharing with all Aboriginal Groups affected by the proposed Project. Aboriginal Groups have been offered capacity funding to engage in benefit-sharing discussions and have been presented with benefit sharing offers by the Province.

These economic benefits are in addition to any economic benefit arrangements between the Proponent and each Aboriginal Group. However, as of the date of completing this Assessment Report, no such agreements have been concluded.

Table 1 provides a summary of the status of Project Agreements between the Proponent and each Aboriginal Group.

Table 1: Status of Project agreements between the Proponent and each Aboriginal Group consulted as of July 1, 2014.

	Aboriginal Group	Project Agreement Term Sheet Tabled	Status of Project Agreement Negotiations
1	Burns Lake Band (Ts'il Kaz Koh First Nation)	Yes	Underway
2	Blueberry River First Nations	Yes	Initiated
3	Dark House	No	Working to Initiate
4	Doig River First Nation	Yes	Initiated
5	Haisla Nation	Yes	Underway
6	Kitselas First Nation	Yes	Underway
7	Lheidli-T'enneh First Nation	Yes	Underway
8	McLeod Lake Indian Band	Yes	Underway
9	Nadleh Whut'en First Nation	Yes	Underway
10	Nak'azdli Band	Yes	Underway
11	Nee-Tahi-Buhn Band	Yes	Underway
12	Office of the Wet'suwet'en	No	Working to Initiate
13	Saik'uz First Nation	Yes	Underway
14	Saulteau First Nations	Yes	Underway
15	Skin Tyee Nation	Yes	Underway
16	Stellat'en First Nation	Yes	Underway
17	West Moberly First Nations	Yes	Underway
18	Wet'suwet'en First Nation	Yes	Underway
19	Yekooche First Nation	Yes	Underway

Source: Coastal GasLink Pipeline Ltd.

LNG Environmental Stewardship Initiative

In May 2014, the Province announced an environmental stewardship initiative (ESI) to be developed collaboratively with Aboriginal Groups affected by proposed LNG-related infrastructure, including Aboriginal Groups affected by the proposed Project. The Province initiated the proposed ESI in response to the environmental priorities that Aboriginal Groups have expressed through various LNG-related discussions, including

negotiations that are occurring on economic benefits. The ESI is a proposal to collaboratively develop a long-term structure that can bring Aboriginal Groups, governments and industry together to monitor, assess, research, maintain and restore important values on the land. Engagement on the initiative began in May 2014 and the regional collaborative design workshops with Aboriginal Groups were held from September 8 through September 16, 2014.

Employment opportunities, training, and benefits

Aboriginal Groups are a key element of the Province's workforce and can play a key role in the potential future work force required by the proposed Project. A number of Provincial and Federal programs exist to assist Aboriginal Groups in addressing training requirements associated with the current and potential future workforce needs associated with LNG-related proposals, including the proposed Project. As economic benefit negotiations advance, the Province will be engaging Aboriginal Groups affected by the proposed Project to supplement community-related skills training requirements.

These initiatives are additional measures developed outside of the regulatory process, intended to help address the impacts of LNG-related development, including the proposed Project, on Aboriginal Groups' Interests.

In response to questions raised by Aboriginal Groups about training and education programs, and employment opportunities related to the proposed Project, EAO is proposing a condition that would require the Proponent to develop and implement a Social and Economic Effects Management Plan (SEEMP) that would include:

- Consultation with affected Aboriginal Groups, local governments and service delivery agencies regarding effects related to community level infrastructure and services including water, waste (solid and liquid), health and social services;
- Programs related to employment and contracting opportunities, skills training and education;
- Monitoring and reporting on the effectiveness of mitigation measures; and
- Adaptive approaches to implement alternative mitigations, to address unpredicted effects directly related to the Project.

3. Aboriginal Groups Consulted

EAO consulted the following Aboriginal Groups, listed below by cultural affiliation and/or tribal council or association:

Treaty 8:

- Blueberry River First Nations
- Doig River First Nation
- Fort Nelson First Nation
- Halfway River First Nation
- McLeod Lake Indian Band
- Prophet River First Nation
- Saulneau First Nations
- Treaty 8 Tribal Association
- West Moberly First Nations

- Ts'il Kaz Koh First Nation (Burns Lake Band)
- Wet'suwet'en First Nation

Tsimshian:

- Gitga'at First Nation
- Kitselas First Nation
- Lax Kw'alaams Nation
- Metlakatla First Nation

Independent:

- Haisla Nation

Carrier First Nations:

- Carrier Sekani Tribal Council
- Cheslatta Carrier Nation
- Lake Babine First Nation
- Lheidli-T'enneh First Nation
- Nadleh Whut'en First Nation
- Nak'azdli Band
- Nazko First Nation
- Saik'uz First Nation
- Stelat'en First Nation
- Tl'azt'en Nation
- Yekooche First Nation

Wet'suwet'en:

- Dark House
- Nee-Tahi-Buhn Band
- Office of the Hereditary Chiefs of the Wet'suwet'en
- Skin Tyee Nation

The following sections provide background information for each group.

3.1 Treaty 8

Under Treaty 8,¹³ negotiated in 1899, the treaty First Nations signatories negotiated for an 840,000 km² area of what is now northern Alberta, northeastern BC, northwestern Saskatchewan and the southern portion of the Northwest Territories.

Treaty 8 grants signatory First Nations the treaty rights to:

“pursue their usual vocations of hunting, trapping and fishing throughout the tract surrendered as heretofore described, subject to such regulations as may from time to time be made by the Government of the country, acting under the authority of Her Majesty, and saving and excepting such tracts as may be required or taken up from time to time for settlement, mining, lumbering, trading or other purposes.”

The rights to hunt, fish and trap and the ancillary activities associated with carrying out these rights are protected by section 35 of the *Constitution Act, 1982*.

In understanding the scope and nature of the rights and obligations under Treaty 8, the Crown is guided by the text of the treaty, as well as the understandings and intentions of the Aboriginal and Crown participants to the making of the treaty or subsequent adhesions, following rules of treaty interpretation articulated by the Supreme Court of Canada.

Oral promises (recorded in the Report of Commissioners for Treaty 8, Winnipeg, Manitoba, September 22, 1899) are of considerable importance in the interpretation of Treaty 8. Following is an excerpt of those promises:

“Our chief difficulty was the apprehension that the hunting and fishing privileges were to be curtailed... we had to solemnly assure them that only such laws as to hunting and fishing as were in the interest of the Indians and were found necessary in order to protect the fish and fur-bearing animals would be made, and that they would be as free to hunt and fish after the treaty as they would be in they never entered into it.”

Through Treaty 8, the Crown has the right to “take up” lands for settlement, mining, lumbering, trading, or other purposes. As stated by the Supreme Court of Canada in *Mikisew Nation v. British Columbia* (SCC 2005), with the general principle recently

¹³ Details of the history and text of Treaty 8 can be viewed on the federal Aboriginal Affairs and Northern Development Canada website, currently at <http://www.aadnc-aandc.gc.ca/eng/1100100028805>.

reaffirmed in *Grassy Narrows First Nations v. Ontario* (SCC, 2014), the Crown's right to take up lands under Treaty 8 is subject to the duty to consult and, if appropriate, accommodate the Treaty 8 First Nations' rights before reducing the area over which their members may continue to pursue hunting, trapping and fishing rights. Although all Treaty 8 First Nations are entitled to engage in hunting, fishing and trapping activities within the whole of the Treaty 8 area, where a Treaty 8 First Nation no longer has a meaningful right to hunt, trap or fish in relation to the territory over which it traditionally hunted, trapped or fished, this may result in a treaty infringement.

Seven modern-day bands that were consulted about the proposed Project were, or are evolved from, the original signatories to Treaty 8: Saulneau First Nations, West Moberly First Nations, Halfway River First Nation, Doig River First Nation, Blueberry River First Nations, Prophet River First Nation and Fort Nelson First Nation. The McLeod Lake Indian Band adhered to Treaty 8 in April 2000, in accordance with the McLeod Lake Treaty 8 Adhesion and Settlement Agreement (Adhesion Agreement). Each modern-day band is governed by a Chief and Council.

Except for McLeod Lake Indian Band, Fort Nelson First Nation and Blueberry River First Nations, all other Treaty 8 First Nations in BC are currently members of the Treaty 8 Tribal Association, a regional Aboriginal organization with an office in Fort St. John.

The Beaver Indians or Deneza, are Athapaskan people who generally settled along the Peace River in British Columbia and Alberta. These Aboriginal Groups in northeast BC traditionally lived semi-nomadic lifestyles while following seasonal rounds to pursue hunting, trapping, fishing and gathering for subsistence and commercial uses. The specific seasonal movements of the Treaty 8 First Nations of the Peace River Region prior to the arrival of the Europeans and the fur trade are not well documented. The ethnographic descriptions provided by anthropologists are based on land use when trap lines and trading posts had already become part of the Treaty 8 First Nations' economy. Following allocation of reserve land, many Aboriginal Groups continued for several decades to live a semi-nomadic lifestyle, travelling seasonally throughout the Peace River country from the Rocky Mountains to the plains of Alberta.

3.2 Carrier Groups

The Carrier groups generally live between the Rocky Mountains to the east and the Coast Mountains to the west. The 56th parallel marks the Carrier's approximate northern boundary. The southern boundary, until the 19th century, angled northwest from Alexandria to mid-way between Ulkatcho and Anahim Lake. In the 20th century, Carrier from Ulkatcho established themselves at Anahim Lake, which was traditionally Tsilhqot'in until the Tsilhqot'in began migrating east (about 1850). Some Carrier also

moved into Sekani hunting territory north of Takla Lake. These Carriers, with some Sekani, generally make up the Takla Lake Band. With the exception of Ulkatcho and Takla Lake, Carrier settlements are located along lakes and tributaries of the Upper Skeena and Fraser Rivers. It is theorized that many centuries ago, the Carrier originally lived east of the Rockies and moved to this territory, pushing the original inhabitants (Salish people) south and west.

Carrier are named according to a distinct sub-tribe, each associated with a particular territory. Fourteen sub-tribes have been identified, and have also been divided into three groups based on dialect and geographic commonalities: the Babines (Babine Lake, Bulkley River), Upper (or Northern) Carriers (Stuart Lake, Stuart-Trembleur Lake), and the Lower (or Southern) Carriers (groups to the south).

3.3 Wet'suwet'en

The Wet'suwet'en have been identified by ethnographers as a sub-tribe of the Carrier, speaking the language of Witsuwit'en (a western dialect of the Babine-Witsuwit'en language), which is a different language from that of other Carrier groups. Unlike other Carrier, the Wet'suwet'en were strongly influenced by the Gitksan, with whom they had long intermarried and traded.

At the time of European contact in the early 1820s, the Wet'suwet'en had developed a society organized into five clans and 13 houses. Descent and inheritance were traced through the female line. Wet'suwet'en territory was divided into house territories. House chiefs were considered to hold the rights and responsibilities within the house territory on behalf of house members.

Wet'suwet'en cultural and economic practices appear to have been largely unaffected until the period between the 1860s and 1900 when there was increased interaction with the Hudson's Bay Company and the creation of reserve lands. The creation of reserves ultimately led to the establishment of the modern-day *Indian Act* Bands.

Based on this information, the Province understands that the Wet'suwet'en collective that existed at the time of contact (early 1820s) and at the time of Crown's assertion of sovereignty in British Columbia (1846) would today include the total membership of the following six contemporary Bands: Moricetown Band, Hagwilget Band, Skin Tyee Nation, Nee-Tahi-Buhn Band, Ts'il Kaz Koh First Nation (formerly Burns Lake Band) and the Wet'suwet'en First Nation (formerly Broman Lake Band). However, the nature of Band membership and close relations and intermarriage with the Gitksan, Lake Babine Nation, Cheslatta and other Carrier groups to the east may complicate definition of the full Wet'suwet'en collective.

The Province understands that the house- and clan-based governance system continues to play a major role in Wet'suwet'en culture. The Hereditary Chiefs assert that they collectively represent the entire Wet'suwet'en Aboriginal rights and title holding collective under the traditional house-based governance system, as led by the Hereditary Chiefs and administratively represented by the Office of the Wet'suwet'en. The Skin Tyee Nation, Nee-Tahi-Buhn Band, Wet'suwet'en First Nation and Ts'il Kaz Koh First Nation each independently assert Aboriginal rights and title within what they have identified as their traditional territory.

3.4 Tsimshian

The four Tsimshian bands potentially affected by the proposed Project are part of what is termed collectively as the Tsimshian culture, which has been identified ethnographically as consisting of the Coast Tsimshian, Interior (Canyon) Tsimshian, and Southern Tsimshian groups.

At the time of contact, ten Tsimshian groups relocated their winter villages on the Skeena River, below the canyon, to village sites in the Prince Rupert Harbour and were eventually based around the Fort Simpson Hudson's Bay Company trading post so that the Tsimshian people could take full advantage of trade opportunities with European fur traders. Nine of these Tsimshian survived: Giluts'aaw, Ginandoiks, Ginaxangiik, Gispaxlo'ots, Gitando, Gitlaan, Gits'iis, Gitwilgyoots, and Gitzaxlaal. The Lax Kw'alaams Nation and Metlakatla First Nation are understood to have descended from these nine tribes, each of which had their own individual territories, harvesting areas and villages. These two groups are referred to as the "Coast Tsimshian."

The Kitselas and Kitsumkalum First Nations are identified by ethnographers as the Interior (Canyon) Tsimshian. While their ancestors travelled to the mouth of the Skeena River and along the coast, to trade and to harvest particularly eulachon each spring, their primary winter villages were located east and upriver in the Skeena River canyon area and were not identified as one of the nine tribes with villages in the Prince Rupert Harbour. As a result, the Kitselas and Kitsumkalum First Nations are sometimes referred to as the Canyon Tsimshian.

The Gitga'at Nation is a Southern Tsimshian group formerly based at Kitkiata Inlet on Douglas Channel and now located at Hartley Bay. Unlike the Coast Tsimshian groups of the lower Skeena River and Prince Rupert Harbour, the Gitga'at did not relocate to Fort Simpson in the 1830's, but they did move to William Duncan's model village of Metlakatla in the 1860's-80's. Subsequently the tribe established a new winter village at Hartley Bay in 1887. They are recorded in historical and ethnographic texts as the

Gitga'ata, Kitkiata, Kit-kah-ta, and numerous other variations on that name, and have been known officially as the Kitkahta Indian Band and Hartley Bay Village Council. They are currently affiliated with the Tsimshian First Nations Treaty Society.

Traditionally, Coast Tsimshian lived in large, semi-permanent winter villages consisting of multiple related groups known as “houses,” “house-groups” or *wuwaap* (singular: *waap*). A house is an independent socioeconomic unit of Tsimshian life and each house has an individual leader (*Sm'oogyet*) who inherits both a name and associated rights of the house's territory. In villages with more than one house, the leader of the most powerful house usually had leadership responsibilities for the community, with the authority derived from the status of the house-group. These houses are connected through shared history and tradition with affiliated groups called clans, crest-groups or *Bupdeex* (singular: *pdeex*) and traditionally formed the organizing structure of village residence. In general, a Tsimshian person belonged (and belongs today) to one of four clans:

- *Ginhada* (raven)
- *Gispuwudha* (killer whale)
- *Laxsgiik* (eagle)
- *Laxgibuu* (wolf)

For most Tsimshian groups, life before contact with European explorers, traders and settlers revolved around the harvesting of seasonally available food. Each house left its winter village during the spring to occupy small seasonal camps sites, collecting different resources as they became available and returning to the same winter village in the late fall or early winter. This seasonal movement is often described as a “seasonal round” by anthropologists. In the late winter and early spring, Tsimshian families would collect and process eulachon along the Nass River. Eulachon grease was (and remains) a highly prized and nutrient-rich commodity that was traded along the Nass and Skeena Rivers and into the BC Interior via well-established trade routes that are commonly referred to as “grease-trails.”

3.5 Haisla Nation

The Haisla Nation is understood to be a composite of two traditional groups: the Haisla people of the Douglas Channel known as the Kitamaat and the Henaaksiala people of Gardner Canal known as the Kitlope. At the time of first contact in 1793, the Haisla followed a seasonal pattern of land and resource use which was organized primarily around salmon and eulachon runs.

Haisla are understood to have a society organized according to territorial stewardship structures called *wa'wais* or watershed areas. These areas are described as being

communally held by a clan under the oversight of a single clan member. Traditional use areas including village sites and resource harvesting areas were located within the *wa'wais*. Fishing, gathering, trapping and hunting activities occurred in each territory according to the rights and responsibilities associated with the *wa'wais*. There are five Haisla clans and 54 Haisla *wa'wais*.

4. EAO-Led Consultation Activities with Aboriginal Groups

This section provides an overview of consultation activities undertaken by EAO.

4.1 Capacity Funding

Capacity funding was provided by EAO to Aboriginal Groups in Schedule B to assist with their participation in consultation discussions and Working Group meetings during both the pre-Application and Application Review phases of the EA.¹⁴

In addition, the Proponent offered, and, as of September 2014, in all cases except that of the McLeod Lake Indian Band, provided funding to all Aboriginal Groups to participate in regulatory processes, gather Project-based information to inform the Application, and to understand the impacts to Aboriginal Interests posed by the Project. The Proponent offered funding to McLeod Lake Indian Band, although at the time of writing, an agreement has not yet been finalized.

4.2 Working Group Activities

Aboriginal Groups were kept fully informed of the EA process throughout the review. In addition, Aboriginal Groups on Schedule B were invited to participate in the Working Group activities and to comment on EA documents, and were provided with opportunities for meetings with EAO staff as outlined below.

1. EAO invited the 17 Schedule B Aboriginal Groups originally identified in the Section 11 Order and the two Schedule B Aboriginal Groups added by a Section 13 Order to participate in the Working Group, along with federal, provincial and local government agencies¹⁵.

During the pre-Application stage of the EA, four Working Group meetings were held:

- March 4, 2013: Working Group meeting held in Prince George. EAO led discussions on the EA process and the role of the Working Group. The Proponent provided an overview of the proposed Project and led discussions regarding the EA information requirements. Aboriginal Groups

¹⁴ For each Aboriginal Group in Schedule B, \$5,000 was allotted during the pre-Application phase and \$10,000 during Application Review.

¹⁵ Blueberry River First Nations and Doig River First Nations were added to the working group on February 21, 2014, and therefore did not attend the March and April 2013 working group meetings, nor were they provided the dAIR for review and comment.

were provided with an opportunity to comment on the draft Application Information Requirements. The meetings were attended by representatives of Saik'uz First Nation, Saulteau First Nations, West Moberly First Nations, Nak'azdli Band, Carrier Sekani Tribal Council, Skin Tyee Nation, Office of the Wet'suwet'en, and Ts'il Kaz Koh First Nation (Burns Lake Band).

- March 5, 2013: Working Group meeting held in Prince George. Proponent delivered presentations in break-out sessions, followed by participant comments on the effects to the aquatic environment, wildlife, employment and economy, heritage, traditional land and resource use, community and regional infrastructure and services, vegetation and wetlands, health, geophysical, atmospheric and environment as well as accidents and malfunctions. The meetings were attended by representatives of Saik'uz First Nation, Saulteau First Nations, West Moberly First Nations, Nak'azdli Band, Carrier Sekani Tribal Council, Skin Tyee Nation, Office of the Wet'suwet'en, Ts'il Kaz Koh First Nation (Burns Lake Band), McLeod Lake Indian Band and Haisla Nation.
- April 11, 2013: An EAO sub-Working Group meeting was held in Smithers to discuss specific details about the wildlife and wildlife habitat program and the aquatics program, including the field program. Discussion focused on the field programs and refinement of the VCs and key indicators to be included in the Application Information Requirements (AIR). The meetings were attended by the Office of the Hereditary Chiefs of the Wet'suwet'en, Lheidli-T'enneh Nation and Saik'uz First Nation.
- April 15, 2013: An EAO sub-Working Group meeting was held in Victoria to discuss the approach to be taken to assess the potential adverse effects of Project greenhouse gas (GHG) emissions and reach a common understanding of the requirements to be outlined in the AIR. The meetings were attended by representatives of the Carrier Sekani Tribal Council, Haisla Nation, Saik'uz First Nation and McLeod Lake Indian Band.

During the Application review stage of the EA, seven Working Group meetings were held:

- May 20-22, 2014: EAO held Working Group meetings in Smithers to discuss aquatics, vegetation, health, heritage and socio-economic effects. The meetings were attended by representatives of the Haisla Nation, Nak'azdli First Nation, Wet'suwet'en First Nation, Fort Nelson First Nation, Ts'il Kaz Koh First Nation (Burns Lake Band), Nee-Tahi-Buhn Band, the

Office of the Hereditary Chiefs of the Wet'suwet'en, Yekooche First Nation and Wet'suwet'en First Nation.

- May 27-28, 2014: EAO held Working Group meetings in Prince George to discuss issues related to atmospheric environment, geotechnical and terrain, and accident and malfunction effects. The meetings were attended by representatives of Kitselas First Nation, Saik'uz First Nation, Nak'azdli First Nation, Lheidli-Tenneh First Nation, Wet'suwet'en First Nation, Nee-Tahi-Buhn Band, Haisla Nation, Ts'il Kaz Koh First Nation (Burns Lake Band), and the Office of the Hereditary Chiefs of the Wet'suwet'en.
 - June 5, 2014: EAO held an online GHG emissions meeting to explore concerns of the Working Group and to discuss the approach taken to assess the potential adverse effects of the proposed Project GHG emissions. The meeting was attended by representatives of Doig River First Nation, Nak'azdli First Nation, Haisla Nation, Saik'uz First Nation and Fort Nelson First Nation.
 - June 26, 2014: EAO held a brief Working Group meeting by teleconference, to discuss the purpose of the Assessment Report, the Table of Conditions and the Certified Project Description, as well as the role of the Compliance and Enforcement team at EAO. EAO also discussed timing of review for EAO's draft referral materials to Working Group, as well as timing of the Aboriginal Consultation Report to Aboriginal Groups for review, and the ability of Aboriginal Groups to submit separate recommendations to Ministers upon referral.
2. EAO provided Aboriginal Groups with an opportunity to review and provide comments on the key documents of the EA. As a matter of practice, EAO provided summaries from Working Group meetings for their review and comment. During the pre-Application stage, which began in February 2013 and ended in March 2014, EAO provided the following documents for comment:
- Section 11 Order, which contains EAO's instructions to the Proponent on the scope, procedures, methods and consultation requirements of the EA. Through the issuance of the Section 11 Order and subsequent Section 13 Orders, EAO formally directed the Proponent to consult with the 19 Schedule B participating Aboriginal Groups.
 - The draft Application Information Requirements, which outlines the issues to be addressed by the Proponent during the EA and the information that the Proponent must include in their Application, including the VCs and study boundaries.

- Screening of the Application, to evaluate whether the Application contained the information required by the Application Information Requirements and could be accepted for technical review by EAO.

During the Application review stage, which began on March 11, 2014 and ended on October 8 2014, the following documents were provided to Working Group members for review and comment:

- The Project Application, containing information required by the Application Information Requirements, including Aboriginal Groups' information, the results of the baseline studies, an assessment of potential adverse effects of the proposed Project, and the proposed avoidance and mitigation.
- Issues Tracking Table, which contains the comments and questions raised by Aboriginal Groups' representatives during the review of the Application, and the Proponent's responses.
- Draft Table of Conditions and Certified Project Description.
- EAO's draft Assessment Report to the responsible Ministers.

Comments and information, including TLUS information, received from Aboriginal Groups until October 6, 2014 were fully considered by EAO, and incorporated into the final versions of documents when appropriate. Comments received on the Application from Aboriginal Groups, along with the Proponent's responses, are located in tracking tables, in Appendix 2 of this Part B of this Report.

4.3 Government-to-Government Consultation

EAO provided to each of the participating Schedule B and Schedule C Aboriginal Groups the opportunity for government-to-government consultation to discuss their views on potential impacts of the proposed Project on their Treaty 8 and Aboriginal Interests.

Pre-Application:

- On April 12, 2013, EAO met with the Office of the Wet'suwet'en. Discussion points included the Crown's duty to consult and accommodate, cumulative effects, potential effects of the proposed Project to Wet'suwet'en Houses, and geotechnical drilling in the Morice River area.
- On May 14, 2013, EAO met with Haisla Nation Council representatives to discuss the EA for the proposed Project. The group discussed details of the proposed Project, the role of EA and permitting, and EAO provided map information.

Application Review:

- On January 24, 2014 EAO met with Doig River First Nation to discuss the inclusion of Doig River First Nation in Schedule B of the section 11 Order.
- On May 8, 2014, EAO and OGC met with the Office of the Wet'suwet'en. Issues discussed were the Pacific Trail Pipeline Project, the proposed Natural Gas Transmission System Project, the proposed Prince Rupert Gas Transmission Project, and the proposed Project, compliance and enforcement, and synchronous permitting.
- On June 6, 2014, EAO met with Wet'suwet'en First Nation. Topics of discussion included cumulative effects, and EA timelines, including submission of Wet'suwet'en First Nation's TUS during the EA.
- On July 3, 2014, EAO and OGC met with Haisla Nation Council representatives to discuss Haisla's issues and concerns regarding the proposed Project. Discussion points included synchronous permitting and how EAO and OGC share information, the amount of permits that would be issued for the proposed Project within Haisla Traditional Territory, and the proposed Project corridor's proximity to lots that Haisla is in the process of acquiring.
- On July 3, 2014, EAO met with Blueberry River First Nations to discuss their concerns related to cumulative effects analysis, methodology flaws, inappropriate generic responses from the Proponent to issues raised, and lack of baseline data.
- On July 16, 2014, EAO met with Haisla Nation Council representatives to discuss issues and concerns, including: the Proponent's responses to Haisla Nation Council's comments on the Application, effects to wildlife, the Northwest Readiness Project, potential EA Certificate conditions and potential air quality effects from increased transportation.
- On July 25, 2014, EAO and OGC met with Wet'suwet'en First Nation to discuss EA timelines, the incorporation of TUS information into the EA, and the process for engaging community members during application review.
- On August 14, 2014 EAO met with Wet'suwet'en First Nation, the Proponent, OGC and several community members, where a video presentation of the fly-over of the proposed route was provided and where Wet'suwet'en First Nation presented archaeological information for consideration in route refinement.
- On September 5, 2014 EAO met with Wet'suwet'en First Nation to discuss Project timelines, the incorporation of TLUS into EAO's assessment of potential impacts, and conditions that were proposed by Wet'suwet'en First Nation for EAO's consideration.
- On September 16, 2014, EAO met with Wet'suwet'en First Nation to discuss comments on EAO's proposed conditions.

- On October 1, 2014, EAO met with Nak'azdli Band, Nadleh Whut'en First Nation, Saik'uz First Nation, and Carrier Sekani Tribal Council to discuss concerns related to synchronous permitting; cumulative effects, in particular with regards to GHG emissions; the assessment of wildlife species, including white sturgeon; as well as several proposed EA conditions, for EAO's consideration.

4.4 Aboriginal Group Regional Workshops

EAO organized regional strategic workshops with participating Aboriginal Groups to provide an overview of proposed LNG-related gas pipeline and facility projects and of relevant regulatory processes and to provide an opportunity for Aboriginal Groups to identify key issues of concern for further discussions. At each of these workshops, the OGC participated and presented on its regulatory authorities, Area Based Analysis and the Pipeline Corridor Analysis.

The following workshops were held:

- November 26, 2013: LNG Workshop held in Prince George. In attendance were representatives from Carrier Sekani Tribal Council, Lake Babine First Nation, Lheidli-T'enneh First Nation, Nadleh Whut'en First Nation, Nak'azdli Band, Saik'uz First Nation, Skin Tyee Nation, Stellat'en First Nation, Tl'azt'en Nation, Wet'suwet'en First Nation and Yekooche First Nation. Themes raised during the workshop included capacity, funding, consultation and accommodation, cultural values, cumulative effects, impacts on wildlife and fish habitat, revenue sharing, strategic engagement and timeframes.
- November 28, 2013: Workshop held in Terrace. In attendance were representatives from Gitanyow First Nation, Gitga'at First Nation, Haisla Nation, Kitselas First Nation, Kitsumkalum First Nation, Lake Babine First Nation, Metlakatla First Nation and Nisga'a Lisims Government. Themes raised during the workshop included air quality, capacity, cumulative effects, fish, wildlife and habitats, shipping and marine issues and socioeconomics.
- February 4, 2014: Northern Pipelines Workshop held in Prince George with teleconference in Terrace. In attendance were representatives invited from the Working Groups for the two current northern proposed pipeline projects proposed. Also in attendance were Aboriginal Groups involved in the review of the Coastal GasLink Project, including: Doig River First Nation, Fort Nelson First Nation, Gitanyow, Gitxaala First Nation, Gitxsan, Halfway River First Nation, Kitsumkalum First Nation, Lake Babine First Nation, Lax Kw'alaams Nation, McLeod Lake Indian Band, Metlakatla First Nation, Nak'azdli Band, Nisga'a Lisims Government, Sauteau First Nations, Takla Lake First Nation, Tl'azt'en Nation, West Moberly First Nations, and Yekooche First Nation. Themes raised

included recognition of hereditary systems, Skeena fisheries concerns, Forest Annual Allowable Cuts, and process issues.

- May 29-30, 2014: Natural Gas Pipelines Workshop held in Prince George. In attendance were First Nation representatives from Gitksan, Fort Nelson First Nation, Doig River First Nation, Sauteau First Nations, Lake Babine First Nation, Lax Kw'alaams Nation, Kitselas First Nation, Halfway River First Nation, Yekooche First Nation, Carrier Sekani Tribal Council, Nadleh Whut'en First Nation, Lheidli-T'enneh First Nation, Nee-Tahi-Buhn Band, Nisga'a Lisims Government, Nak'azdli Band, McLeod Lake Indian Band, the Office of the Hereditary Chiefs of the Wet'suwet'en, Blueberry River First Nations, and West Moberly First Nations. This workshop presented strategic stewardship initiatives being contemplated or undertaken by the Province to respond to key issues of concerns identified in earlier workshops including the LNG Environmental Stewardship Initiative, the provincial Environmental Mitigation Policy and the proposed province-wide Cumulative Effects Management Framework, and Pipeline Corridor Analysis.

5. Proponent-Led Consultation Activities with Aboriginal Groups

As part of the section 11 Order, EAO directed the Proponent to undertake procedural aspects of consultation during the EA. The Section 11 Order issued by EAO required the Proponent to develop and share drafts of an Aboriginal Consultation Plan and Aboriginal Consultation Reports with Aboriginal Groups at prescribed milestones during the EA process. These documents were reviewed by Aboriginal Groups prior to submitting formally to EAO, to enable updates in light of input received and concerns expressed by Aboriginal Groups. The intent of these documents is to enable EAO to understand the Proponent's consultation efforts and the perspectives of Aboriginal Groups related to those efforts, and to evaluate the Proponent's consultation plan for subsequent activities with Aboriginal Groups during the Application Review stage of the EA.

From 2012 to 2014, the Proponent used a number of communication and information sharing methods including meetings, site visits, tours of the proposed route and existing pipeline facilities, telephone calls and written communication as well as a comprehensive project website. The Proponent has committed to continue to use these methods during ongoing consultation. The Proponent-led engagement involved:

- information sharing on the proposed Project regarding terrestrial (vegetation/reclamation, wildlife), aquatic (water quality and fish), air quality (dust management and GHG emissions), heritage (petroform and archaeology), and cumulative effects impacts;
- engagement on socio-economic issues including studies;
- agreement for capacity funding to support ongoing engagement and involvement in the regulatory process;
- Traditional Land Use Studies (TLUS);
- Traditional ecological knowledge (TEK) studies; and
- engagement on contracting and training opportunities.

The Proponent has committed to continue to implement and update its Aboriginal Consultation Plan for all phases of the Project and would be required to consult with Aboriginal Groups with regards to many of the conditions proposed by EAO, in addition to consulting with Aboriginal Groups on the development and implementation of Environmental Management Plans.

6. Summary of Potential Impacts on Aboriginal Interests

The sections below summarize impacts on Aboriginal Interests based on EAO and Proponent engagement efforts with Aboriginal Groups. They include key issues and concerns raised by Aboriginal Groups, potential impacts of the Project on Aboriginal Interests, and EAO's response.

6.1 General Impacts of the Proposed Project

The primary impacts of the proposed Project on the surface of the land include disturbance of an approximately 675 km-long construction corridor of 60 to 100 m in width, and a permanent right-of-way (ROW) up to 32 m wide during operations. In addition to associated infrastructure, including access roads and temporary construction camps, the proposed Project may include up to eight compressor stations along the proposed pipeline route at full build-out. Section 2 in Part B of the Assessment Report contains a more complete description of the proposed Project.

Aspects of the proposed Project that would affect traditional uses of the land in the future include:

Installation of pipelines and compressor stations

- Installation of one 48" diameter pipeline that would remain underground throughout the life of the Project, which would preclude use of that particular underground area.
- Potential disruption of the ability to use the land for gathering places, sacred sites, trails, travel ways and home sites through ROW clearing, which may alter connectivity to trails and travel ways¹⁶. Specific locations or sites that may be impacted by the proposed route are described in each Aboriginal Group's section of this report.
- The proposed compressor station location at KP 0 would require approximately 63 ha of clearing and have a fenced area of approximately 16 ha. The remaining proposed compressor station locations would require site preparation and clearing of sites of approximately 17-19 ha, and require fencing of about 10 ha of the site to preclude ongoing use of the area for the life of the Project. Meter stations near Groundbirch, Vanderhoof and Kitimat would each have a cleared area of about 4 - 10 ha. All disturbed areas would be subject to site reclamation. Noise effects may also affect the enjoyment of

¹⁶ *Travel ways* is a term used to refer to watercourses that are used to access traditional land use areas, whereas the term *trail* is used for land-based access to traditional land use areas.

the immediate vicinity of the station, although noise effects are not expected to exceed OGC noise control thresholds, as identified in *BC Noise Control Best Practices Guideline* and assessed at a distance 1,500 m from the facility fence line.

- With regards to air quality, the primary source of air quality impacts would be the compressor stations during operations. The Application's air quality data note that the most stringent air quality objectives would not be exceeded around any of the potential eight compressor station locations.

Access roads

- Identification of roads that would be required to support the proposed Project would be finalized during detailed design and would be subject to permitting by OGC. Approximately 25 - 55 km of new access roads would be needed during construction, although an additional 275 - 400 km of access roads remain to be reviewed. Access road upgrading and development would be reviewed in detail during permitting. Existing infrastructure would be used to the extent practical and access may be improved along existing roads during construction, where necessary. Roads to proposed compressor station locations and meter stations would be permanent, while roads developed for construction would be decommissioned and reclaimed.

Construction camps

- The Proponent proposes to operate approximately 18 construction camps to support clearing, pipeline construction and facilities construction. The main camps would range in size from between 5 ha and 25 ha and could accommodate between 200 and 1,200 workers. Camps would be in operation for between 4 to 36 months, with the most active period in each main camp expected to last up to 5 months.
- Pioneer camps are being proposed, for areas with very limited access, for between 4 and 18 months. These camps would range in size from 1.5 ha to 4 ha and could accommodate between 20 and 200 workers. Table 2-2 in Part B Section 2.2.1 of the Assessment Report describes the construction camps for the proposed Project and expected location with reference to Aboriginal Groups' territories. Section 6 of the Assessment Report provides additional detail on camp sizes, locations and worker compositions. EAO notes that the information is preliminary and subject to change.

6.2 Potential Impacts on Specific Aboriginal Interests

EAO sought input from Aboriginal Groups on the nature and scope of their Aboriginal Interests and how they might be impacted by the proposed Project. A summary of the potential impacts is provided in the sections below. Responses to the full set of concerns are described in the Application Review Working Group Issues Tracking Table (Appendix 2), as well as in each Aboriginal Group section of this Report.

With respect to assessing the seriousness of potential impacts of the proposed Project on Aboriginal Interests, EAO considered relevant factors, including:

- the location of each Aboriginal Group's traditional territory;
- past, present, and anticipated future Aboriginal uses of the Project area and its surroundings, including the frequency and timing of such uses by each Aboriginal Group;
- the baseline conditions of selected VCs, including those associated with the exercise of Aboriginal Interests, incorporating consideration of other development in the local or regional area that may contribute to the current condition of the VCs;
- the impact of the proposed Project on the current exercise of Aboriginal Interests;
- mitigation proposed to avoid or minimize adverse effects to corresponding Aboriginal Interests;
- residual and cumulative effects of the proposed Project on VCs associated with the exercise of Aboriginal Interests (e.g., wildlife, vegetation, fish, water quality);
- the extent to which the proposed Project could affect each Aboriginal Group's access to and use of the Project area to exercise Aboriginal Interests;
- the relative importance of the Project area and its surroundings to the exercise of each Aboriginal Group's Aboriginal Interests, including any special characteristics or unique features of that area; and
- the relative availability of other areas in reasonable proximity, within the traditional territory of each Aboriginal Groups, where the meaningful exercise of Aboriginal Interests could reasonably occur.

In addition to specific mitigations proposed in the Application to avoid and minimize potential adverse effects to VCs assessed in Part B of the Assessment Report, EAO considered the Proponent's route selection process, route refinements and its consultation with Aboriginal Groups in pre-Application to identify and avoid or modify the footprint in key areas of concern as a key mitigation in minimizing potential impacts of the proposed Project on Aboriginal Interests. The consultation undertaken by the

Proponent throughout the pre-Application and Application Review on the Project has continued to inform the Proponent's construction planning to avoid or mitigate key areas of concern.

Prior to conducting a detailed effects assessment for the Application, the Proponent's initial project planning and route selection process included mitigation to avoid and reduce potential adverse effects to wildlife, vegetation, fish and fish habitat, heritage, traditional land and resource use, and to Aboriginal Interests related to hunting, trapping, fishing or gathering, including:

- assessing multiple route options within the proposed corridor and limiting the potential for adverse environmental effects while selecting a route (e.g., avoiding sensitive moose and caribou habitat and ungulate winter ranges) to the extent practical;
- locating the route along previously disturbed areas (e.g., existing forestry cut blocks and access roads) to reduce the overall proposed Project footprint, minimize habitat fragmentation and utilize existing access roads where possible; and
- avoiding key areas known to be important for Aboriginal Groups' current and traditional land use activities.

A complete list of route alternatives that were considered is provided in Application 1.4.4 – 1.4.12. EAO has also considered a number of route refinements submitted by the Proponent during Application Review.

6.2.1 Hunting

Aboriginal Groups identified a number of wildlife species that are traditionally important food sources for their communities and that may be impacted by the proposed Project. Not all species of interests to Aboriginal Groups were selected as key indicators. Aboriginal Groups identified the most commonly hunted big game species to be moose, deer, elk, mountain goat, bear and mountain sheep. Aboriginal Groups indicated they hunt for these species in the areas surrounding the proposed Project area (i.e., the Local Study Area and Regional Study Area).

Several Aboriginal Groups raised the concern that because the assessment area for wildlife was for the entire pipeline length, it did not capture the variability in wildlife populations and localized effects on wildlife. Several Aboriginal Groups stressed the importance of avoiding wildlife features and implementing buffers around features, and recommended that local Aboriginal Groups' knowledge be used to help identify these features. Local effects to wildlife were identified in the Proponent's Application and considered in EAO's assessment and characterization of residual effects.

Aboriginal Groups also requested that further mitigation be specified to avoid impacts to bear dens and requested development of a grizzly bear mitigation strategy. In addition, it was noted that local Aboriginal Groups' knowledge should be incorporated into the monitoring of the effectiveness of reclamation and access control efforts as part of post-construction monitoring. Aboriginal Groups also raised concerns about the current status of moose populations and impacts to moose from the proposed Project, particularly effects resulting from increased access and the potential for an increase in non-Aboriginal hunting. Additionally, Aboriginal Groups raised concerns about the status of caribou and future ability to practice Treaty or Aboriginal rights to hunt.

Aboriginal Groups identified the cultural importance of woodland caribou that were once plentiful and that were hunted extensively in the past. Declining numbers of caribou and concerns with increasing loss of caribou habitat were raised as an issue by several Aboriginal Groups.

The Application includes an assessment of the VCs and corresponding key indicators of biological importance to Aboriginal Groups that occur in the proposed Project area and that could potentially be adversely affected, and which relate to hunting activities of Aboriginal Groups. The key indicators of the wildlife and wildlife habitat VCs include grizzly bear, woodland caribou, moose, other mammals (mountain goat, marten, fisher, bats), birds and amphibians. An assessment of residual effects to wildlife and wildlife habitat key indicators is provided in section 5.10 of Part B of this report.

EAO identified a number of residual effects on wildlife and wildlife habitat (caribou, grizzly bear, mountain goat, moose, furbearers, bats, amphibians, and birds):

- Habitat loss, alteration and fragmentation;
- Sensory disturbance, particularly during construction and in the vicinity of compressor stations during operations; and
- Increased mortality risk from predators and humans.

The residual adverse effect to caribou is expected to likely be significant, while residual effects to other species are not expected to be significant. The context of caribou subpopulations was an important factor that led EAO to conclude Project and cumulative effects would be significant. Caribou populations have been declining throughout BC and any residual loss of habitat, increase in mortality or increase in displacement or disturbance from critical habitat or important connections to critical habitat must be considered significant. EAO recognizes that mitigation measures may be effective, but until these are proven through detailed monitoring that confirms that the pipeline corridor does not result in predator access, increased caribou mortality or

displacement or disruption of caribou movement, EAO is assuming a significant adverse effect. The current status of the Hart and Telkwa caribou herds, along with the existing federal caribou plans described in section 5.10 of Part B of this report, was considered in the analysis of the seriousness of potential impact on the Aboriginal Interests associated with hunting, in relation to those Aboriginal Groups whose traditional territory overlapped with these particular herds.

The Application notes that Aboriginal field participants expressed concerns about the potential adverse effects on mammal habitat and, in particular, of disturbance in mature and old forests, ungulate forage, rut and calving areas, and critical habitat for species at risk.

Potential project interactions on traditional use of lands and include:

- Disruption to subsistence hunting activities through construction and operations that could limit access to traditional hunting areas; and
- Change to the local harvesting locales, disturbance to wildlife resources, increased public access to traditional hunting areas and increased harvest pressure on wildlife populations.

EAO response

EAO considered the following key factors in assessing the potential impacts of the proposed Project on an Aboriginal Group's Aboriginal Interests associated with hunting:

- The assessment of potential effect of the proposed Project on Aboriginal Groups' Aboriginal Interests associated with hunting is informed by the analysis of potential residual effects on relevant VCs. Potential residual effects are predicted for the wildlife and wildlife habitat VCs, and are characterized in section 5.10.4 of Part B of this report.
- EAO understands that an Aboriginal Group's hunting activities depend, in part, on the status of wildlife populations within their area of traditional use. The wildlife LSA for the proposed Project was a 2 km corridor. The LSA is intended to capture the direct and indirect impacts from the proposed Project, while the RSA is intended to capture the area where the influence of other land uses and activities could overlap with Project specific effects and result in cumulative adverse effects.
- The nature and extent of effects would depend on the inherent sensitivity of each wildlife species and habitat type, the nature and timing of the disturbances, and the effectiveness of mitigation.

- The permitting process would require additional mitigation, specific to a refined construction footprint, if an EA Certificate is issued.
- The primary effects of the proposed Project on wildlife and wildlife habitat are expected to be caused by:
 - the removal of habitat as part of proposed Project construction and operation resulting in direct habitat loss, habitat fragmentation, sensory disturbance and changes to wildlife movement; and
 - the change in mortality risk due to the creation of corridors from the ROW and access roads, which could improve access for both predators and humans. Construction and operation of the proposed Project could also cause direct mortality from wildlife collisions, or human-wildlife conflicts.
- Potential Project effects from sensory disturbance, predation risk, hunting risk and road mortality that may affect moose and mountain goat are predicted to be moderate following implementation of proposed mitigation. As described above, effects to caribou are expected to be high magnitude and significant. Effects to grizzly bear are expected to be of medium magnitude but not significant. Therefore the existence of caribou (particularly the Hart and Telkwa herds) or grizzly bear within the traditional territory of an Aboriginal Group known to hunt these species, was considered to increase the seriousness of potential impact of the proposed Project to its Aboriginal Interests associated with hunting.
- Overall habitat disturbance from the proposed Project would be relatively small and would be reduced during operations by revegetating the ROW. Vegetation clearing along the ROW and revegetation may also have positive effects for some wildlife species – for example, by increasing forage habitat for deer and moose. The Proponent stated that efforts have been made to locate the proposed Project in lower-risk habitats (e.g., avoiding high-quality winter and spring habitats), to reduce the overall Project footprint and subsequent requirement for clearing, and to locate proposed Project components within or adjacent to several existing disturbances. Potential impacts to ungulates would be long term, predicted over the life span of the proposed Project, which is expected to be about 30 years.
- With regards to the cumulative effects assessment, the current level of disturbance within the wildlife RSA is 32.2% and would be projected to increase to approximately 36.4% as a result of the proposed Project (approximately 0.2%) and reasonably foreseeable future disturbance (approximately 4.1%). Cutblocks account for the majority of existing and projected reasonably foreseeable future disturbance in the RSA and generally the Project's contribution to wildlife disturbance in the RSA is minimal.

- An Aboriginal Group's access to the proposed Project area to hunt may be restricted within its territory where it overlaps with the Project area for a short period due to safety reasons during the construction period and during specific events in operations; however the geographic extent of these lands is generally small. Engagement of Aboriginal Groups during construction planning is expected to mitigate some of these short term effects.
- The majority of works would be confined to the construction phase and are temporary. The timelines for construction would involve site preparation as early as 2015, with the majority of construction works undertaken from 2016 to 2017-18, and a small portion of the pipeline construction activities would carry into 2019. It is possible that construction from site preparation to site revegetation could be greater than four years. Natural recovery would be used as the preferred method of reclamation on level terrain and at wetlands. Native tree seedlings or shrubs would be planted at select locations. As part of the Proponent's Reclamation Plan, the Proponent would encourage a vegetative cover similar to that of the adjacent land and use an appropriate native seed mix. The Proponent would continue to consult with the appropriate agencies and Aboriginal Groups in development of the Reclamation Plan. Full, natural revegetation would occur after decommissioning. Once revegetated, there may be periodic brushing of a corridor approximately 10 m wide over the life of the pipeline.
- Camps and compressor stations located within the traditional territory of an Aboriginal Group may prolong the duration of any disruption to hunting activities in that area, thereby increasing the seriousness of potential impact to that Aboriginal Group's Aboriginal Interest associated with hunting.
- Key hunting sites identified by an Aboriginal Group that overlap or are in proximity to the proposed Project were considered in relation to past, present and anticipated future use of the area for hunting. Multiple hunting sites identified that were relatively proximate to the Project footprint could indicate a greater potential effect on that Aboriginal Group's Aboriginal Interest associated with hunting.
- The potential exists for increased access to the general public to key hunting areas, which may result in increased and damaging pressures on wildlife and wildlife habitat. Measures in the Application, including the development of an Access Control Management Plan, are aimed at restricting public access to reduce the risk of negative impacts from such access.
- The Proponent has proposed mitigation to avoid and minimize potential effects to wildlife and wildlife habitat, traditional land use and other concerns associated

with hunting activities raised by Aboriginal Groups. The Proponent's proposed mitigation includes:

- Development of site-specific mitigation strategies such as a Caribou Habitat Restoration Plan for caribou range, including detailed information on locations for line-of-sight mitigation and monitoring. EAO recognizes that enhanced monitoring over the life of the project and ongoing assessment of mitigation measures may confirm the Proponent's predicted effectiveness of mitigation, but to date similar mitigation measures have not been proven to reduce increased mortality and population declines in caribou in BC and Alberta;
 - Mitigations specific to moose relate to avoiding the creation of new access within moose winter range and, where this is not feasible, deactivating and reclaiming any temporary roads with native vegetation. The Proponent has committed to implementing measures to reduce access (human and predator) along these temporary roads;
 - Soliciting input from Aboriginal Groups on monitoring requirements for the proposed Project, including mitigation and monitoring related to traditional use sites; and developing a community engagement process to facilitate site access to the proposed Project area for Aboriginal Groups to undertake traditional practices;
 - Pursuant to Proponent-Aboriginal Group Memoranda of Understanding and Project Agreements, continuing to create opportunities for Aboriginal Groups to participate and observe fieldwork being conducted on the proposed Project site; and
 - Completing pre-construction TLU discussions with Aboriginal Groups to identify hunting sites that warrant mitigation. Mitigation could include one or more of the following measures: adhering to species-specific timing constraints; leaving breaks in strung pipe and hard plugs (unexcavated material) in the pipeline trench to allow animals to cross; limiting the use of chemical applications to treat invasive species; and considering alternative site-specific mitigation strategies recommended by participating Aboriginal Groups.
- Proposed Conditions of the EA Certificate include:
 - Development and implementation of an Environmental Management Plan;

- Development of a Wildlife and Wildlife Habitat Management Plan that will be consistent with the Human-Wildlife Conflict Plan, the Traffic Control Management Plan and the Access Control Management Plan;
- Mitigation of effects to whitebark pine (whitebark pine is an important species for grizzly bear);
- Development of a Caribou Mitigation and Monitoring Plan;
- Development of a Grizzly Bear Mitigation and Monitoring Plan;
- A requirement for the Proponent not to conduct helicopter or fixed wing flights over ungulate winter ranges during critical timing windows;
- A requirement for the Proponent to retain Environmental Inspectors, who will have full authority to cease construction activities that cause unpredicted adverse impacts to the environment;
- Avoiding prohibiting access during Project operations for Aboriginal Groups to carry out traditional use activities identified in Traditional Use Studies;
- Continued engagement with Aboriginal Groups regarding construction planning and Project design, as well as the development of the EMP and other plans as required; and
- A requirement for the Proponent to consider TUS and TEK submitted as part of, or subsequent to, the EA process.

Overall, EAO predicts that potential residual effects from the proposed Project would cause significant effects to the Hart and Telkwa caribou herd populations, but not to any other wildlife species. A more detailed assessment on potential effects of the proposed Project on wildlife and wildlife habitat is contained in section 5.10.4 of Part B of this report.

6.2.2 Fishing

In the Application, most traditional use fishing sites identified as being important to Aboriginal Groups are outside of the proposed Project corridor. The Application identified a total of 52 fish species with potential to occur in watercourses within the RSA. Aboriginal Groups, including TEK participants, identified several fish species (e.g. salmon and eulachon) that are an important part of their traditional culture and a source of food harvested in Aboriginal fisheries.

The Proponent assessed potential effects of the proposed Project on the aquatic environment VCs including: fish and fish habitat, surface water, and groundwater. Potential effects associated with pipeline and road access watercourse crossings during construction and operations are assessed in section 5.6 of Part B of the Assessment Report.

The proposed pipeline route would cross 1,085 watercourses in the Peace River Watershed, the Fraser River watershed, the Skeena River watershed and the Kitimat River watershed. The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method to avoid and minimize potential impacts to fish and fish habitat. Open cut trench method would be used only for non-fish bearing watercourse crossings, or where the channel is dry or frozen to the bottom. If feasible, nine proposed watercourse crossings would be built using a trenchless crossing technique, such as Horizontal Directional Drilling (HDD). Potential effects and mitigation for the protection of fish and fish habitat were included in the Application section 7.5 and summarized in section 5.6 in Part B of this report.

The potential effects of watercourse construction activities, which included increased erosion and adverse effects on water quality and fish populations, were identified by Aboriginal community TEK participants. Potential cumulative effects on fish and fish habitat, and the potential effects of proposed multiple crossings on a single watercourse, were also identified by Aboriginal community TEK participants.

Potential residual effects on fish and fish habitat associated with pipeline and access road watercourse crossings during construction and operations of the proposed Project include:

- Alteration or loss of riparian and instream habitat;
- Increased suspended sediment concentrations;
- Potential for mortality or injury to fish;
- Temporary blockage of fish movements;
- Increased potential for fish mortality or injury due to an increase in access; and
- Disturbance of instream habitat due to a potential increase in access.

The Application provides information on traditional and current land use for each Aboriginal Group within the proposed Project area including areas of importance for subsistence fishing activities. Potential project interactions on traditional use of lands and resources include:

- Limited access or increased public access to traditional fishing areas; and

- Change to the local harvesting locations as well as broader ecological effects and increased harvest pressure on fish populations.

EAO response

EAO understands that an Aboriginal Group's fishing activities depend, in part, on the status of fish populations within their area of traditional use. The aquatic environment LSA for the proposed Project, intended to capture the zone of potential impacts as a result of direct disturbance, considered an area 100 m upstream of a crossing location and a minimum of 300 m downstream of that location.

The nature and extent of effects would depend on the inherent sensitivity of each fish species and habitat type in each watershed, the nature and timing of the disturbances, and the effectiveness of mitigation. EAO assessed the magnitude of the adverse effect on aquatic VCs as low at a regional and watershed scale.

The following key factors were considered by EAO in assessing potential impacts of the proposed Project on an Aboriginal Group's Aboriginal Interest associated with fishing:

- The assessment of potential effects of the proposed Project on Aboriginal Groups' Aboriginal Interests associated with fishing is informed by the analysis of potential residual effects on fish and fish habitat, surface water, and groundwater VCs, characterized in section 5.6 of Part B of this report.
- Potential for precluding or inhibiting an Aboriginal Group's access to fishing areas. An Aboriginal Group's access to certain lands may be restricted for a limited period during Project construction. However, the geographic extent of these lands is generally small. Additionally, the construction period within each territory is short and engagement with Aboriginal Groups during construction planning is expected to mitigate some of these short term effects.
- The majority of works would be confined to the construction phase and are temporary. The timelines for construction would involve site preparation as early as 2015, with the majority of construction works undertaken in 2016 to 2017-18, and a small portion of the pipeline construction would carry into 2019.
- Potential impacts of the proposed Project during construction and operations include:
 - Mortality or injury to culturally important fish species (e.g., salmon);
 - Alteration or loss of riparian and instream habitat and potential reduction of the productive capacity of fish habitat at proposed pipeline and access road watercourse crossings; and

- Increased fishing harvest pressure (e.g., recreational angling) resulting from increased access to previously inaccessible areas along the proposed ROW and associated access roads.
- Key fishing sites identified by an Aboriginal Group that overlap or are in proximity to the proposed Project were considered in relation to past, present and anticipated future use of the area for fishing. Multiple areas of major, fish-bearing watercourse crossings that overlap or are in proximity to the proposed Project could indicate a greater potential effect on the Aboriginal Group's Aboriginal Interest associated with fishing.
- EAO considers that the effectiveness of the Proponent's proposed mitigation to avoid and reduce potential effects to fish and fish habitat, surface water, groundwater, traditional land use and other concerns raised by Aboriginal Groups with regards to fishing to be high. These mitigations include:
 - Developing a plan for offsets (e.g., habitat compensation), on aquatic and riparian values, if and as required by Department of Fisheries and Oceans (DFO) for *Fisheries Act* Authorizations, and submitting plans to Aboriginal Groups, if requested, for information sharing purposes;
 - The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method to avoid and minimize potential effects to fish and fish habitat. Trenchless crossing methods would be applied for medium to large watercourses with high fish and fish habitat sensitivity, and crossings with construction concerns, channel stability concerns, and high flows;
 - Disturbance of riparian vegetation during construction would be kept to a minimum, leaving as much existing riparian vegetation intact as practical. Mitigation measures to control sedimentation and erosion in disturbed areas would be implemented. Disturbed riparian areas would be re-established and seeded following construction activities with appropriate native seed mix along with a quick establishing cover crop;
 - Detailed mitigation for watercourse crossings would be further developed in permitting, as required by DFO and OGC, in consultation with Aboriginal Groups; and
 - Site-specific mitigation would be informed by the detailed description of each watercourse crossing provided by the Fish and Fish Habitat Technical Data Report and the mitigation described in section 7 of the Application and the Environmental Management Plan.

- The Proponent's proposed Project location and design has been the primary mitigation to avoid or minimize impacts to fish and fish habitat, in addition to relocating the proposed route to avoid several key areas identified in consultation with Aboriginal Groups.
- Provincial and federal legislation and regulatory requirements associated with pipeline and access road watercourse crossings including: *Oil and Gas Activities Act* and Environmental Protection and Management Regulation, *Environmental Management Act*, *Water Act*, federal *Fisheries Act* and *Navigation Protection Act*.
- The proposed Project would be constructed in accordance with the habitat protection provisions of the *Fisheries Act*, DFO's *Measures to Avoid Causing Harm to Fish and Fish Habitat* (formerly DFO Operational Statements), the *Environmental Protection and Management Regulation* under the *Oil and Gas Activities Act* and OGC's *Environmental Protection and Management Guide*, which includes avoidance of potential areas of groundwater upwelling or conducting works directly upstream of sensitive fish-rearing or spawning areas.

For a complete list of the Proponent's proposed mitigation see Application section 7.5 and section 5.6 of Part B of this Report. It is noted that additional mitigation may also be developed and required during the permitting process, if an EA certificate is issued.

EAO has proposed a condition to require the Proponent to develop and implement a Water Quality Monitoring Plan to address onsite water quality monitoring associated with construction. The Plan must include monitoring at upstream locations and downstream of the location of disturbance. Another condition is proposed to require the Proponent to provide any plans for offsets on aquatic, riparian, or in-stream values to Aboriginal Groups, if requested. A condition would require the implementation of a construction monitoring program for Aboriginal Groups. The Proponent must also avoid prohibiting access during Project operations for Aboriginal Groups to carry out traditional use activities identified in Traditional Use Studies provided to the Proponent prior to construction.

In response to key concerns raised by Aboriginal Groups during Application Review, with regards to fish and fish habitat, the Proponent made the following route changes:

- An alternate corridor was proposed in an Addendum to the Application (March 2014) with an alternate location for the Stuart River crossing that avoids critical habitat for white sturgeon (a SARA-listed species); and
- An alternative route was proposed in an Addendum to the Application to avoid multiple crossings of Tchesinkut Creek. The proposed alternative route is

adjacent to the proposed Pacific Trail Pipeline route that could allow for sharing of disturbed area and potentially reduce the overall footprint.

Overall, EAO predicts that potential residual effects from the proposed Project are not expected to cause significant effect to fish populations or to the productive capacity of fish habitat in a watershed context. A more detailed assessment on potential effects of the proposed Project on fish and fish habitat is contained in the Application in section 7.0 and section 5.6 of Part B of this report.

6.2.3 Trapping

Many Aboriginal Groups have indicated that they trap in the area of the proposed Project for furbearers and other mammals and birds, including birds for feathers. Species trapped include beaver, marten, squirrel, mink, otter, lynx, wolves, coyote, fisher, weasel, fox, muskrat, goose, duck and rabbit.

The Application included VCs related to Aboriginal Groups' trapping activities including wildlife and wildlife habitat with key indicators related to mammals, birds and furbearers. EAO predicts low magnitude residual effects on wildlife, specifically furbearers, related to Aboriginal Groups' trapping activities.

EAO response

EAO understands that an Aboriginal Group's trapping activities depend, in part, on the status of furbearer populations within their area of traditional use. The Proponent's assessment of the effects of the proposed Project on wildlife and wildlife habitat is detailed in section 10 of the Application and in Part B Section 5.11 of this Report.

The following key factors were considered by EAO in assessing the nature of the potential impacts of the proposed Project on an Aboriginal Group's Aboriginal Interest associated with trapping:

- The assessment of potential effect of the proposed Project on Aboriginal Groups' Aboriginal Interests associated with trapping is informed by the analysis of potential residual effects on relevant VCs. Low magnitude residual effects are predicted in relation to furbearers associated with trapping.
- The wildlife LSA for the proposed Project considered a 2 km corridor. The LSA is intended to capture the direct and indirect impacts from the proposed Project, while the RSA is intended to capture the area where the influence of other land uses and activities could overlap with Project specific effects and result in cumulative adverse effects. The proposed Project is relatively small in terms of overall habitat alteration and disturbance, which would be reduced during the

operation phase by revegetating the ROW. The Proponent states that efforts have been made to reduce habitat fragmentation by paralleling existing disturbance and minimizing the creation of new access.

- Reclamation of riparian areas and placing large woody slash on the ROW post-construction would help facilitate furbearer movement, and would be set out in the Proponent's EMP.
- Access restrictions related to trapping activities during construction and operation would be for a limited period, and the geographic extent of these lands is small.
- The majority of works would be confined to the construction phase and are temporary. The timelines for construction would involve site preparation as early as 2015, with the majority of construction works undertaken in 2016 to 2017-18, and a small portion of the pipeline construction would carry into 2019. It is possible that construction from site preparation to site revegetation could be greater than 4 years. Natural recovery would be used as the preferred method of reclamation on level terrain and at wetlands and native tree seedlings or shrubs would be planted at select locations. Once revegetated, there may be periodic brushing of a corridor approximately 10 m wide over the life of the pipeline.
- Key trapping sites identified by an Aboriginal Group that overlap or are in proximity to the proposed Project were considered in relation to past, present and anticipated future use of the area for trapping. Multiple trapping sites or trap lines identified by an Aboriginal Group that overlap or are in proximity to the proposed Project, could indicate a greater potential effect on the Aboriginal Group's Aboriginal Interest associated with trapping.
- Creating increased access to the general public to key trapping areas that may result in increased and damaging pressures on wildlife and wildlife habitat.
- The Proponent's proposed mitigation is presented in the Application to avoid and minimize potential effects to wildlife and wildlife habitat, traditional land use and other concerns that are relevant to trapping raised by Aboriginal Groups. EAO considers that the effectiveness of these mitigations to be high. Mitigation would include:
 - Conducting pre-construction wildlife surveys for furbearers to identify habitat features that warrant mitigation and reduced grubbing near watercourses, wetlands and other wet areas to facilitate reclamation of shrub communities;
 - Soliciting input from Aboriginal Groups regarding monitoring requirements for the proposed Project, including mitigation and monitoring related to traditional use sites, and to develop a community process to facilitate site access, subject to safety requirements, to the proposed Project area for

- Aboriginal Groups to undertake traditional practices;
 - Under Proponent-Aboriginal Group MOUs and Pipeline Agreements, the Proponent would continue to invite Aboriginal Groups to participate and observe fieldwork being conducted on the proposed Project site;
 - Complete pre-construction TLU discussions with Aboriginal Groups to identify trapping sites that warrant mitigation. Mitigation may include one or more of the following measures:
 - maintaining access to the trap line;
 - moving of trap line equipment by the trapper prior to construction; and
 - alternative site-specific mitigation strategies recommended by participating Aboriginal groups;
 - Provide Aboriginal Groups with the proposed construction schedule and maps of the proposed route; and
 - Before construction, notify trappers on an ongoing basis to confirm the timing and location of proposed Project activities.
- Impacts to the land would be partially rehabilitated over the shorter term through revegetation of the pipeline corridor and through the deactivation of roads not needed for ongoing maintenance. However, a cleared right of way must be retained for pipeline maintenance during the life of the Project. Some small furbearers prefer forested habitat and will avoid large openings. Mitigation measures such as slash piles in the pipeline right-of-way and quick reclamation of riparian areas, which provide movement corridors, have been designed to mitigate these effects. Native vegetation, particularly for treed habitats, will not be fully re-established until project decommissioning. Periodic maintenance activity will be required.

Proposed conditions of the EA Certificate include:

- Continued engagement with Aboriginal Groups regarding construction planning and Project design, as well as the development and implementation of the Environmental Management Plan;
- Development of a Wildlife and Wildlife Habitat Management Plan which will be consistent with the Human-Wildlife Conflict Plan, the Traffic Control Management Plan and the Access Control Management Plan;
- A requirement for the Proponent to retain Environmental Inspectors, who will have full authority to cease pre-construction and construction activities that cause unpredicted adverse impacts to the environment;

- Avoiding prohibiting access during Project operations for Aboriginal Groups to carry out traditional use activities identified in TUS and avoid prohibiting access for Aboriginal Group trap line holders;
- A requirement for the Proponent to notify all tenure holders affected by construction activities six months prior to carrying out activities that may affect tenured rights; and
- A requirement for the Proponent to consider TUS and TEK submitted as part of, or subsequent to, the EA process.

The proposed Project would have low magnitude effect on furbearers, and EAO concluded that the proposed Project would not have a significant adverse effect on wildlife and wildlife habitat, with regards to furbearers, taking into account the proposed mitigation measures (detailed in section 10 of the Application) and proposed EAC conditions.

6.2.4 Gathering

Aboriginal Groups have indicated that they gather plants for subsistence and medicinal purposes within the RSA. Plants identified as being important to preparing traditional medicine include Labrador tea, mint tea, jack pine (both bark and sap), pine (both bark and sap), balsam, strawberries, devil's club, red willow, juniper, violets, fiddleheads, soapberries and fireweed. Other harvested plants include wild onion, poplar, rhubarb, stinging nettles, mushrooms, spruce boughs, wild rice, dandelions, cow parsnip, lodgepole pine, spruce, cedar, white poplar, birch, willow, alder, chokeberries, blueberries, lichen and fungi.

Berry picking is integral to seasonal subsistence, as well as being an important social activity, with families often going out as a unit to pick berries. Berries are typically canned or frozen for use throughout the winter months. Berry species harvested include blueberries, soapberries, huckleberries, low and high bush cranberries, Saskatoon berries, strawberries, raspberries, chokecherries, currants and gooseberries. Aboriginal Groups have expressed concern that development within their asserted traditional territory in the past 50 years has greatly reduced areas available for berry picking.

The Application included VCs related to Aboriginal Groups gathering activities including ecological communities of concerns and plant species of concern.

Concerns were raised by several Aboriginal Groups that vegetation clearing along the ROW would decrease or permanently impact plant species of cultural and traditional importance.

EAO response

EAO understands that an Aboriginal Groups' gathering activities depend, in part, on the abundance and condition of preferred plant species within their area of traditional use. The Proponent's assessment of the effects of the proposed Project on plant species of concern is detailed in section 8.6 of the Application and EAO's assessment in Part B Section 5.11 of this Report.

The Proponent's assessment of the effects of the proposed Project on wetlands is detailed in section 9 of the Application and EAO's assessment in Part B section 5.9 of this report. The effects to vegetation would likely be confined to the proposed Project footprint and may extend (indirectly) as far as the boundaries of the vegetation LSA, which considered a 300 m wide corridor. Effects to wetlands may extend as far as the boundaries of the wetlands LSA, which considered a 2 km wide corridor. EAO determined that the proposed Project would not have significant adverse effects on plant species of concern, ecological communities of concern, or wetlands.

No significant residual effects are predicted for ecological communities of concern and plant species of concern. EAO assessed the magnitude of adverse effects on plant species of concern as low to medium, depending on the plant species, its relative abundance, the extent of its occurrence, and the feasibility and effectiveness of mitigations. EAO assessed the magnitude of adverse effects to ecological communities of concern as low to medium, varying depending upon rarity, type and size of ecological communities at risk affect. EAO assessed the magnitude of adverse effects to wetlands as low to medium.

The following key factors were considered by EAO in assessing the nature of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering:

- The assessment of potential effects of the proposed Project on Aboriginal Groups' Aboriginal Interests associated with gathering is informed by the analysis of potential residual effects on relevant VCs;
- The proposed Project is relatively small in terms of overall vegetation clearing and alteration, which would be reduced during the operation phase by revegetating the ROW. Once revegetated, there may be periodic brushing of a corridor approximately 10 m wide over the life of the pipeline and a corridor would be maintained with low vegetation cover during operation. Natural recovery would be used as the preferred method of reclamation on level terrain and at wetlands. Native tree seedlings or shrubs would be planted at select locations. As part of the Proponent's Reclamation Plan, they would encourage a

vegetative cover similar to that of the adjacent land and use an appropriate native seed mix. Traditionally- or culturally-important plant species would be avoided, salvaged, conserved, or transplanted, when possible. The Proponent would continue to consult with the appropriate agencies and Aboriginal Groups in development of the Reclamation Plan. Full, natural revegetation would occur after decommissioning;

- Access restrictions impacting gathering activities, during construction and operation would be for a limited period, and the geographic extent of these lands is small;
- The majority of works would be confined to the construction phase and are temporary. The timelines for construction would involve site preparation as early as 2015, with the majority of construction works undertaken in 2016 to 2017-18, and a small portion of the pipeline construction would carry into 2019. It is possible that construction from site preparation to site revegetation could be greater than four years;
- Key gathering sites identified by an Aboriginal Group that overlap or are in proximity to the proposed Project were considered in relation to past, present and anticipated future use of the area for gathering. Multiple gathering sites identified by an Aboriginal Group that overlaps or is in proximity to the proposed Project, could indicate a greater potential effect on the Aboriginal Group's Aboriginal Interest associated with gathering.
- The Proponent's proposed mitigation is presented in the Application to avoid and minimize potential effects to native vegetation, traditional land use and other related concerns raised by Aboriginal Groups. EAO considers that the effectiveness of mitigation to be high. Mitigation would include:
 - Providing Aboriginal Groups with the proposed construction schedule and maps of the proposed route;
 - Following best practices for clearing, invasive plant management, mountain pine beetle management, reclamation and maintenance;
 - Using leave patches and single leave trees and creating buffers with additional trees and shrubs, where practical;
 - Avoiding grading, reducing the creation of temporary workspace, and not placing log decks closer than 20 m from the edge of forest where practical;
 - Placing woody material on the ROW after construction at specified locations;

- Allowing areas to naturally revegetate or seeding areas with native seed mix;
- Avoiding the clearing of large trees and standing dead trees, where feasible; and
- Developing an Ecological Community of Concern and Plant Species of Concern Discovery Contingency Plan.

Monitoring, compliance, and enforcement would be conducted by regulatory agencies during and following construction to ensure that mitigation is implemented and is effective.

Proposed conditions of the EA Certificate include:

- Continued engagement with Aboriginal Groups regarding construction planning and Project design, as well as the development and implementation of the Environmental Management Plan;
- A requirement to mitigate impacts to whitebark pine.
- A requirement for the Proponent to retain Environmental Inspectors, who will have full authority to cease pre-construction and construction activities that cause unpredicted adverse impacts to the environment;
- A requirement for the Proponent to develop and implement a Wetlands Management Plan to ensure no net loss in wetland function. The Plan would include pre-construction surveys for wetlands to collect site-specific information on wetland location, type, and function, as well as post-construction monitoring to confirm whether residual loss of function occurs;
- A requirement for the Proponent to consider TUS and TEK submitted as part of, or subsequent to, the EA process; and
- A requirement for the Proponent to consult Aboriginal Groups regarding the use of pesticides or herbicides on traditional territories. If Aboriginal Groups request that pesticides not be used, alternative methods of vegetation control must be specified.

EAO determined that the proposed Project would not have a significant adverse effect on plant species of concern, ecological communities of concern, or wetlands, taking into account the proposed mitigation and expected EAC conditions.

6.2.5 Archaeology and Cultural Heritage Interests

BC has a robust regulatory regime to protect and mitigate impacts to heritage resources. Archaeological sites in BC are protected under the *Heritage Conservation Act* (HCA), and FLNR's Archaeology Branch is the primary agency responsible for administering the HCA and maintaining the Provincial Heritage Site Register. Section 13 of the HCA specifies that an individual (or corporation) must not "damage, excavate, dig in or alter, or remove any heritage object" from a heritage site, unless under a permit issued by the Minister pursuant to Sections 12 and 14. For the proposed Project OGC would issue any Section 12 site alteration permits.

The Proponent was required to undertake an Archaeological Overview Assessment (AOA) before submitting the Application. The overview assessment, which involved developing an "archaeological potential" model to guide fieldwork, found that most of the land crossed by the proposed route has the potential for heritage sites.

In-office and field observations contributed to the Proponent's evaluation of archaeological potential, using listed criteria such as terrain, forest cover, and proximity to potable water. Aboriginal participants contributed to the assessment during TEK studies. During the field studies along the proposed route, participants identified several areas of archaeological potential based on knowledge of ideal conditions for campsites and hunting grounds. Lands near water sources were considered ideal since these water sources attract animals that could be hunted. Sites that were relatively flat, provided a high vantage point, or featured reasonable cover from visibility and weather were also considered ideal for camping and hunting.

The Proponent is presently completing the required Archaeological Impact Assessment (AIA). The primary objectives of the AIA are to:

4. identify and evaluate archaeological resources within the proposed Project area;
5. identify and assess all impacts on archaeological resources that might result from the proposed Project; and
6. recommend viable alternatives for managing unavoidable adverse impacts, including a preliminary program for implementing and scheduling impact management actions and, where necessary, conducting surveillance and/or monitoring.

The AIA methodology includes a visual survey augmented by subsurface testing, to identify subsurface archaeological resources and the significance of archaeological sites, and systematic data recovery, to further assess archaeological sites. For historic

resources, AIA methodology would include context study, historical research including review of aerial photographs and archival maps, consultation with local/regional governments and Aboriginal communities, and review of community heritage registers.

The Application identified that there are a number of previously recorded sites within 1000 m of the proposed Project, which include:

- 30 artifact scatters
- 3 habitation sites
- 1 fishing feature
- 5 cultural depressions
- 6 ceremonial and religious sites
- 8 transportation sites
- 27 culturally modified trees
- 2 historic structure sites

As of October 1, 2013, the Application states that 3,170 subsurface tests have been excavated at 218 locations within the proposed Project footprint. Among the heritage resource sites were 30 previously unrecorded archaeological sites and five previously unrecorded historic sites. No impacted architectural sites have been identified.

Potential residual effects on heritage resources include the disturbance of some archaeological sites, and loss of some site-specific archaeological information, as any archaeological values not collected would likely be permanently destroyed.

EAO response

Generally, impacts on archaeological and cultural heritage sites would be avoided or largely mitigated (and therefore of low magnitude), but there is potential to affect portions of archaeological sites of moderate or high value. However, information collection will typically serve to mitigate these impacts to be generally low.

Limitations on the effects assessment include the difficulty in accurately identifying the presence of archaeological resources within the Project footprint. Confidence in the overall effects assessment is high, given that provincially required mitigation programs will be conducted and would be based on input from Aboriginal communities and regulatory bodies. The AIA is underway, and this additional information collected would inform permitting.

During construction of the proposed Project, avoidance of heritage resources would be the primary mitigation. If avoidance were not feasible, site-specific mitigation plans would be developed in consultation with FLNR (e.g. Archaeology Branch, Heritage

Branch) as part of the regulatory regime, and informed by discussion with affected Aboriginal groups.

Key measures to mitigate heritage impacts would include:

- Completing AIA site investigations;
- Developing a Heritage Resources Discovery Contingency Plan, in the event of discovery of heritage sites during construction (the contingency plan would include the requirement for construction at that location to be halted immediately, the Environmental Inspector to be notified, and the Archaeology Branch, Heritage Branch, and/or OGC to be consulted);
- Prohibiting the collection and removal of any archaeological resources;
- Monitoring selected areas during construction where there is high paleontological potential, according to the recommendations of a professional paleontologist;
- If remains are found, mitigating the area before allowing construction to proceed at this specific location; and
- Removing identified paleontological resources, as recommended by the professional paleontologist.

EAO has proposed a condition that would require the Proponent to avoid prohibiting access during Project operations for Aboriginal Groups to carry out traditional use activities identified in TUS.

Archaeological and cultural heritage sites, trails and travelways identified by an Aboriginal Group that overlap or are in proximity to the proposed Project were considered in relation to past, present and anticipated future use of the area. Multiple archaeological or cultural heritage sites identified by an Aboriginal Group that overlap or are in proximity to the proposed Project could indicate a greater potential effect on the Aboriginal Group's Aboriginal Interests associated with the historic connection to and continued use of these sites. However, potential effects on Aboriginal Interests associated with trails and travelways that overlap or are in proximity to the proposed Project are generally expected to be low, given the time limited nature of the disturbance and relatively small post-construction footprint, which are not predicted to compromise the integrity of these features.

With only a partially completed AIA, neither the EAO nor the Proponent can at this time fully quantify the specific number of archaeological sites that would potentially be impacted by the proposed Project. However, EAO notes that the requirements of the *Heritage Conservation Act* must be fulfilled prior to construction, which includes further consultation and discussion of avoidance or mitigation for potentially affected sites with the Archaeology Branch and OGC.

For a more detailed assessment of potential impacts to heritage values and cultural sites for each Aboriginal Group, see the specific section for each Aboriginal Group that follows in Section 7 below.

6.2.6 Aboriginal Title

Possible effects to Aboriginal title claims include temporary effects related to construction and longer-term effects. Temporary effects related to construction, if the proposed Project is certified, may include:

- Potential disruption of subsistence activities, including hunting, trapping, fishing and plant gathering, during construction;
- Access for Aboriginal groups to the proposed Project area to hunt, trap, fish, gather or conduct other activities may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons;
- Disruption of use and connectivity of trails and travelways through clearing.

Longer term effects of the proposed Project, if certified, are predicted to include:

- Right of way clearing may disrupt use of lands including use of areas as trails, travelways, resource harvesting and areas associated with home sites.
- Associated infrastructure including access roads and temporary construction camps may also impact use of these areas as trails, travelways, resource harvesting and home sites. The Application has noted that approximately 60 km of new access roads would be needed during construction throughout the proposed Project, and an additional 400–550 km of access roads remain to be reviewed during permitting. Existing infrastructure would be used to the extent practical and access may be improved along existing roads during construction, where necessary. Roads to proposed compressor station locations and meter stations would be permanent, while roads developed for construction would be reclaimed and deactivated.

EAO response

The following factors will inform EAO's determination of the adequacy of consultation and accommodation:

- The majority of works would be confined to the construction phase and are temporary. The timelines for construction would involve site preparation as early as 2015, with the majority of construction works undertaken in 2016 to 2017-18, and a small portion of the pipeline construction would carry into 2019.

- There is no contemplation of transfer of ownership of land to the Proponent along the pipeline route for the pipeline. The Proponent would be granted a temporary Licence of Occupation, and upon completion of legal survey requirements a Statutory Right of Way for the life of the proposed Project. For proposed compressor stations and other facilities, a Crown Lease under section 38 of the *Land Act* would be used to address land tenure, and on private land the Proponent plans to purchase the land for compressor stations. Only the lease areas provide exclusive use and occupation.
- Other uses of the areas along the pipeline corridor and access roads for other purposes would generally not be precluded, particularly given that the pipeline is intended to be buried, when possible. Installation of 48-inch diameter pipes would remain underground throughout the life of the Project, which would preclude use of that underground area.
- However, scheduled works for operation and maintenance activities (including vegetation management over a narrow portion of the ROW) to facilitate pipeline integrity monitoring would preclude some uses of the surface area. Thus, should an Aboriginal Group establish title, that Aboriginal Group would continue to have the ability to make decisions regarding certain uses of the surface area, recognizing there will be some limitations to the extent of the future use of that area in accordance with the legislated safety requirements of the operating pipeline.

7. Specific Issues Raised by Aboriginal Groups and EAO's Conclusions

This section of the Aboriginal Consultation Report considers the information received from each Aboriginal Group through consultation efforts during the EA process, and summarizes the consultation and accommodation of potentially affected Aboriginal Groups in relation to this proposed Project. Throughout that process, EAO has learned how Aboriginal Interests could be adversely affected by the Project construction and operational activities if it were to be certified by Ministers. The section includes a consideration of the comments and input received from Aboriginal Groups during the period August 14 – October 6, 2014.

Potential impacts of the proposed Project on Aboriginal Interests are characterized in general terms in section 6 of this report. Below, EAO outlines issues identified during the EA, provides additional background information specific to each of the Aboriginal Groups, and lays out its considerations and conclusions on the seriousness of impacts to the Aboriginal Interests of each of the Aboriginal Groups. Although Aboriginal Interests are generally discussed in separate sections, EAO acknowledges their interconnectedness and recognizes that factors affecting one type of Aboriginal Interest may also affect another.

7.1 Treaty 8

In consideration of the historic and current context of Treaty 8 First Nations provided in section 3.1 of this report and information gathered throughout the consultation process, the following sections are intended to set out:

- A summary of concerns related to Treaty 8 rights raised by Treaty 8 First Nations; and
- EAO's evaluation of potential effects of the proposed Project to Treaty 8 First Nation's rights. The potential impacts to the Treaty 8 right to hunt, fish and trap and other interests are discussed in relation to each Treaty 8 First Nation in the subsequent sections.

An overarching issue of cumulative effects was raised by all Treaty 8 Nations, which will be discussed in this section.

Cumulative Effects on the Treaty 8 Rights to Hunt, Trap and Fish

The contribution of the proposed Project to cumulative effects has been raised during the EA review. Treaty 8 First Nations have expressed the opinion that landscape crossed by approximately the first 240 km of the proposed Project has already been

subject to extensive industrial development relating to oil and gas, forestry and mining. In addition, Treaty 8 First Nations have indicated that cumulative effects to this landscape have not been sufficiently addressed in the Application and have not been sufficiently mitigated as part of the EA process.

EAO Response

In considering the significance of cumulative effects in relation to impacts on Treaty 8 rights, EAO has drawn on relevant information provided by the Proponent regarding VCs associated with the exercise of Treaty 8 rights, including the baseline conditions of the VCs, consideration of other activities or development in the local or regional area that are in proximity to the proposed Project that may contribute to the current condition of the VCs, and the residual and cumulative effects analysis in Part B for that VC. The discussion of potential impacts on Treaty 8 rights is captured in the subsequent section.

The EAO has also considered the Proponent's Proposed Mitigation Measures to address Cumulative Effects (from Table 23-4 in the Application), and in the context of appropriate impact assessment methodology, has determined that cumulative effects assessment has been conducted appropriately.

However, in light of concerns expressed by Treaty 8 First Nations, EAO requested that the Ministry of Natural Gas Development and the OGC provide a forecast of natural gas development for northeast BC. EAO shared this forecast with all Aboriginal Groups and Working Group representatives on September 22, 2014. This forecast will also be provided to Ministers as part of the referral package.

With respect to a specific concern related to cumulative effects raised by Treaty 8 First Nations, relating to multiple pipelines on sedimentation of watercourses, EAO's response is as follows:

- The mitigation outlined in Application Table 7-30 (section 7.7.1 of the Application) – including limiting the release of suspended sediment during instream activities, erosion control measures along banks and slopes, and a high degree of planning and preparedness during trenchless activities – would limit the cumulative adverse effects from the proposed Project on surface water quality.
- Based on the proposed Project's relative contribution to existing and potential future cumulative effects within the aquatic environment RSA and within each watershed, EAO considers the potential cumulative effects on surface water quantity and quality not to be significant.

The following sections contain EAO's Aboriginal Group-specific assessments.

7.1.1 Blueberry River First Nations

Context

- Blueberry River First Nations is a signatory to Treaty 8. Blueberry River First Nations community is located in the Peace River Regional District in northeastern BC, north of Fort St. John. Blueberry River First Nations has two reserves covering 1,505.8 ha: Blueberry River Indian Reserve (IR) 205, comprising 1,148.5 ha; and the South Parcel of Beatton River IR 204, comprising 357.3 ha.
- As of September 2013, Blueberry River First Nations had a total registered population of 471, with 207 living on reserve, 230 living off reserve and 34 living on other reserves. The majority of the Blueberry River First Nations population lives on Blueberry River IR 205. Blueberry River First Nations is governed by a Chief and four Councillors elected under the *Indian Act* electoral system.
- During the review of this proposed Project, Blueberry River First Nations underwent an election of Chief and Council, which resulted in a new Chief being elected in December 2013 and changes in technical and legal representation. EAO shared correspondence with the new Chief and representatives in March 2014 to demonstrate consultation efforts on the project prior to the election.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- Initially, EAO understood that the proposed Project would be located about 38 km away from the area the Province understood to be Blueberry River First Nations' area of traditional use.
- EAO was of the view that the potential impacts to the treaty rights exercised by Blueberry River First Nations from the proposed Project would be low and that the duty to consult Blueberry River First Nations lay at the low end of the *Haida* spectrum. Blueberry River First Nations was listed on Schedule C of the Section 11 Order. However, Blueberry River First Nations was invited to participate on the project Working Group in May and September of 2013 in response to concerns expressed with the Section 11 Order. Blueberry River First Nations identified a Working Group representative on September 30, 2013.

- In October 2012, Blueberry River First Nations first asserted a larger traditional territory than the boundary previously understood by the Province to be its consultation area (depicted in a suite of agreements entered into with Blueberry River First Nations for which it was believed by EAO that there was a connection to traditional use). From October 2012, the boundary was under active discussion and negotiation with the Province. On October 24, 2013, EAO met with Blueberry River First Nations to discuss the expanded boundary. Based on further discussion and information EAO amended the Section 11 Order to add Blueberry River First Nations to Schedule B on February 21, 2014, to allow consultation to occur at a deeper level.
- Although information on construction camps is preliminary, the Proponent has indicated that the proposed Pioneer camp Wilde Lake C/S would overlap with the asserted territory of Blueberry River First Nations.
- Blueberry River First Nations has expressed concern that EAO has not properly characterized their Treaty 8 rights, relying only on the written text of the Treaty. Blueberry River First Nations indicates that Treaty 8 rights extend to oral terms and must be interpreted liberally, generously and favourably towards Treaty 8 signatory First Nations, that “Treaty Commissioners promised that signatories would be able to continue their way of life in their traditional territories for generations to come, so long as the sun shines and rivers flow.” Blueberry River First Nations indicate this way of life extends to more than hunting, fishing and trapping and extends to cultural, spiritual and other practices, sustaining their way of life and to pass cultural and traditional practices to future generations.

Summary of consultation

Blueberry River First Nations was invited to review and provide comments on the draft s. 11 Order, the Proponent’s First Nations Consultation Plan and Reports, the screening of the Application and the Application. Blueberry River First Nations was also provided with opportunities to attend Working Group meetings, workshops, and to meet with EAO staff directly.

EAO provided \$10,000 in capacity funding to Blueberry River First Nations during the Application Review phase of the EA process to assist with costs associated with their participation in the environmental review. The Proponent also offered funding to Blueberry River First Nations under a Letter of Agreement dated September 2012. A MOU between Blueberry River First Nations and the Proponent dated May 2013, provided continued capacity funding.

Blueberry River First Nations provided input to the EA process through comments on the s.11 Order, and provided extensive comments on the Application. Blueberry River First Nations participated in the Natural Gas Pipeline Workshop on May 29-30, 2014. Blueberry River First Nations did not consider participation in this workshop as consultation.

Blueberry River First Nations raised concerns in a September 5, 2014 letter to EAO that previous concerns provided in letters sent April 22, 2014 and June 11, 2014 were not considered by EAO. EAO shared a tracking table with all Aboriginal Groups showing how all concerns were considered at the time the updated version of this Report was provided for further review.

On July 3, 2014, EAO met with Blueberry River First Nations to discuss the impacts of the proposed Project, at which Blueberry River First Nations raised concerns relating to the proposed Project including cumulative effects, synchronous permitting by the OGC, EAO methodology on the Project and inadequacy of the TUS methodology relied on by the Proponent.

During the EA, Blueberry River First Nations participated in biophysical field studies but did not provide TEK. Blueberry River First Nations completed a TLUS and socio-economic report. Blueberry River First Nations have expressed concern that the results of these studies were not included in the Proponent's Application and Aboriginal Consultation Reports #2 and #3. In response to the invitation to review the first draft of EAO's Aboriginal Consultation Report, Blueberry River First Nations provided EAO with their revised *Blueberry River First Nation's Knowledge and Use Study for the Coastal GasLink Pipeline Project* (TLUS) on August 21, 2014 for consideration during the EA. EAO has considered Blueberry River First Nations' TLUS in this Report.

Blueberry River First Nations expressed repeated concern about the cumulative impacts from the existing levels of development throughout their territory and the induced development that would result from this and other proposed Projects intended to develop the gas for export as LNG. Blueberry River First Nations are also concerned that cumulative effects assessment be conducted on a Blueberry River First Nations territory basis, including the upstream forecast impact outcome scenario.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Blueberry River First Nations approximately 22 times (during 2012-2014) to discuss issues and concerns regarding the route selection within the area understood to be their area of traditional use, information requirements for environmental baseline studies, traditional land use studies and cumulative effects assessments. Issues raised by Blueberry River First Nations and the Proponent's responses are provided in the

Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Blueberry River First Nations as well as the Proponent's proposed mitigation to issues raised is provided in the CGL Aboriginal Consultation Report #3.

On September 22, 2014 Blueberry River First Nations wrote a letter to the Minister of Natural Gas Development and the Minister of Environment expressing concern with the proposed Project, two other proposed natural gas pipeline projects, the EA process, the cumulative effects assessment conducted, characterization of impacts on Blueberry River First Nations, disregard of additional TLU data provided, and lack of required assessment of ancillary components for the proposed Project.

On September 29, 2014 Blueberry River First Nations provided a letter to EAO responding to the request for comments on the revised draft Assessment Report. Blueberry River First Nations expressed dissatisfaction with the timelines of the EA and concern that previous Blueberry River First Nations concerns were not captured or were mischaracterized by EAO, as well as concern that baseline data was missing or inadequate. Blueberry River First Nations also requested greater consideration of upstream impacts and provided comments on the draft Table of Conditions. In a letter to Ministers on October 3, 2014, Blueberry River First Nations provided a separate submission on the proposed Project, which EAO has included in its referral package to Ministers.

Potential impacts of the proposed Project to Blueberry River First Nations' Treaty rights and other interests

Hunting

Blueberry River First Nations raised key concerns regarding wildlife, wildlife habitat and the Treaty right to hunt including:

- Blueberry River First Nations indicated that moose are of particular traditional, social and practical importance. The lower Pine River was reported as being important hunting grounds. Ungulates, such as deer, elk, mountain sheep, mountain goats and caribou are also hunted.¹⁷
- Potential effects on wildlife species including caribou, moose, beaver, bears and wolverine including impacts on caribou habitat, moose habitat, calving areas, migration corridors, hunting areas, moose wallows, moose licks, beaver habitat (dams, lodges), grizzly bears (destruction of dens during hibernation), and mustelids including wolverines;
- Concern regarding cumulative effects on already declining wildlife and species

¹⁷ Bouchard and Kennedy 2011

- populations, including grizzly bear;
- Potential for habitat fragmentation impacting animal numbers and movement including movement away from disturbed areas including disturbed hunting grounds, movement due to sensory disturbance, as well as contamination of harvested resources and habitat;
 - Inadequate baseline data and methodological flaws including a lack of traditional land and resource use in relation to biophysical VCs such as wildlife and wildlife habitat, specifically on impacts to caribou;
 - Decreased opportunities to hunt due to direct and indirect mortality for wildlife from poaching, predation and vehicle collisions, and alienation from preferred hunting areas;
 - Potential effects on vegetation important to wildlife;
 - Concern about decline in moose population including real or perceived contamination or health impacts on moose; and
 - Potential effects of increased access on wildlife species due to increased line of sight and access for predators and hunters, including new roads.

Key hunting areas identified by Blueberry River First Nations in the Application (Section 23, Table 23-73) included the following sites, ranging from 5 km to 546 km away from the proposed pipeline centre-line:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
34 km north of KP 0	Peace River area
40 km northeast of KP 0	Confluence of Pine and Peace rivers
42.5 km northeast of KP 0	Taylor Hills
45 km northeast of KP 0	Beatton River
54 km northwest of KP 0	Charlie Lake
55 km northwest of KP 0	Cache Creek
56 km northwest of KP 0	Bear Flats
102 km northwest of KP 0	Aitken Creek
104 km northwest of KP 0	Blueberry Creek
123 km north of KP 0	Prespatou Lake
150 km northwest of KP 0	Nig Creek
25 km northwest of KP 3	Stewart Lake area
148 km southeast of KP 11	Grande Prairie area
48 km north of KP 3	Wilder Creek
6 km north of KP 33	Pine River

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
62 km north of KP 46	Halfway River area
76 km northwest of KP 47	Butler Ridge
180 km northwest of KP 47	Pink Mountain
60 km north of KP 48	Farrell Creek area
113 km northwest of KP 53	Graham River area
41 km north of KP 73	Cameron Creek area
35 km northwest of KP 75	Moberly River
60 km east of KP 123	Tumbler Ridge area
5 km southeast of KP 206	Horseshoe Lake
546 km southeast of KP 396	Long Lake

Blueberry River First Nations has indicated to EAO that the hunting sites listed in the Application (and captured above) are not relevant to the proposed Project. The TLUS identifies 11 subsistence sites within 250 m of the proposed Project, 36 sites within 5 km of the proposed Project and 111 sites within 25 km of the proposed Project. Subsistence harvesting values are defined, in part, as including important fishing, hunting, trapping and gathering areas. The TLUS also indicates there are 16 environmental sites within 250 m of the proposed Project, 21 sites within 5 km of the proposed Project and 24 sites within 25 km of the proposed Project. Environmental values are defined, in part, as including bear dens, habitat for mountain goats and blackbirds and mineral licks. The TLUS provides that to account for margin of error and to protect confidentiality of locations, all reported use value point locations are randomized by 250 m and are shown with a 1 km buffer.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report. EAO notes that the subsistence areas, defined as including hunting areas in the TLUS, are located within 250 m of the Project to 25 kilometres away from the proposed Project route.

Although the TLUS provides that there are 11 subsistence sites within 250 m from the pipeline footprint, uncertainty remains regarding the degree of impact on each of the sites listed. The information provided does not detail which of the 11 sites refer to hunting sites, nor the frequency of their use, and the margin of error for the identified sites is 250 m. In addition, the TLUS map illustrates an environmental value which lies outside the area EAO understands to be the western boundary of Treaty 8 (generally close to KP 150).

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of

potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use, the proposed Project is expected to result in minor impacts on Blueberry River First Nations' Treaty 8 right to hunt.

Trapping

Blueberry River First Nations raised concerns about the potential effects on the Treaty right to trap including:

- Decreased opportunities to trap due to direct and indirect mortality for wildlife from poaching, predation and vehicle collisions; and
- Potential effects on trap lines including effects of construction on active trap lines and traditional trapping practices including destruction and disturbance of trap line areas.

Trap lines were identified within the Blueberry River First Nations territory in proximity to the proposed Project Area in the Application (Section 23, Table 23-73), including:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
10 km east of KP 0	Kiskatinaw River
34 km north of KP 0	Peace River area
42.5 km northeast of KP 0	Taylor Hills area
104 km northwest of KP 0	Blueberry Creek
192 km northwest of KP 0	Sikanni Chief River
6 km north of KP 33	Pine River
117 km north of KP 330	Mount Milligan

Blueberry River First Nations has indicated to EAO that the trapping sites listed in the Application (and captured above) are not relevant to the proposed Project. The TLUS identifies 11 subsistence sites within 250 m of the proposed Project, 36 sites within 5 km of the proposed Project and 111 sites within 25 km of the proposed Project. Subsistence harvesting values are defined, in part, as including important fishing, hunting, trapping and gathering areas. The TLUS provides that to account for margin of error and protect confidentiality of locations, all reported use value point locations are randomized by 250 m and are shown with a 1 km buffer.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report. EAO notes that the

subsistence areas, defined as including trapping areas in the TLUS, are located within 250 metres of the Project to 25 km away from the proposed Project route.

Although the TLUS provides that there are 11 subsistence sites within 250 m from the pipeline footprint, uncertainty remains regarding the degree of impact on each of the sites listed. The information provided does not detail which of the 11 sites refer to trapping sites nor the frequency of their use, and the margin of error for the identified sites is 250 metres. In addition, the TLUS map illustrates an environmental value which lies outside the area EAO understands to be the western boundary of Treaty 8 (generally close to KP 150).

In consideration of the information presented in the TLUS , the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project is expected to result in negligible impacts on Blueberry River First Nations' Treaty 8 right to trap.

Fishing

Blueberry River First Nations raised the following key concerns about the potential effects on the Treaty right to fish, including:

- Potential effects on fish and fish habitat including contamination of fish spawning areas, effect of construction on creek banks and fish spawning habitat;
- Potential effects on water quality related to construction including equipment maintenance, increased turbidity and watercourse, and risk of spills;
- Concern about proximity of proposed compressor station to active waterways and drainages, effects of compressor station on water quality and disruption of flow; and
- Potential increased pressure on fish populations due to increase in fishing.

Section 6.2.2 of this report characterizes the potential impacts of the proposed Project on Aboriginal Group's fishing activities. The proposed Project corridor would traverse approximately 15 km of the area understood to be Blueberry River First Nations' area of traditional use, but would not include any watercourse crossings.

Fishing areas identified in the Application (Section 23, Table 23-73) for assessment of potential effects to Blueberry River First Nations' current and traditional land use included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
34 km north of KP 0	Peace River area
45 km northeast of KP 0	Beatton River
55 km northwest of KP 0	Cache Creek
56 km northwest of KP 0	Bear Flats
61 km northwest of KP 0	Charlie Lake
6 km north of KP 33	Pine River
50 km northwest of KP 45	Dinosaur Lake
62 km north of KP 46	Halfway River area
52 km northwest of KP 47	Lynx Creek
83 km northwest of KP 47	Dunlevy Creek
150 km northwest of KP 47	Chawode River
72 km northwest of KP 72	Cust Creek
41 km north of KP 73	Cameron Creek area
35 km northwest of KP 75	Moberly River
60 km northwest of KP 192	Williston Lake
245 km southeast of KP 285	Gravel Creek

Blueberry River First Nations has indicated to EAO that the fishing sites listed in the Application (and captured above) are not relevant to the proposed Project. The TLUS identifies 11 subsistence sites within 250 m of the proposed Project, 36 sites within 5 km of the proposed Project and 111 sites within 25 km of the proposed Project. Subsistence harvesting values include important fishing, hunting, trapping and gathering areas. The TLUS provides that to account for margin of error and protect confidentiality of locations, all reported use value point locations are randomized by 250 m and are shown with a 1 km buffer.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report. EAO notes that the subsistence areas, defined as including fishing areas in the TLUS, are located within 250 metres of the Project to 25 kilometres away from the proposed Project route.

Although the TLUS provides that there are 11 subsistence sites within 250 m from the pipeline footprint, uncertainty remains regarding the degree of impact on each of the sites listed. Project impacts on fishing activities are unknown as the information does not provide which of the 11 sites refer to fishing sites and the margin of error for the identified sites is 250 metres.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to fish and fish habitat, surface water, groundwater and traditional land use, the proposed Project is expected to result in negligible impacts on Blueberry River First Nations’ Treaty 8 right to fish.

Gathering

Blueberry River First Nations identified the following concerns related to plant communities and gathering activities:

- Loss of rare plant habitat/vegetation, introduction and spread of invasive species;
- Inadequate characterization of vegetation, including old forests and medicinal plants;
- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants including rose bushes along the right-of-way, medicinal plants and berry picking; and
- Contamination of plant communities from pesticides and herbicides.

Plant gathering for subsistence and medicinal purposes continue to be practiced by community members. Community members expressed concerns that development in the asserted traditional territory was causing a decline in edible berries.

Nine key gathering areas were identified by Blueberry River First Nations in the Application (Section 23, Table 23-73) including the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
34 km north of KP 0	Peace River area
42.5 km northeast of KP 0	Taylor Hills area
54 km northwest of KP 0	Charlie Lake
56 km northwest of KP 0	Bear Flats
72.8 km northeast of KP 0	Montney Lake
6 km north of KP 33	Pine River
76 km northwest of KP 47	Butler Ridge
180 km northwest of KP 47	Pink Mountain
32 km north of KP 72	Moberly Lake

Blueberry River First Nations has indicated to EAO that the gathering sites listed in the Application (and captured above) are not relevant to the proposed Project. The TLUS identifies 11 subsistence sites within 250 m of the proposed Project, 36 sites within 5

km of the proposed Project and 111 sites within 25 km of the proposed Project. Subsistence harvesting values include important fishing, hunting, trapping and gathering areas. The TLUS provides that to account for margin of error and protect confidentiality of locations, all reported use value point locations are randomized by 250 m and are shown with a 1 km buffer.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. EAO notes that the subsistence areas, defined as including gathering areas in the TLUS, are located within 250 metres of the Project to 25 kilometres away from the proposed Project route.

Although the TLUS provides that there are 11 subsistence sites within 250 m from the pipeline footprint, uncertainty remains regarding the degree of impact on each of the sites listed. The information provided does not detail which of the 11 sites refer to gathering sites, nor the frequency of their use, and the margin of error for the identified sites is 250 m.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to gathering activities, the proposed Project is expected to result in negligible impacts on Blueberry River First Nations’ gathering activities.

Culturally important sites, trails and travelways

Blueberry River First Nations raised concerns about the potential effects on culturally modified trees, archaeological sites and culturally important sites including clearing and disruption of historic sites and teaching areas, and destruction or disturbance to trails and overland travel routes and waterways due to pipeline right-of-way construction and proximity to the pipeline.

Several potential archaeological sites were reported in the Application as being along the Peace River. The area near Taylor Park has been used for various ceremonies and dances. Culturally important habitation sites, gathering sites and sacred areas identified in the Application (Section 23, Table 23-73) associated with Blueberry River First Nations traditional land use included:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Habitation Sites	
10 km east of KP 0	Kiskatinaw River

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
34 km north of KP 0	Peace River area
43 km north of KP 0	Old Fort
54 km northwest of KP 0	Charlie Lake
56 km northwest of KP 0	Bear Flats
102 km northwest of KP 0	Aitken Creek
104 km northwest of KP 0	Blueberry Creek
150 km northwest of KP 0	Nig Creek
6 km north of KP 33	Pine River
62 km north of KP 46	Halfway River area
60 km north of KP 48	Farrell Creek area
546 km southeast of KP 396	Long Lake
Gathering Sites	
73 km northwest of KP 0	Montney Lake
Sacred Areas	
61 km northwest of KP 0	Charlie Lake

Blueberry River First Nations has indicated to EAO that the culturally important sites, trails and travelways listed in the Application (and captured above) are not relevant to the proposed Project. The TLUS identifies 5 cultural/spiritual sites, and 2 habitation sites within 250 m of the proposed Project. The TLUS identifies 8 cultural/spiritual, 10 habitation and 1 transportation site within 5 km of the proposed Project and 27 cultural/spiritual, 35 habitation and 10 transportation sites within 25 km of the proposed Project. The TLUS provides that to account for margin of error and to protect confidentiality of locations, all reported use value point locations are randomized by 250 m and are shown with a 1 km buffer.

Section 6.2.5 of this report characterizes the potential impacts of the proposed project on Aboriginal Group's archaeological resources and cultural heritage Interests. EAO notes that there are culturally important sites, trail and travelways, located within 250 metres of the Project to 25 km away from the proposed Project route.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by

Blueberry River First Nations, the proposed Project may result in minor impacts on Blueberry River First Nations' culturally important sites, trails and travelways.

Other matters of concern to Blueberry River First Nations

During the EA process Blueberry River First Nations raised a number of other concerns. These are summarized in the following table, along with a brief response from EAO.

Issues Raised	EAO/Proponent Response
<p>Inadequate and inaccurate assessment of treaty rights and interests, inadequate baseline data and lack of appropriate mitigation measures.</p> <p>EAO and the Proponent lack commitment to work with Blueberry River First Nations in developing and implementing mitigation, monitoring and Environmental Mitigation Plans, and requests EAO completely revise the draft Consultation Report based on the BRFN TLUS.</p>	<p>For the purposes of determining the appropriateness of the information in the Application, EAO was satisfied that the Proponent's Application contained the information as set out in the Application Information Requirements (AIR).</p> <p>The Proponent committed to develop and update – and EAO has set out a proposed condition to require the Proponent to do so – the Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups.</p> <p>EAO reviewed the TLUS submitted by Blueberry River First Nations. The Proponent will continue to consider additional TLUS information contained in this TLUS and any other traditional use information obtained, to inform detailed planning or additional site-specific mitigation during construction. EAO has also proposed a condition requiring the Proponent to avoid prohibiting access for Aboriginal Groups to carry out traditional use activities identified in TLUS during Project operations.</p> <p>Mitigations, monitoring requirements and EMPs were updated and shared with Blueberry River First Nations on September 12, 2014 for review and comment. The draft Aboriginal Consultation Report was revised based on the Blueberry River First Nations TLUS, as requested, and accompanied these other documents for further review and comment.</p>

Issues Raised	EAO/Proponent Response
Inability to properly assess the impact on treaty rights as a result of tight timelines	EAO acknowledges this concern and has provided a response in Part C section 1.1 and 2.1. EAO is also of the view that efforts were made to consider impacts to Blueberry River First Nations and incorporate them more deeply into Project review. While this amendment was implemented during the Application Review period on the Project, Blueberry River First Nations was extended opportunities to participate more deeply prior to the amendment, and had been directly engaged by the Proponent leading up to that amendment in a similar fashion to other Aboriginal Groups that were included originally on the Schedule B list of the Section 11 Order.
Consideration of ancillary development required	Refer to Common Concerns section in section 2.1 of Part C.
Changes to air quality in vicinity of proposed pipeline corridor	Refer to Part B section 5.2 of this report for additional information and analysis. The effects of the proposed Project on air quality from proposed compressor stations are expected to be low to moderate in magnitude, as they are estimated to remain below provincial and federal guidelines and exceedances are not expected to occur in locations where sensitive receptors would be adversely affected.
Community opportunities including economic benefits, timber harvest rights, contract opportunities	In the Aboriginal Consultation Report, the Proponent committed to provide opportunities to qualified local Aboriginal contractors to provide clearing and associated services. The Proponent confirms that the selected Pipeline Contractor(s) would be required to submit an Aboriginal Participation Plan (APP) to the Proponent. EAO has proposed a condition requiring the development of a Timber Salvage Strategy, that would include timber volume estimates, marketing commitments for timber cleared, and salvage activities for timber not harvested. Refer to Part B section 6 and 7 of this report for additional information.

Issues Raised	EAO/Proponent Response
Safety of the pipeline in uneven and challenging terrain	The Proponent has undertaken detailed terrain analysis, the results of which continue to inform the construction planning and detailed engineering design of the proposed Project. In addition to the current process administered by the EAO, the proponent is required to provide detailed information regarding the design of the Project for review by OGC and meet detailed design and operational safety requirements specified in legislation administered by OGC
Potential social and economic effects, including the effects of a potential influx of construction workers as a result of the proposed Project, as well as additional waged work	EAO acknowledges this concern. EAO has proposed a condition that would require the Proponent to develop a Social and Economic Effects Management Plan (SEEMP).
Conversion of the proposed gas pipeline to an oil pipeline response by EAO is not an enforceable condition	Refer to Common Concerns section 2.1 in Part C.
EAO did not consider the most likely effect pathways that would result in a residual adverse effect on BRFN interests	EAO acknowledges this concern. EAO sought input from Aboriginal Groups on the nature and scope of their Aboriginal Interests and how they might be impacted by the proposed Project, and considered multiple relevant factors in its assessment of the seriousness of potential impacts on Aboriginal Interests.
<p>Extensive industrial development that has already significantly undermined Blueberry River First Nations treaty rights and practices has not been considered.</p> <p>BRFN objected to the modelling forecast provided and its conclusions in contrast to their own scenario identifying up to 66% of BRFN lands having been disturbed by oil and gas activities in addition to other anthropogenic activities.</p>	EAO shared an upstream development forecast scenario with Aboriginal Groups in light of these concerns. Ministry of Natural Gas Development (MNGD) and OGC are responsible for upstream oil and gas tenuring and regulation.

7.1.2 Doig River First Nation

Context

- Doig River First Nation is a signatory to Treaty 8 and a member of the Treaty 8 Tribal Association. It has two reserves with a combined area of 1,358.1 ha: Doig River IR 206, comprising 1,000.8 ha; and the North Parcel of Beatton River IR 204, comprising 357.30 ha.
- As of September 2013, Doig River First Nation had a total registered population of 297, with an on-reserve population of 141 and an off-reserve population of 156.
- Doig River First Nation has one Chief and two Councillors elected under the *Indian Act* electoral system.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- Initially, EAO understood that the proposed Project was outside the area the Province understood to be Doig River First Nation's area of traditional use. EAO was of the view that the potential impacts to the treaty rights exercised by Doig River First Nation would be low and that the duty to consult Doig River First Nation lay at the low end of the *Haida* spectrum. Doig River First Nation was listed on Schedule C of the Section 11 Order.
- However, as a result of Blueberry River First Nations' boundary information and EAO's understanding at the time of the ancestral ties with Doig River First Nation, EAO added Doig River First Nation to Schedule B of the Section 11 Order on February 21, 2014 to allow consultation to occur at a deeper level.
- Doig River First Nation is a member of the Treaty 8 Tribal Association, which is an administrative body that provides support and advice to 5 BC Treaty 8 First Nations residing in and around the Peace River Valley area of northeastern BC. EAO consults directly with Treaty 8 Tribal Association member nations regarding the potential effects of the proposed Project on their treaty rights.

Summary of consultation

Doig River First Nation was invited to review and provide comments on the s. 11 Order, the Proponent's Aboriginal Consultation Reports and the Application. Doig River First Nation was also provided with opportunities to attend working group meetings during application review, to attend workshops, and to meet with EAO staff directly.

EAO provided \$10,000 in capacity funding to Doig River First Nation during the Application Review phase of the EA process to assist with costs associated with their participation in the environmental review. The Proponent provided initial capacity

funding for Doig River First Nation to engage in discussions regarding the proposed Project under a Letter of Agreement dated February 2014. As of March 31, 2014, Doig River First Nation and the Proponent continue to discuss further capacity funding to support Doig River First Nation's ongoing engagement.

Doig River First Nation, together with Sauteau First Nations, McLeod Lake Indian Band, and West Moberly First Nations, provided input to the EA process through written comments on the screening of the Application and extensive written comments on the Application. On January 24, 2014, EAO met with Doig River First Nation to discuss the inclusion of Doig River First Nation in Schedule B of the section 11 Order. Doig River First Nation also participated in a working group meeting June 5, 2014 and participated in the Natural Gas Pipeline Workshop on February 4, 2014 and May 29-30, 2014. Doig River First Nation, Sauteau First Nations, McLeod Lake Indian Band and West Moberly First Nations provided a letter to EAO on September 26, 2014 with final remarks about the proposed Project, as described below in section 7.1.10.

Doig River First Nation provided a letter to the Minister of Environment and the Minister of Natural Gas Development on Oct 2, 2014 requesting that the EA decision by Ministers be postponed. This letter was included as a separate submission to Ministers. Doig River First Nation participated in biophysical field studies, but did not provide TEK. At the conclusion of the 2013 field season, Doig River First Nation was provided with a Results Review Memo and was contacted by the Proponent with an offer to meet and review the information for accuracy, completeness and confidentiality, although Doig River First Nation did not request a results review meeting.

The Proponent offered Doig River First Nation the opportunity to conduct a TLUS to inform the Application, site specific mitigation and detailed construction planning to identify strategies to avoid, reduce or mitigate potential adverse effects on TLU activities. A draft Traditional Knowledge Agreement was provided to Doig River First Nation on May 17, 2013. The final TLUS was provided to EAO on August 7, 2014. Doig River First Nation expressed serious concerns relating to the information portrayed in the Application relating to impacts to Doig River First Nation treaty rights extrapolated from other known information in the absence of the TLUS results. The results of the TLUS were not contained in the first version of this Report shared with Doig River First Nation for comment on August 14, 2014.

While general concerns described in the TLUS were incorporated by EAO in the second version shared with Doig River First Nation for comment on September 12, 2014, Doig River First Nation contacted EAO on September 18, 2014 to express concern that site-specific details from the TLUS were not included in the September 12, 2014 version.

Those details were reconsidered by EAO and an updated version was provided to Doig River First Nation on September 19, 2014 for further review and comment. Doig River First Nation also expressed that the timelines for having to complete its TLUS was too short.

The TLUS provides that to account for margin of error and protect confidentiality of locations, all reported use value point locations are randomized by 250 m and are shown with a 1 km buffer. The spatial boundaries depicted in the TLUS that are used in relation to hunting, fishing, trapping, gathering and significant sites for the Project Footprint, LSA and RSA by Doig River First Nation differ from those used by the EAO for wildlife (in Section 6.2.1 and 6.2.3), fish and fish habitat (Section 6.2.2), plants/gathering Section 6.3.4, and archaeology and cultural heritage (Section 6.2.5). EAO notes that the identified cultural, spiritual, environmental, habitation, subsistence and transportation areas identified in the TLUS are located within 250 m of the proposed Project route to 25 km away.

The Proponent provided Doig River First Nation with the opportunity to be involved in socio-economic baseline data collection for the proposed Project, but Doig River First Nation elected not to participate. This letter was included as a separate submission to Ministers.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Doig River First Nation to determine the community's interest in the proposed Project and to develop a process for the community's involvement in Project activities. Since this date, Doig River First Nation and the Proponent have held 11 meetings on various Project related subjects. The discussions have included: ongoing Project information and updates; contracting and employment opportunities; Project benefits; distribution and review of a draft ancillary site map outlining the proposed features, such as access roads, compressor stations and camp sites; and the selection of the proposed route through their traditional territory, which involved a helicopter overflight. Issues raised by Doig River First Nation and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Doig River First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts from the proposed Project to Doig River First Nation Treaty rights and other interests

Hunting

Doig River First Nation raised key concerns regarding wildlife, wildlife habitat and the Treaty right to hunt, including:

- Impacts on large and small game, including moose, elk, caribou, deer, sheep, goats, porcupine, black and grizzly bear, furbearers and grouse. Moose are particularly culturally important for food and other materials;
- Further decline of animal populations already of concern, such as caribou and porcupine, which have notably declined in recent years. Caribou are no longer hunted by Doig River First Nation due to their low numbers;
- Potential effects on habitat such as nesting areas, mineral licks, watercourses, game trails (for example, through blocking of active trails and migration routes), and wildlife trees;
- Habitat fragmentation due to creation of the pipeline right-of-way;
- Disturbance of animals due to noise and traffic during Project construction and operation, causing them to move away from the area;
- Habitat disturbances (right-of-ways or roads) improving hunting success rates for predators such as wolves and bears. This in turn leads to increasing numbers of bears and wolves, adding further pressure to prey species, leading to reduced numbers of species such as moose, elk, deer and caribou;
- Linear disturbances (right-of-ways or roads) improving access for hunters, and increasing their success rates due to long lines of sight, adding to hunting pressure on wildlife populations;
- Construction work on the Project bringing more people into the area, and familiarizing them with good hunting locations, increasing hunting pressure on wildlife populations;
- Potential contamination of animals due to the contamination of soil, air, water and plants during pipeline construction, leaks during the operation of the pipeline, and the consumption of plant materials sprayed with herbicides along the pipeline right-of-way and access roads; and
- Reduced opportunities for teaching how to hunt, and associated cultural protocols, due to reductions in wildlife populations or contamination or perceived contamination of resources.

The Application states that moose is the most hunted and consumed animal by Doig River First Nation, followed by elk and deer. Specific hunting locations have not been identified for Doig River First Nation; rather, the following broad hunting area was identified and described in the Application (Section 23, Table 23-83):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
48 km north of KP 0	K'ih tsaa?dze proposed tribal park

Doig River First Nation notes that the sites identified in the Application do not relate to the proposed Project. The TLUS identifies one subsistence site-specific use value within 250 m of the proposed Project in the proposed Project footprint, 21 within 5 km of the proposed Project in the LSA, and 51 within 25 km of the proposed Project in the RSA. Within the Project footprint, subsistence values include small-game kill sites (porcupine). Within the LSA, subsistence value sites include hunting kill sites (elk and porcupine), and within the RSA they include large and small game kill locations (moose, elk, deer, rabbits).

The TLUS also identifies four environmental site-specific use values within 250 m of the proposed Project in the proposed Project footprint, 14 within 5 km of the proposed Project in the LSA, and 23 within 25 km of the proposed Project in the RSA. Within the Project footprint, environmental values include wildlife habitat (mountain sheep, goats, moose, bear). Within the proposed LSA, environmental values include wildlife habitat (moose, elk, deer, grizzly and black bears, porcupine, lynx, mink, rabbits and coyote), and within the RSA, they include wildlife habitat (cougar) and a mineral lick.

Within the proposed Project footprint and LSA, a number of important areas of use by Doig River First Nation members and important environmental features relating to Doig River First Nation hunting rights are described as including:

- Lone Prairie Road: a bear den within the Project Footprint;
- Twidwell Bend: a Doig River First Nation hunting area used in the past along the Sukunka River, within 1 km of the proposed Project footprint;
- Northwest of Boulder Creek to south of Sukunka Falls: wildlife habitat (moose, elk, deer, black bear, lynx, coyote, mink, and rabbits); and
- Mount Kinney: habitat for moose, mountain goat, and sheep.

Within the RSA, there are a number of significant areas that are used by Doig River First Nation members or hold important environmental features relating to DRFN hunting rights, including:

- Stewart Lake: camping sites, a trail from Stewart Lake to Groundbirch for hunting (moose and elk), fishing and camping;
- Moberly Lake area: heavy use around the eastern end within the RSA (and the entire lake outside the RSA) including for hunting kill sites (rabbit), fish catch sites (rainbow trout, jackfish, pickerel and salmon), locations for making dry meat, multiple campsites and a trail used to access a moose camp and along which Doig River First Nation members report hunting deer and making dry meat; and

- Johnson and Hasler Creeks: cougar, moose and fish habitat, plus multiple trails south along Hasler Creek used for hunting and fishing, including one taken to the Burnt River.

EAO understands that Doig River First Nation's ability to exercise its Treaty right to hunt depends, in part, on the status of wildlife populations within its area of traditional use. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use, the proposed Project is expected to result in minor impacts on Doig River First Nation's Treaty 8 right to hunt.

Fishing

Doig River First Nation raised key concerns regarding fish, fish habitat and the Treaty right to fish, including:

- Risk of pipeline breaks and impacts of a gas leak under a river on water and fish;
- Potential adverse effects on watercourses and watercourse crossings including from open trench crossing methods. Concerns apply to but are not limited to Coldstream Creek, Murray River, Sukunka River, and Parsnip River;
- Contamination or perceived contamination of fish and drinking water sources, and of rivers, watercourses, lakes and wetlands in the Project footprint and LSA. These impacts would also be felt for considerable distances downstream, beyond the LSA and RSA;
- Cumulative impacts of the Project, together with other industrial operations, on contamination or perceived contamination of water and fish throughout the Project footprint, LSA and RSA;
- Important and potentially significant impacts on harvesting rights and related rights associated with water and fish within the Project footprint, LSA and potentially downstream in the RSA; and
- Reduced opportunities for teaching how to fish, and associated cultural protocols, due to reductions in wildlife populations or contamination or perceived contamination of resources.

The Application (Section 23, Table 23-83) identifies one important fishing location for Doig River:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
45 km northeast of KP 0	Beaton River

Fishing areas identified in the Application are located 45 km away from the proposed pipeline route. Doig River First Nation notes that these sites identified in the Application do not relate to the proposed Project. The TLUS identifies one subsistence site-specific use value within 250 m of the proposed Project in the proposed Project footprint, 21 within 5 km of the proposed Project in the LSA, and 51 within 25 km of the proposed Project in the RSA. Subsistence values include fish catch sites for Dolly Varden in the Project footprint and rainbow trout, speckled trout, grayling, whitefish, pickerel, salmon, and jackfish in the LSA. Within the RSA, subsistence values include fish catch sites for rainbow trout, bull trout, ling cod, whitefish, jackfish, pickerel, and salmon.

The TLUS also identifies 14 environmental site-specific use values, defined as including fish, within 5 km of the proposed Project in the LSA, and 23 within 25 km of the proposed Project in the RSA.

Within the proposed Project footprint and LSA, a number of important areas of use by Doig River First Nation members and important environmental features related to Doig River First Nation fishing rights include:

- Twidwell Bend: a fish catch site for jackfish and other fish at the confluence of the Pine and Sukunka Rivers;
- Martin Creek: a cluster of camping and fishing sites; and
- Northwest of Boulder Creek to south of Sukunka Falls: fish catch sites (rainbow trout, grayling, jackfish, whitefish and pickerel).

Within the RSA, a number of significant areas that are used by Doig River First Nation members or hold important environmental features related to Doig River First Nation fishing rights include:

- Stewart Lake: fish catch (trout) and camping sites, a trail from Stewart Lake to Groundbirch for hunting (moose and elk), fishing, and camping;
- Moberly Lake area: heavy use around the eastern end within the RSA (and the entire lake outside the RSA) including for fish catch sites (rainbow trout, jackfish, pickerel and salmon);
- Johnson and Hasler Creeks: fish habitat, plus multiple trails south along Hasler Creek used for hunting and fishing, including one taken to the Burnt River;

- Gwilliam Lake: an important site for camping, fishing, berry picking, group gatherings (including a gathering of Doig River First Nation with Moberly Lake and Saulteau First Nations) and teaching youth; and
- Bear Lake area: camping sites and a fishing site used by Doig River First Nation members.

EAO understands that Doig River First Nation’s ability to exercise its Treaty right to fish depends, in part, on the status of fish populations within its area of traditional use. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to fish and fish habitat, surface water, groundwater and traditional land use, the proposed Project is expected to result in negligible impacts on Doig River First Nation’s Treaty 8 right to fish.

Trapping

Doig River First Nation raised concerns regarding wildlife, wildlife habitat, and the Treaty right to trap, including:

- Effects on small game including rabbit, porcupine, marten, and lynx, which continue to be trapped for food, furs and medicines;
- Loss of key small game hunting and trapping areas due to habitat destruction; and
- Potential contamination of animals due to the contamination of soil, air, water and plants during pipeline construction, leaks during the operation of the pipeline, and the consumption of plant materials sprayed with herbicides along the pipeline ROW and access roads.

The Application (Section 23, Table 23-83) identifies a broad trapping area which is important to Doig River First Nation:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
48 km north of KP 0	K’ih tsaa?dze proposed tribal park

Doig River First Nation notes that the sites identified in the Application do not relate to the proposed Project. The TLUS identifies one subsistence site-specific use value within

250 m of the proposed Project in the proposed Project footprint, 21 within 5 km of the proposed Project in the LSA, and 51 within 25 km of the proposed Project in the RSA. Subsistence values potentially related to trapping rights include small game kill sites for porcupine in the Project footprint and hunting kill sites for porcupine in the LSA. Within the RSA, subsistence values potentially related to trapping rights include small game kill locations (rabbits).

The TLUS also identifies 14 environmental site-specific use values within 5 km of the proposed Project in the LSA. Within the proposed LSA, environmental values potentially related to trapping rights include wildlife habitat (porcupine, lynx, mink, rabbits and coyote).

Within the proposed Project footprint and LSA, an important area of use by Doig River First Nation members and important environmental features related to Doig River First Nation trapping rights include Northwest of Boulder Creek to south of Sukunka Falls, which provides wildlife habitat (lynx, coyote, mink and rabbits), camping sites and a water route.

Within the RSA, a significant area used by Doig River First Nation members, which holds important environmental features related to Doig River First Nation trapping rights includes the Moberly Lake area, which has heavy use around the eastern end within the RSA (and the entire lake outside the RSA) including for hunting kill sites (rabbit), locations for making dry meat, multiple campsites and a trail used to access a moose camp and along which Doig River First Nation members report hunting deer and making dry meat.

EAO understands that Doig River First Nation's ability to exercise its Treaty right to trap depends, in part, on the status of wildlife populations within its area of traditional use.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use— as discussed in section 6.2.3 of this report - the proposed Project is expected to result in negligible impacts on Doig River First Nations Treaty 8 right to trap.

Gathering

Doig River First Nation raised concerns related to plant communities and gathering activities, including:

- Potential effects on ceremonial, medicinal and food source plants and destruction, removal or loss of rare plant habitat and key plant gathering sites;

- Replacement of native species in the Project footprint with non-native species during reclamation;
- Contamination of plant picking sites by traffic fumes and dust during construction and along roads and access routes used for the proposed Project or by spraying of herbicides along the right-of-way or roads in the Project footprint and LSA;
- Concern or uncertainty about contamination deterring Doig River First Nation members from gathering plants in the Project footprint and LSA;
- Doig River First Nation anticipated the Project would have important and potentially significant impact on harvesting rights and related rights associated with food plants, use plants and medicinal plants; and
- Reduced opportunities for teaching how to pick berries and medicine plants, and associated cultural protocols, due to contamination or perceived contamination of resources.

The TLUS identifies four environmental site-specific use values within 250 m of the proposed Project in the proposed Project footprint. Within the proposed Project footprint, environmental values include medicinal plant growth areas (devil's club).

TLUS identifies 21 subsistence site-specific use values within 5 km of the proposed Project in the LSA, and 51 within 25 km of the proposed Project in the RSA. Within the LSA, subsistence values include berry picking locations (blueberries, Saskatoon berries, huckleberries, black currants, and thimbleberries), food plant picking areas (wild parsnip) and a firewood gathering area. Within the RSA, subsistence values include berry picking locations (blueberries and huckleberries).

The TLUS also identifies four cultural/spiritual site-specific use values within 5 km of the proposed Project in the LSA. These are defined within the LSA as including a medicine plant gathering site.

Within the proposed Project footprint and LSA, a number of important areas of use by DRFN members and important environmental features related to gathering include:

- Mount Wartenbe area: a camping and berry-picking site;
- Northwest of Boulder Creek to south of Sukunka Falls: wildlife habitat (moose, elk, deer, black bear, lynx, coyote, mink and rabbits), extensive berry picking areas (blueberries, Saskatoon berries, huckleberries, thimbleberries, and black currants), fish catch sites (rainbow trout, grayling, jackfish, whitefish and pickerel), camping sites and a water route; and
- Mount Merrick: medicine plant (devil's club) growth areas within the proposed Project footprint.

Within the RSA, a significant area used by Doig River First Nation members or that contains important environmental features related to gathering includes Gwilliam Lake, an important site for camping, fishing, berry picking, group gatherings (including a gathering of Doig River First Nation with Moberly Lake and Sauleau First Nations) and teaching youth.

EAO understands that Doig River First Nation's ability to exercise its Treaty right to gathering depends, in part, on the status of vegetation within its area of traditional use.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.4 of this report - the proposed Project is expected to result in negligible impacts on Doig River First Nation's gathering activities.

Culturally important sites

Doig River First Nation raised concerns about the potential effects on cultural heritage, including:

- Direct disturbance of large areas of land that are used for cultural activities or teaching areas;
- Direct disturbance of cultural features such as pack trails;
- Reduced access to large areas of land that are used for cultural activities or teaching areas;
- Reduction in the connection Doig River First Nation members feel towards particular sites and the landscape in general due to changes in the visual aesthetics, character and feel of the landscape, loss of land and increased noise, garbage and disturbance and increase in hunters from outside the area and fears over contamination;
- Reduced opportunities for teaching Doig River First Nation culture and passing on to Doig River First Nation oral history due to loss of connection with the land where that history is based; and
- Overall, Doig River First Nation anticipates the Project will have important and potentially significant impact on intergenerational transmission of culture, and related rights.

There were no sacred sites identified for Doig River First Nation, but 3 people gathering places are described in the Application (Section 23, Table 23-83):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Gathering Places	
42.5 km northeast of KP 0	Taylor
45 km northeast of KP 0	Montney
51 km northeast of KP 0	Fort St. John

Doig River First Nation notes that these sites identified in the Application do not relate to the proposed Project. The TLUS identifies one cultural/spiritual site-specific use values within 250 m of the proposed Project in the proposed Project footprint, four within 5 km of the proposed Project in the LSA, and 21 within 25 km of the proposed Project in the RSA. Within the proposed Project footprint, cultural/spiritual values include a canoeing route taken with youth and elders for a teaching camp. Within the LSA, cultural/spiritual values include the site of an old timers' rodeo, a medicine plant gathering site, and the site of a battle as recounted in Doig River First Nation oral histories. Within the RSA, cultural/spiritual values include a pow wow site, group gathering sites where Doig River First Nation members meet with other Aboriginal Groups, teaching sites, drying racks and food processing sites and a moose camp for hunting, prepping and drying meat and curing hides.

The TLUS identifies one habitation site-specific use value within 250 m of the proposed Project in the proposed Project footprint, 11 within 5 km of the proposed Project in the LSA, and 31 within 25 km of the proposed Project in the RSA. Within the Project footprint, habitation values include a temporary campsite used for several nights. Within the LSA, habitation values include multiple campsites. Within the RSA, habitation values include permanent cabins and regularly returned-to campsites and day camp areas (used for activities including fishing, hunting, picnics and gatherings).

The TLUS also identifies three transportation site-specific use values within 250 m of the proposed Project in the proposed Project footprint, 13 within 5 km of the proposed Project in the LSA, and 31 within 25 km of the proposed Project in the RSA. Within the Project footprint, transportation values include water routes used for fishing, teaching and travelling to campsites. Within the LSA, transportation values include multiple trails used for hunting, fishing, berry picking, and looking for wildlife, particularly grizzly bears. Within the RSA, transportation values include trails used to access hunting sites.

Within the proposed Project footprint and LSA, a number of important areas of use by Doig River First Nation members and important environmental features related to cultural and spiritual values include:

- Murray River: a water route that crosses through the Project footprint and LSA and continues through the RSA, and the site of a historic battle between Cree and Beaver people east of the confluence of the East Pine and Murray Rivers;
- Mount Wartenbe area: a camping and berry-picking site; and
- Martin Creek: a cluster of camping and fishing sites.

Within the RSA, a number of significant areas that are used by Doig River First Nation members or hold important environmental features, which relate to cultural and spiritual values include:

- East of Farmington: camping sites used by Doig River First Nation members;
- Stewart Lake: fish catch (trout) and camping sites, a trail from Stewart Lake to Groundbirch for hunting (moose and elk), fishing and camping;
- Groundbirch area: gathering place and camping site east of Groundbirch;
- Moberly Lake area: heavy use around the eastern end within the RSA (and the entire lake outside the RSA) including for hunting kill sites (rabbit), fish catch sites (rainbow trout, jackfish, pickerel and salmon), locations for making dry meat, multiple campsites and a trail used to access a moose camp and along which Doig River First Nation members report hunting deer and making dry meat;
- Chetwynd: group gathering sites for rodeos and cultural performances;
- Johnson and Hasler Creeks,: cougar, moose and fish habitat, plus multiple trails south along Hasler Creek used for hunting and fishing, including one taken to the Burnt River;
- Gwilliam Lake: an important site for camping, fishing, berry picking, group gatherings (including a gathering of Doig River First Nation with Moberly Lake and Saulteau First Nations) and teaching youth; and
- Bear Lake area: camping sites and a fishing site used by Doig River First Nation members.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with archeology and cultural heritage interests is provided in section 6.2.5 of this report.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use, the proposed Project is expected to result in minor impacts on Doig River First Nation's use of culturally important sites.

7.1.3 Fort Nelson First Nation

Context

- Fort Nelson First Nation is a signatory to Treaty 8. It has four reserves that total 9,752.6 ha. The main community is located in Fort Nelson 2, a reserve on the confluence of the Muskwa and Nelson rivers, 6 km southeast of the community of Fort Nelson. Fort Nelson First Nation comprises 14 major families within the Traditional Territory: *Tthek'eneh Kue* (Old Fort), *Fontas*, *Kahntah*, *Nadudhi Deeze* (Snake River), *Tlidli* (Nelson Forks), and *Tli Gohitche* (**François**).
- As of September 2013, Fort Nelson First Nation had a registered population of 887, with an on-reserve population of 454 people and an off-reserve population of 433 people. Fort Nelson First Nation has a Chief and five Councillors elected to two-year terms under the *Indian Act* electoral system.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- The proposed Project does not overlap with what the Province understands to be the Fort Nelson First Nation's area of traditional use.
- Given the distance of the proposed Project from Fort Nelson First Nation's area of traditional use, EAO listed Fort Nelson First Nation on Schedule C of the Section 11 Order.
- In response to the Section 11 Order, Fort Nelson First Nation expressed its desire to be on Schedule B of the section 11 Order and concerns relating to the impact of the proposed upstream development on its Treaty rights. EAO considered the potential for impacts to Fort Nelson First Nation treaty rights, and that the proposed Project is far from the area the Province understands to be Fort Nelson First Nation's area of traditional use, and determined that the duty to consult remained at the low end of the *Haida* spectrum. However, EAO confirmed that the focus of consultation regarding upstream development would be considered for those particular proposed Projects as, and if, they emerge.

Potential impacts of the proposed Project to Treaty rights and other interests

The area understood to be Fort Nelson First Nation's area of traditional use lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly

bear), Aquatic Environment VCs (with the exception of the aquatics RSA) , Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSA are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

Trapping areas known to be used by Fort Nelson First Nation for traditional land and resource use are located more than 380 km away from the proposed Project. Habitation sites and sacred areas known to be used by Fort Nelson First Nation for traditional land and resource use are located between 39 and 428 km away from the proposed Project.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into Fort Nelson First Nation territory.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Fort Nelson First Nation's area of traditional use, EAO concludes that the proposed Project is not expected to result in any adverse effects on Fort Nelson First Nation's Treaty rights to hunt, trap and fish, nor are adverse effects expected to Fort Nelson First Nation's gathering activities or culturally important sites.

7.1.4 Halfway River First Nation

Context

- Halfway River First Nation is a signatory to Treaty 8 and a member of the Treaty 8 Tribal Association. Also a Beaver or Dunne-Zaa speaking community, the main settlement of Halfway River was north of their current reserve land at Stoney, along the Chowade River. The Halfway River reserve is still north of the Peace River and is 3990 ha in size. There are 160 members living on reserve out of a total population of 256.
- Halfway River First Nation is governed by a Chief and two Councillors elected for two year terms under the Indian Act electoral system.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- The proposed Project crosses approximately 12 km of the area the Province understands to be Halfway River First Nation's area of asserted traditional use, in an area that lies outside what EAO understands to be the western boundary of Treaty 8 (the extent of which is generally close to KP 150, recognizing that the western boundary of Treaty 8 is an area of dispute and subject to litigation between the Province and certain Treaty 8 First Nations). EAO was of the view that the potential impacts to the treaty rights exercised by Halfway River First Nation would be low and that the duty to consult Halfway River First Nation lay at the low end of the *Haida* spectrum. Halfway River First Nation was listed on Schedule C of the Section 11 Order.
- On January 29, 2014, Halfway River First Nation asserted that the traditional territory in the Province's Consultative Areas Database was inaccurate. As a result, the Halfway River First Nation asked to be included on the Working Group for the proposed Project. EAO responded that without more specific information regarding historic or contemporary use of the areas immediately surrounding the proposed Project for the exercise of treaty rights by Halfway River First Nation, they would not be invited to the Working Group and the consultation opportunities listed in Schedule C would be adequate.

Summary of consultation

During the EA, Halfway River First Nation provided EAO with comments on the Proponent's Application. EAO provided Halfway River First Nation with the Proponent's responses to their comments, and shared those responses with Halfway River First Nation. EAO offered to meet with Halfway River First Nation to discuss their comments. Halfway River First Nation participated in the Natural Gas Pipeline Workshop on February 4, 2014 and May 29-30, 2014.

Under a Letter of Agreement dated January 2013, the Proponent provided Halfway River First Nation with initial capacity funding to engage in discussions regarding the Project. A Memorandum of Understanding between Halfway River First Nation and the Proponent, dated July 2013, provided continued capacity funding for Halfway River First Nation to support ongoing engagement in meetings and other activities.

Halfway River First Nation did not provide TEK, but participated in biophysical field studies and collected socio-economic baseline data.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Halfway River First Nation 13 times and shared several key documents.

These discussions have including contracting and employment opportunities, proposed Project benefits and selection of the proposed route. Issues raised by Halfway River First Nation and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Halfway River First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Application.

Halfway River First Nation also provided a Traditional Land Use and Ecological Knowledge Study related to the proposed Project (TLUS) dated July 31, 2014.

Potential impacts of the proposed Project to Treaty rights

The area understood to be Halfway River First Nation's area of traditional use lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into Halfway River First Nation's area of traditional use.

Below, EAO outlines issues identified during the EA and provides additional background information specific to Halfway River First Nation. EAO's responses to these concerns are generally discussed in section 6 of this report.

Hunting

Halfway River First Nation identified the following issues related to wildlife, wildlife habitat and the Treaty right to hunt:

- Increased access and declining moose populations;
- Potential effects on wildlife habitat including nests, loss of beaver dam/lodge bear dens, mineral licks, wildlife trails and wildlife trees, and migration routes;
- Potential adverse effects on ungulates, including protection of potential calving areas and impacts on ungulate winter ranges;
- Potential adverse effects of construction on small furbearers;
- Potential for construction activities to limit use of game trails, restricting wildlife movement;

- Loss of quantity of harvestable resources including from behavioural shift of wildlife populations away from traditional territory, change in species morphology over time, habitat fragmentation and introduction of invasive species;
- Loss of quality of harvestable resources, including from contamination of animals,
- Loss of income and livelihood, including from decrease in animal populations and increased competition for resources with recreational users;
- Potential effects of construction noise on wildlife;
- Potential loss of wetland habitat, function and water quality also affecting wildlife during construction of the proposed Project;
- Impacts to the significant hunting areas around the Pine River, Sukunka River and surrounding lands which fall within the 2 km buffer zone of the proposed Project; and
- Access restrictions to Halfway River First Nation's resource harvesting areas, including hunting areas within and around the proposed Project Footprint.

In their TLUS, Halfway River First Nation indicated that traditional land use activities related to hunting were impacted along the proposed Project Footprint at kilometre points 20-125, and would affect moose and mountain sheep.

Halfway River First Nation expressed concern that the area has already been heavily impacted by development, especially through habitat loss, and that this has had particular impact on moose hunting and harvesting of fur-bearing animals for income, Halfway River First Nation's primary means of subsistence.

Section 6.2.1 in Part C of this report characterizes the potential impacts of the proposed Project on Aboriginal Groups' hunting activities. In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use, the proposed Project is expected to result in negligible impacts on Halfway River First Nation's Treaty 8 right to hunt.

Fishing

Halfway River First Nation identified the following key concerns related to fish, fish habitat and the Treaty right to fish:

- Potential effects on fish and fish habitat such as habitat destruction (including spawning habitat), habitat alteration and fragmentation, including due to channel

infilling and narrowing of stream channels, and potential for blockages to fish movement during construction and operations;

- Potential effects on water quality related to construction including watercourse crossings;
- Loss of quantity of harvestable resources, including from increased fish mortality, behavioural shift of fish populations away from traditional territory, change in species morphology over time, disturbance and removal of marine life and sediments resulting from dredging, and introduction of invasive species; Loss of quality of harvestable resources, including from contamination of fish, water bodies, watersheds and airshed, and environmental damage resulting from accidents and spills in waters;
- Loss of income and livelihood due to decreased populations of fish and increased competition for resources with recreational users;
- Concerns about watercourse crossing methods;
- Potential effects on aquatic habitat as a result of frost bulb formation and its hydrological impacts; and
- Access restrictions to Halfway River First Nation fishing and marine resource harvesting areas.

Halfway River First Nation indicated in their TLUS that traditional land use activities related to fishing were impacted along the proposed Project footprint between KP 30-KP 50. EAO has not been provided with specific information on the species, frequency, and timing of Halfway River First Nation's fishing activities in these locations.

The proposed Project corridor would cross approximately 21 watercourses, 15 of which have indicated fish presence. The only large crossing is over an unnamed Tributary to Muskeg River (KP 229.35).

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report. In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to fish and fish habitat, surface water, groundwater and traditional land use, the proposed Project is expected to result in negligible impacts on Halfway River First Nation's Treaty 8 right to fish.

Trapping

Through consultation with the Proponent, Halfway River First Nation brought forward specific issues, including:

- Existing development already has noticeable effect on land and wildlife. The proposed Project could add to these effects;
- Potential adverse effects of construction on small furbearers;
- Potential effects of construction noise on wildlife;
- Potential loss of wetland habitat, function and water quality also affecting wildlife during construction of the proposed Project;
- Loss of quantity of harvestable resources including from disruption of critical life stages and/or critical habitat for animals including nesting and migration routes, behavioural shift of fish and animal populations away from traditional territory, change in species morphology over time, habitat fragmentation and introduction of invasive species;
- Loss of quality of harvestable resources including from contamination of animals;
- Loss of income and livelihood including from decreased populations of animals, and increased competition for resources with recreational users;
- Potential adverse effects of construction on traplines;
- Potential effects of clearing activities on environment; and
- Access restrictions to Halfway River First Nation's harvesting areas, including trapping areas within and around the proposed Project Footprint.

In the Proponent's Public Comment summary dated June 4, 2014, Halfway River First Nation identified an important trapping area at KP 225, where multiple beaver dams are located. EAO notes that this area lies outside what EAO understands to be the western boundary of Treaty 8 (the extent of which is generally close to KP 150, recognizing that the western boundary of Treaty 8 is an area of dispute and subject to litigation between the Province and certain Treaty 8 First Nations).

In consideration of the information presented in the TLUS , the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use— as discussed in section 6.2.3 of this report - the proposed Project is expected to result in negligible impacts on Halfway River First Nations' Treaty 8 right to trap.

Gathering

Halfway River First Nation identified the following concerns related to plant communities and gathering:

- Introduction and spread of invasive plant species;
- Potential adverse effects on vegetation (berries, existing vegetation) and harvested plants;

- Loss of quality of harvestable resources including from contamination of plants, and change in soil structure, stability, composition and richness;
- Loss of income and livelihood including from decrease in populations of plants and increased competition for resources with recreational users;
- Decrease in productivity and diversity of habitats/ecosystems, including wetlands and old growth forests; and
- Access restrictions to Halfway River First Nation's resource harvesting areas.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. Halfway River First Nation did not identify any specific gathering areas that could be impacted by the proposed Project.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to gathering activities the proposed Project is not expected to result in any adverse effects on Halfway River First Nation's gathering activities.

Culturally important sites

Halfway River First Nation raised the following key concerns about the proposed Project's impact on culturally important sites:

- Disturbance to unmarked gravesites, petroglyphs, Culturally Modified Trees (CMTs) and other cultural and spiritual sites within and around the Project Footprint;
- Damage and/or destruction of areas holding place names, resulting in the removal of a place from the traditional landscape;
- Loss of TEK associated with place names removed from the cultural fabric;
- Damage to transportation corridors, including an important transportation route between the 40 km and 55 km markers of the proposed Project Footprint, along the Pine River which is of noted importance to Halfway River First Nation; and
- Change in timing or complete loss of access to harvest sites, traditional use sites, spiritual sites, habitation areas and historical sites.

Halfway River First Nation indicated in their TLUS that access to culturally important sites including cabins and campsites, would be impacted along the proposed Project Footprint at kilometre points 20-60, along the Pine River, an area of high traditional land use density.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigations and proposed conditions of any EAC issued, EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Halfway River First Nation, the proposed Project may result in negligible impacts on Halfway River First Nation’s culturally important sites, trails and travelways.

Other matters of concern to Halfway River First Nation

Issues Raised	EAO/Proponent Response
Request that the possible effects of frost bulb formation be considered, particularly for cold regions.	The Proponent has stated that frost bulb formations are not likely to occur within the environmental setting of the proposed Project as Arctic conditions which facilitate them are not typically encountered within the Project area.
<p>Requests that areas where surface water and groundwater interact be identified, and that appropriate mitigation measures be identified, such as avoiding trenched crossings at sites where surface water and groundwater interact. This information should be presented in the Application.</p> <p>Concern that the Application’s conclusion that the Project is not likely to result in any potential significant adverse effects on surface water and groundwater would be reasonable for relatively large watersheds but is questionable for small watersheds (>10km²).</p>	<p>The Application assumes that the proposed route may cross areas with natural groundwater/surface water, and outlines water quality mitigation based on industry accepted best practices accordingly. The EAO is satisfied with this response.</p> <p>The Proponent responded that it completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. Cumulative adverse effects were assessed at the Regional Study Area scale as defined in the AIR.</p>
<p>Potential impacts to wetlands:</p> <p>Compressor and meter stations construction have a more profound effect on wetlands than upland areas. Halfway River First Nation requests that the Application indicate that compressor and meter stations will be located to avoid</p>	<p>Refer to Part B section 5.4 of this report and section 9 of Application for an analysis of potential effects on Wetlands. The Proponent provides evaluation criteria information used in the selection of potential compressor and meter station sites in section 1.4.14 of the Application.</p> <p>Where a wetland cannot be avoided, the</p>

Issues Raised	EAO/Proponent Response
<p>disturbance to wetlands, and keep road construction to a minimum.</p> <p>Requests that the proposed Project be re-routed north to avoid wetlands at the following locations:</p> <ul style="list-style-type: none"> • Map Sheet 17 - km 106-108; • Map Sheet 24 - km 154.5; • Map Sheet 32 - km 203.7-204.2; and • Map Sheet 33 - km 210-211. <p>Halfway River First Nation requests the RSA be assessed using the same aerial photography methodology conducted for the LSA, and that results of those assessments be included in the Application. They express concern about the use of BEI and BC Watershed Atlas data for accurate wetland assessment at scales that the mapping was presented.</p> <p>Halfway River First Nation indicated 15-25% of wetlands were visited according to the TEM field sampling intensity level adopted, requests an explanation in the Technical Data Report as to how red-listed communities or plant species can be identified in this manner and a methodology for ground truthing red-listed communities and species be undertaken.</p> <p>Request mitigation measures be specified for each major wetland type.</p> <p>Request the Application identify the location of wetlands – particularly bogs and treed wetlands – that may be locally significant and impacted by the Project, and identify the mitigation measures that will be applied within these areas.</p>	<p>Proponent would seek to reduce the footprint in the wetland through detailed construction planning and engineering design by limiting extra temporary workspace and minimizing construction footprint.</p> <p>The Proponent provides further evaluation criteria information used in the selection of potential compressor and meter station sites in section 1.4.14 of the Application.</p> <p>EAO acknowledges that avoidance of construction footprint in all of the wetlands listed may not be practical due to terrain features, overlapping footprint with other projects, and constructability challenges. Where a wetland cannot be avoided, the Proponent would seek to reduce the footprint in the wetland through detailed construction planning and engineering design by limiting extra temporary workspace and minimizing construction footprint.</p> <p>EAO is of the opinion that wetland hydrologic function, habitat function and biogeochemical function are generally expected to be resilient to disturbance when appropriate mitigation is implemented.</p> <p>The Proponent indicated their assessment of potential adverse effects on wetlands was completed in accordance to the requirements in the AIR and the mapping of the Wetlands RSA used an accepted BC government database, the BC Freshwater Atlas wetlands layer.</p> <p>The Proponent indicated the mitigation measures identified (Table 9-8 of the Application) are applied to all wetland classes. All wetland mitigation identified in the Environmental Management Plan ([EMP] Appendix 3-A) would be applied to all wetlands encountered during construction of the proposed Project.</p> <p>According to the Proponent, specific locations of</p>

Issues Raised	EAO/Proponent Response
	treed bogs and swamps that are crossed by the proposed route are identified in the wetland line of the Resource Information Section on the Environmental Work Sheets (Appendix 3 C).
The Application should identify where Wildlife Tree Patches (WTPs) will be removed or negatively impacted and identify appropriate mitigation measures (e.g., replacement, timing restrictions and avoidance).	In its route selection, the Proponent has noted that they would avoid these areas where practical. Where avoidance is not practical, the Proponent would adhere to the requirements of the OGC.
Request that habitat ratings for moose be properly assigned and habitat values properly determined, and that this information be included in the Application.	The Proponent noted that suitable habitat adjacent to busy primary roads was downgraded by two classes to a minimum of (5) 'very low', and habitat suitable adjacent to less-busy tertiary roads (moderate intensity disturbance features) was downgraded by one class to a minimum of (5) 'very low'. The Proponent also acknowledged that moose may make use of habitat adjacent to roads and that this is captured within the models used. However, the models are adjusted to provide results in alignment with known moose habitat preferences.
Table 4-09 documents Wildlife and Wildlife Habitat TEK and related issues of concern for the Prince George Land and Resource Management Plan Region. Few concerns related to TEK were identified, and for identified concerns, the Application does not indicate how these concerns will be addressed or mitigated.	<p>In section 3.2.1 of the Application, the Proponent describes how available Aboriginal Traditional Knowledge would inform the assessment.</p> <p>For the purposes of determining the appropriateness of the information in the Application, EAO was satisfied that the Proponent's Application contained the information as set out in the Application Information Requirements (AIR). The Proponent committed to develop and update – and EAO has set out a proposed condition to require the Proponent to do so – the Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups.</p> <p>Any additional TLU information provided by Aboriginal Groups would also help inform the development of plans and any additional site-</p>

Issues Raised	EAO/Proponent Response
	<p>specific mitigation required. EAO has proposed a condition requiring the Proponent to avoid prohibiting access for Aboriginal Groups during operations to carry out their traditional use activities identified in TLUS provided to the Proponent prior to construction.</p>
<p>Halfway River First Nation notes section 5.4.1 indicates 96% of the proposed route in non-Agricultural Land Reserve areas falls within moderate or high categories for erosion potential, primarily due to steep slopes and heavy rainfall in some areas. They suggest steep slopes should represent a smaller portion of the route as the Interior Plateau Physiographic Division (flat or gently rolling uplands) covers 56% of the proposed route.</p>	<p>The Proponent noted following reasons for the discrepancy between proportions of areas rated moderate to high for erosion potential and the proportion of the route through the Interior Plateau:</p> <ol style="list-style-type: none"> 1. Steeper slopes make up a substantial proportion of the area including at stream crossings and other features. At the scale of soil mapping carried out for the project, slopes are easily delineated and rated for erosion risk. At the scale of mapping of the Physiographic Division, smaller and more steeply sloping areas are not discernible. 2. In areas of high rainfall in western parts of the proposed route, soils receive higher erosion risk rating that would occur for soils on similar slopes in areas of lower rainfall.
<p>Requests the Application indicate under what conditions it would be considered not feasible to avoid open burning of cleared debris and unsalvageable timber to decrease GHG emissions of the Project, which was suggested in recommendation/mitigation by Table 6-21. Suggests the Project's emissions and potential future projects should be compared against the Natural Gas Climate Action Team's interim provincial targets and the results in the Application.</p>	<p>The Proponent outlined the factors it considers in determining the feasibility in avoiding the burning of biomass.</p> <p>EAO has determined there to be a significant adverse effect from GHG emissions and has proposed a condition requiring the development of a GHG emissions Management Plan.</p>
<p>Halfway River First Nation requests that the Project should not automatically be considered reversible with respect to vegetation or wildlife key indicators as regenerating forests could take one hundred years and in some areas of</p>	<p>The Proponent stated that Section 3 of the Application outlines that significance determination is not made based on only one of the assessment criteria used to characterize the residual adverse effect. Consideration of all of the assessment criteria presented in Table 3-5 of the Application,</p>

Issues Raised	EAO/Proponent Response
<p>Halfway River First Nation traditional territory Douglas fir trees will be removed that will likely never be replaced.</p>	<p>including reversibility, characterizes the residual adverse effect and leads to the conclusion about significance. EAO's assessment of effects to vegetation is in Part B section 5.11 of this report.</p>
<p>Halfway River First Nation requests the Application consider the possible effects of climate change on water resources.</p>	<p>Potential effects of climate change on water resources were included in section 7 of the Application, and in section 22 of the Application, which includes extreme weather events, fire, slope stability and mass wasting events, future climate scenarios, and forest pests and pathogens.</p>
<p>Halfway River First Nation expresses concern that Terrestrial Ecosystem Mapping (TEM), relied upon for identifying the location of Ecological Communities of Concern in the application, may be inaccurate and not precise enough to locate rare communities.</p> <p>Halfway River First Nation requests that a method for verifying and marking the location of Ecological Communities of Concern be included in the Application and that the location of these communities be verified using this method.</p> <p>Requests rare plant surveys during pre-construction and construction phases within the Project footprint and that location of invasive plants within the footprint be identified and marked.</p>	<p>The Proponent stated that the standards, guidelines and methods used for Terrestrial Ecosystem Mapping (TEM) were identified in section 3.4.1 of the AIR reviewed by working group members and the EAO and have been adhered to. Field Survey effort for TEM plots targeted ecological communities of concern within the Proposed route. Additional fieldwork is planned to assess the location of particular ecological communities of concern within the project footprint.</p> <p>Invasive plants would be located and marked during construction activities, and dealt with according to the Provincial Regulation. The Proponent would also develop an Invasive Plant Management Plan in advance of construction.</p>
<p>The Application acknowledges adverse effects of the project for every wildlife Key Indicator but determines that likely adverse impacts of the Project are “not significant” for each KI without adequate supporting data in many cases.</p> <p>Habitat models were the primary platform for assessing effects on wildlife KIs. Some of the models were subject to</p>	<p>The Proponent acknowledges that aspects of the methodologies and terminology may not be accepted by all parties, but the methodologies employed in the Application are consistent with best industry practice and the AIR.</p> <p>The Proponent indicated that habitat suitability models were completed following provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods</p>

Issues Raised	EAO/Proponent Response
<p>“adjustments”, with the result that habitat was deemed to be of much lower value than in reality. Halfway River First Nation expected high habitat values to be recognized for moose and marten within Halfway River First Nation’s portion of the Project area. However, these were not reflected in the assessments.</p> <p>Certain mitigation measures proposed during construction are not feasible.</p> <p>Little field work was done in Halfway River First Nation area, there is no existing protection for resources such as designation of Ungulate Winter Ranges or Wildlife Habitat Areas, and few important wildlife features are identified. Confidence level associated with potential impacts to all wildlife KIs should be considered low.</p>	<p>are described in detail in Section 3.6 of the Wildlife Technical Data Report. The Proponent committed to pre-construction surveys to identify wildlife habitat features which warrant site-specific mitigation (Table 10-6 of the Application).</p>
<p>There are 82 archaeological sites within 1000 metres of the proposed pipeline route, but the location of these sites has not been provided in the Application. The location of these sites should be shown in the Application so that Aboriginal Groups can determine which sites are in their areas of interest.</p> <p>Archaeological impact assessment fieldwork in 2013 discovered 30 previously unrecorded archaeological sites and 5 previously unrecorded historic sites within the Project footprint, but the location was similarly not shown in the Application.</p> <p>The archaeology baseline inventory is incomplete. Areas where the inventory is incomplete should be shown in the Application.</p>	<p>The Proponent indicates it understands its obligations under the BC Heritage Conservation Act include avoiding the publication of details, including the location of archaeological sites in publically available documents.</p> <p>The Proponent completed a comprehensive assessment of the potential adverse effects of the Project in accordance with the AIR, issued by the EAO in May 2013, and expects to submit its Archaeological Impact Assessment (AIA) final report in early 2015.</p>

7.1.5 McLeod Lake Indian Band

Context

- McLeod Lake Indian Band is an adherent to Treaty 8 pursuant to the 2000 McLeod Lake Indian Band Treaty No. 8 Adhesion and Settlement Agreement. Culturally, McLeod Lake Indian Band is part of the larger Sekani (*Tse'khene*) Aboriginal group and shares kinship with the Kwadacha First Nation and Tseh Kay Dene First Nation. It also has cultural ties with western *Dane-za* or *Dunne-za* (Beaver) groups, such as West Moberly First Nations and Halfway River First Nation.
- McLeod Lake Indian Band includes a 108,000 km² area with 21 reserves totaling 20,053 ha. The primary reserves are located about 150 km north of Prince George. Total Band membership is just over 500 people, with an on-reserve population of about 80 and an off-reserve population of about 433.
- The government of McLeod Lake Indian Band consists of a Chief and six Councillors. Elections are held every three years and conducted in accordance with the McLeod Lake Indian Band custom election code.
- Band members continue to use their reserve land and land described under the Adhesion and Settlement Agreement for a variety of cultural activities, including camping, travel, fishing, hunting, trapping, plant gathering and heritage activities.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- The proposed Project is expected to cross 224 km of the McLeod Lake Indian Band's territory. McLeod Lake Indian Band is listed in Schedule B of the Section 11 Order. Although information on construction camps is preliminary, the Proponent has indicated that there are 6 camps proposed that would overlap with McLeod Lake Indian Band's area of traditional use (Main #1A, Wilde Lake, Main #1B, Main #2A, Main #3A, and Global Winton)
- Given the nature and location of the proposed Project and EAO's view of the potential impacts to Treaty 8 rights, EAO is of the view that the duty to consult McLeod Lake Indian Band lay in the middle of the *Haida* spectrum.

Summary of consultation

McLeod Lake Indian Band was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponent's Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. McLeod Lake Indian Band was also provided with opportunities to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided McLeod Lake Indian Band with \$5,000 in capacity funding during the pre-Application phase of the EA for the proposed project and \$10,000 in capacity funding during the Application Review phase of the EA. The Proponent provided initial capacity funding for McLeod Lake Indian Band to engage in discussions regarding the proposed Project Capacity funding under an Initial Funding Agreement dated November 2012. McLeod Lake Indian Band and Coastal GasLink continue to discuss further capacity funding to support McLeod Lake Indian Band's ongoing engagement.

McLeod Lake Indian Band, together with Doig River First Nation, Saulteau First Nations, and West Moberly First Nations, provided input to the EA process through written comments on the screening of the Application and extensive written comments on the Application. McLeod Lake Indian Band also participated in a working group meeting March 5, 2013 and participated in the Natural Gas Pipeline Workshop on February 4, 2014 and May 29-30, 2014.

Doig River First Nation, Saulteau First Nations, McLeod Lake Indian Band and West Moberly First Nations provided a letter to EAO on September 26, 2014 with final remarks about the proposed Project, as described below in section 7.1.10.

The Proponent provided McLeod Lake Indian Band with the opportunity to be involved in socio-economic baseline data collection for the proposed Project, but McLeod Lake Indian Band elected not to participate.

An Interim Knowledge and Use Study conducted for the McLeod Lake Indian Band dated April 30, 2014 was provided to EAO and the Proponent and identified specific issues and concerns of McLeod Lake Indian Band and also identified use of numerous sites within the LSA and RSA for the proposed Project. The Study identifies sites that have been "extensively and intensively" used by McLeod Lake Indian Band members for hunting, fishing, trapping, camping, plant collecting and cultural practices. Many of these are areas along the Sukunka River, Anzac River, Parsnip River and Kerry Lake.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with McLeod Lake Indian Band on June 5, 2012, to share Project-related information, to determine the community's interest in the proposed Project and to develop a process for the community's involvement in Project activities. Since this date, McLeod Lake Indian Band and the Proponent have held 16 meetings on various Project-related subjects. The discussions have included: ongoing Project information and updates; contracting and employment opportunities; Project benefits; distribution and review of a draft ancillary site map outlining the proposed features, such as access roads, compressor stations, and camp sites; and the selection of the proposed route through their traditional territory. The Proponent has also attended a McLeod Lake Indian Band community meeting to review the proposed Project with community members. Issues raised by McLeod Lake Indian Band and the Proponent's responses

are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent’s engagement activities with McLeod Lake Indian Band as well as the Proponent’s proposed mitigation to issues raised is provided in the CGL Aboriginal Consultation Report #3.

Potential impacts from the proposed Project to McLeod Lake Indian Band Treaty 8 rights and other interests

Hunting

McLeod Lake Indian Band raised key concerns regarding wildlife, wildlife habitat and hunting, including:

- Concerns regarding caribou and caribou habitat;
- Line-of-site for predators on the right-of-way which may increase chances of predation on moose and elk;
- Important habitat (feeding area) for moose potentially effected during construction, moose licks identified;
- Request for avoidance of nesting/rearing areas, if possible and/or the relocation/re-creation of suitable habitat;
- Disruption of wildlife during mating season;
- Potential effects of construction noise on wildlife;
- Effects on bear habitat, bear attacks on humans as a result of wildlife displacement;
- Effects on bird habitat, bird nests, grouse and woodpecker habitats;
- Effects to beaver habitat and beaver lodge/dams; and
- Effects on wolverine and wolverine habitat.

The Application states that McLeod Lake Indian Band members hunt or trap beaver, marten, squirrel, mink, otter, lynx, wolves, coyote, fisher, weasel, fox, muskrat, moose, elk, deer, mule deer, bear, mountain marmot, blue grouse, spruce grouse, goose, duck, ptarmigan, rabbit, sheep, goat and groundhog. Birds that were hunted included blue winged teal, sharp-tailed grouse, goose, mallard, pintail, green-wing teal and ruffed and spruce grouse.

The Application (Section 23, Table 23-10) identified the following key hunting locations for McLeod Lake Indian Band:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
48 km north of KP 3	Wilder Creek
10 km west of KP 46	Del Rio area
16 km northwest of KP 46	Jackfish Lake area
56 km northwest of KP 73 to 34 km north of KP 0	Peace River, Dinosaur Lake to north of the proposed route
167 km northwest of KP 80 on Williston Lake	Ospika area
Crosses at KP 191.7	East of Parsnip River, specific location unknown
63 km southeast of KP 192	Upper Parsnip River
23 km south of KP 207	South of Bear Lake
38 km southeast of KP 207	Wicheeda Lake
6 km south of KP 211	Angusmac Lake
9 km south of KP 213	Between Davie Lake and Angusmac Creek
13 km south of KP 214	Davie Lake
3 km north of KP 216	Kerry Lake
16 km southeast of KP 217	Chuchinka Creek (south and north branches)
19 km southeast of KP 222	Greater Bear Lake
1 km east of KP 239	Merton Lake
23 km east of KP 246	Dominion Lake
Crosses at KP 256	Muskeg River

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report. EAO notes that 2 of the 18 key hunting areas identified by McLeod Lake Indian Band would be impacted by the Project footprint. Other areas are located between 1 and 167 km away from the proposed Project route.

In consideration of EAO's analysis of residual and cumulative effects to wildlife and wildlife habitat, current and traditional land use, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and taking into account information provided by McLeod Lake Indian Band, the proposed Project may result in moderate effects on McLeod Lake Indian Band's hunting activities in some areas, particularly during the construction phase, such that the proposed Project is expected to have a moderate impact on McLeod Lake Indian Band's Treaty right to hunt.

Fishing

McLeod Lake Indian Band raised key concerns regarding fish and fish habitat and fishing (captured in the Application's section 23, Aboriginal Consultation Report #3 and Application Review Tracking Table), including:

- Effects on aquatic life at water crossings;

- Alteration or loss of riparian habitat;
- A request for water quality monitoring;
- The presence of a large creek with fishing sites in right of way; and
- Effect of construction on fishing sites.

McLeod Lake Indian Band members are reported to harvest rainbow trout, Dolly Varden, grayling and char. Section 23 (Table 23-10) of the Application identifies the following key fishing locations for McLeod Lake Indian Band:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
43 km north of KP 0	Confluence of Peace and Moberly rivers
1 km east of KP 239	Merton Lake
10 km west of KP 46	Del Rio area
16 km northwest of KP 46	Jackfish Lake area
62 km north of KP 46	Halfway River
38 km southeast of KP 207	Wicheeda Lake
6 km south of KP 211	Angusmac Lake
13 km south of KP 214	Davie Lake
3 km north of KP 216	Kerry Lake
16 km southeast of KP 217	South and north Branches of Chuchinka Creek
19 km southeast of KP 222	Greater Bear Lake
25 km north of KP 222	McLeod Lake
23 km east of KP 246	Dominion Lake

There were no important fishing areas identified in the Application that were shown to be overlapping with the proposed route.

The proposed Project corridor would traverse approximately 225 km of McLeod Lake Indian Band claimed traditional territory, with approximately 329 watercourse crossings, 24 of which have indicated fish presence. There are 12 large crossings as follows:

- Sukunka River KP64.03
- Highhat River KP64.69
- Blind Creek KP91.16
- Burnt River Side Channel KP96.24
- Burnt River KP96.34
- Unnamed Tributary to Anzac River KP142.91, KP160.64, KP173.32, KP180.15
- Anzac River KP154.29
- Crocker Creek KP164.49

- Parsnip River KP189.24
- Redrocky Creek KP200.55
- Crooked River KP211.89
- Unnamed Tributary to Crooked River KP214.24, KP215.07

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report. In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish, fish habitat and current and traditional land use, the proposed Project is expected to result in minor impacts on McLeod Lake Indian Band's Treaty 8 right to fish.

Trapping

McLeod Lake Indian Band raised key concerns regarding wildlife, wildlife habitat and trapping, including:

- Potential effects on trap lines; and
- A request for recognition of trap line owner rights and notification to registered trappers prior to scheduled construction.

Section 23 (Table 23-10) of the Application identified the following key trapping areas that are important to McLeod Lake Indian Band:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
10 km west of KP 46	Del Rio area
16 km northwest of KP 46	Jackfish Lake area
48 km north of KP 3	Wilder Creek
34 km north of KP 0	Peace River
167 km northwest of KP 80	Ospika area
Crosses at KP 191.7	East of Parsnip River, specific location unknown
63 km southeast of KP 192	Upper Parsnip River
23 km south of KP 207	South of Bear Lake
38 km southeast of KP 207	Wicheeda Lake
6 km south of KP 211	Angusmac Lake
9 km south of KP 213	Between Davie Lake and Angusmac Creek
13 km south of KP 214	Davie Lake
3 km north of KP 216	Kerry Lake
16 km southeast of KP 217	Chuchinka Creek (south and north branches)
19 km southeast of KP 222	Greater Bear Lake

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
1 km east of KP 239	Merton Lake
23 km east of KP 246	Dominion Lake
Crosses at KP 256	Muskeg River, specific location unknown

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report. Two of the trapping areas identified by McLeod Lake Indian Band are expected to intersect the proposed pipeline route. EAO is of the opinion that there may be potential adverse effects to McLeod Lake Indian Band’s Treaty 8 right to trap.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EA Certificate issued, and EAO’s analysis of potential residual and cumulative effects on furbearers trapped by McLeod Lake Indian Band as well as to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project is expected to result in minor impacts on McLeod Lake Indian Band’s Treaty 8 right to trap.

Gathering

McLeod Lake Indian Band identified key concerns regarding vegetation and gathering activities, including:

- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants; and
- Introduction and spread of invasive plant species.

McLeod Lake Indian Band members have also expressed concern that development within their traditional territory over the past 50 years has greatly reduced areas available for berry picking, particularly at Bear Lake.

Plant gathering for subsistence and medicinal purposes is widely practiced by McLeod Lake Indian Band members. Wetland areas have been reported as being ideal for harvesting. Plants identified as being involved in preparing traditional medicine include Labrador tea, mint tea, jack pine (both bark and sap), pine (both bark and sap), balsam, strawberries, devil’s club, red willow, juniper, violets, fiddleheads, soapberries and fireweed. Other harvested plants include wild onion, poplar, rhubarb, stinging nettles, mushrooms, spruce boughs, wild rice, dandelions and cow parsnip. Berry species harvested include blueberries, soapberries, huckleberries, low and high bush cranberries, Saskatoon berries, strawberries, raspberries, chokecherries, currants and

gooseberries. Section 23 (Table 23-10) of the Application presents the following plant gathering areas of importance to McLeod Lake Indian Band:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
16 km northwest of KP 46	Jackfish Lake area
17 km northwest of KP 46	Halfmoon Lake
60 km west of KP 81	Pine Pass
52 km west of KP 91	Azouzetta Lake
31 km southeast of KP 190	Parsnip River (near Hominka River)
6 km south of KP 211	Angusmac Lake
13 km south of KP 214	Davie Lake
3 km north of KP 216	Kerry Lake
19 km southeast of KP 222	Greater Bear Lake
25 km north of KP 222	McLeod Lake
1 km east of KP 239	Merton Lake
10 km west of KP 46	Del Rio area
23 km east of KP 246	Dominion Lake
Crosses at KP 256	Muskeg River, specific location unknown

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. McLeod Lake Indian Band identified two gathering sites are expected to intersect the proposed pipeline route.

The proposed Project is expected to have a minor impact on McLeod Lake Indian Band's ability to access identified gathering sites, as the zone of Project impacts to wetlands and vegetation is relatively narrow, and it is unclear whether the final Project route will cross gathering sites identified in the Application. Impacts may be further mitigated through detailed route planning at the permitting stage.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to vegetation, current and traditional land use, the proposed Project is expected to result in minor impacts to McLeod Lake Indian Band's gathering activities.

Culturally important sites

McLeod Lake Indian Band raised the following key concerns about the potential disturbance of sacred areas.

- Culturally Modified Trees (CMTs) were identified along the right of way;
- Potential archaeological site, potential archaeological site disruption and effects on a culturally important site; and
- Potential disturbance of sacred areas.

Section 23 (Table 23-10) of the Application identifies the following culturally important sites for McLeod Lake Indian Band:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Sacred Areas	
Crosses at KP 67	Sukunka River, specific location unknown
63 km southeast of KP 168	Arctic Lake area
45 km west of KP 205	Carp Lake area
13 km south of KP 214	Davie Lake
3 km north of KP 216	Kerry Lake
19 km southeast of KP 222	Greater Bear Lake
Trails and Travelways	
41.9 km east of KP 0	Peace River to Dawson Creek
40 km northeast of KP 0	North Band of Peace River (Hudson's Hope to Alberta)
1.6 km northwest of KP 49	Pine River to Hudson's Hope Trail (via Moberly Lake)
Crosses at KP 67	Sukunka River, specific location unknown
60 km east of KP 123	Tumbler Ridge area (trail)
426 km northwest of KP 141	Giscome Portage Trail (linking the arctic and Pacific drainages that divide Summit Lake)
Crosses at KP 189	Reynolds Creek to Peace uplands Trail, from Parsnip River to plateau on east side of Rocky Mountains, specific location unknown
20 km northwest of KP 174	McLeod Lake to Reynolds Creek
Crosses at KP 189	Manson River to Parsnip River Trail, specific location unknown
26 km northwest of KP 190	Isadore Trail
11.1 km northwest of KP 228	Weedon Lake to McLeod Lake Trail
573 km southeast of KP 288	McIntyre Lake Trail
7.6 km southeast of KP 219	Davie Lake to fort St. James
Gathering Places	
13 km south of KP 214	Davie Lake
3 km north of KP 216	Kerry Lake
Habitation Sites	

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
61 km east of KP 123	Babcock Mountain
18 km northwest of KP 183	Reynolds Creek
6 km south of KP 211	Angusmac Lake
13 km south of KP 214	Davie Lake
3 km north of KP 216	Kerry Lake
100 km northwest of KP 222	Mount Milligan
1 km east of KP 239	Merton Lake
23 km east of KP 246	Dominion Lake

Section 6.2.5 of this report characterizes the potential impacts of the proposed Project on Aboriginal Groups' archaeological resources and cultural heritage Interests. One sacred area was identified as crossing the proposed route, near the Sukunka River, and another area was identified in the Application as being 3 km away from the proposed route. Three trails were identified as crossing the proposed route. Several other trails and habitation sites were identified in the Application as being 1 to 10 km away from the proposed route.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to heritage resources and traditional land use – as discussed in section 6.2.5 of this report – the proposed Project is expected to result in minor to moderate impacts to McLeod Lake Indian Band's use of culturally important sites, trails and travelways.

7.1.6 Prophet River First Nation

Context

- Prophet River First Nation is a signatory to Treaty 8 and a member of the Treaty 8 Tribal Association. Prophet River First Nation, also known as Dene Tsaa tse K'Nai First Nation, is part of the wider Dane-za or Dunne-za language group and was historically known as the Beaver Tribe.
- Prophet River First Nation has one reserve that is located 100 km south of Fort Nelson at Mile 233 of the Alaska Highway in the Northern Rockies Regional District of BC.
- In 2006, Prophet River First Nation had a registered population of about 263. The on-reserve population was about 103, with about 10 individuals living on other reserves and 150 individuals living off reserve. Prophet River First Nation elects its Chief and two Councillors by custom electoral system. Prophet River First Nation has been affiliated with the Treaty 8 Tribal

Association since it formed in 1982.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- The proposed Project is not expected to overlap the area understood to be the traditional territory of Prophet River First Nation.
- Given its distance from the proposed Project, Prophet River First Nation was listed in Schedule C of the Section 11 Order. Given the nature and location of the proposed Project and EAO's assessment of the potential impacts to Prophet River First Nation's Treaty 8 rights, EAO is of the view that the duty to consult Prophet River First Nation lies at the low end of the *Haida* spectrum.

Key issues and concerns raised

Through consultation with the Proponent, Prophet River First Nation brought forward initial concerns, including meaningful contracting and employment opportunities, and potential adverse effects on caribou.

The Proponent documented in its Aboriginal Consultation Report (section 23 of the Application) that, through consultations, Prophet River First Nation indicated that their Treaty rights and Interests were not likely to be affected by the proposed Project. EAO did not receive information from Prophet River First Nation to indicate otherwise.

Potential Impacts of the proposed Project to treaty rights

The area understood to be Prophet River First Nation's area of traditional use lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear and caribou), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSA are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is generally not expected that residual adverse effects on any of

the above mentioned VCs would extend into the area understood to be Prophet River First Nation's area of traditional use. EAO has developed conditions requiring mitigation and monitoring of the Hart caribou herds and grizzly bear in proximity of the proposed Project for the life of the proposed Project, as well as financial compensatory offset measures to assist with the management of caribou within the proposed Project area.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Prophet River First Nation's area of traditional use, EAO concludes that the proposed Project is not expected to result in any adverse effects on Prophet River First Nation's Treaty rights to hunt, trap, and fish, nor are adverse effects expected to Prophet River First Nation's gathering activities or culturally important sites.

7.1.7 Sauteau First Nations

Context

- Sauteau First Nations are a signatory to Treaty 8 and a member of the Treaty 8 Tribal Association. The Sauteau is a Dunne-Zaa, Anishnaubemowin (Sauteau), and Nēhiyawēwin (Cree) speaking community.
- Sauteau First Nations' reserve is located at the east side of Moberly Lake. The reserve is 3,026 ha in size and the total on-reserve population is 394 out of a total of 914 members. Leadership includes one Chief and four Councillors. The Chief and each of the Councillors represent one of the five founding Sauteau First Nations families. Each family nominates a representative who becomes a Councillor. The general Sauteau First Nations membership elects a Chief every three years from among these five families.
- Sauteau First Nations continue to use their traditional territory for fishing, hunting, trapping, berry picking and plant gathering. Wildlife quality and abundance, water and air quality, access to undisturbed lands, the ability to meaningfully practice treaty rights for traditional food and medicine harvesting and cultural continuity have all been identified as essential.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- The proposed Project is expected to cross 139 km of the area understood to be Sauteau First Nations' area of traditional use. Although information on construction camps is preliminary, the Proponent has indicated that there are 6 camps proposed that would

- overlap with Saulteau First Nations' area of traditional use (Main #1A, Wilde Lake, Main #1B, Main #2A, Main #3A, and Global Winton).
- Saulteau First Nations is listed on Schedule B of the Section 11 Order.
 - EAO's analysis of the potential impacts on Saulteau First Nations treaty rights and other interests is discussed below. Given the nature and location of the proposed Project, EAO is of the view that the duty to consult Saulteau First Nations lies in the middle part of the *Haida* spectrum.
 - Saulteau First Nations is a member of the Treaty 8 Tribal Association, which is an administrative body that provides support and advice to 5 BC First Nations residing in and around the Peace River Valley area of northeastern BC. EAO consults directly with Treaty 8 Tribal Association member nations regarding the potential effects of the proposed Project on their treaty rights.

Summary of consultation

Saulteau First Nations was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponent's Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Saulteau First Nations was also provided with opportunities to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided Saulteau First Nations with \$5,000 in capacity funding during the pre-Application phase of the EA for the proposed project, and \$10,000 in capacity funding during the Application Review phase of the EA. The Proponent provided initial capacity funding for Saulteau First Nations to engage in discussions regarding the proposed Project Capacity funding Under a Letter of Agreement dated November 2012, and under a Memorandum of Understanding between Saulteau First Nations and the Proponent dated October 2013.

Saulteau First Nations, together with Doig River First Nation McLeod Lake Indian Band, and West Moberly First Nations, provided input to the EA process through written comments on the screening of the Application and extensive written comments on the Application. Saulteau First Nations also participated in working group meetings on March 4 - 5, 2013 and participated in the Natural Gas Pipeline Workshop on February 4, 2014 and May 29-30, 2014.

Doig River First Nation, Saulteau First Nations, McLeod Lake Indian Band and West Moberly First Nations provided a letter to EAO on September 26, 2014 with final remarks about the proposed Project, as described below in section 7.1.10. Saulteau

First Nations sent a separate letter to EAO on September 26, 2014 outlining its concerns with the EA process and EAO's assessment Report. While it is unclear whether the September 26, 2014 letter is intended as a separate submission to Ministers, EAO will include this submission in the EA referral package to Ministers. Saulteau First Nations participated in biophysical field studies, but did not provide TEK. At the conclusion of the 2013 field season, Saulteau First Nations was provided with a Results Review Memo and was contacted with an offer to meet and review the information for accuracy, completeness and confidentiality.

The Proponent offered Saulteau First Nations the opportunity to conduct a Traditional Land Use (TLU) study to inform the Application, site specific mitigation, and detailed construction planning to identify strategies to avoid, reduce or mitigate potential adverse effects on TLU activities. The Proponent provided a draft Traditional Knowledge Agreement to Saulteau First Nations on December 19, 2012. Saulteau First Nations committed to complete a TLU Study and submitted an interim progress report on September 3, 2013 to inform the Application. On October 16, 2013 the Proponent met with Saulteau First Nations for a results review meeting to discuss information provided during their participation in the TEK program for the 2013 field season. Saulteau First Nations provided a final TLU report on February 11, 2014 and is currently working on an amendment. The Proponent met with Saulteau First Nations on September 9, 2014 during a TLU site-specific mitigation meeting, which focused on follow up to TLU studies carried out by the communities. Saulteau First Nations provided a revised final TLU report on August 11, 2014. In its letter to EAO on September 26, 2014, Saulteau First Nations advised EAO that information from the final TLUS Report had not been added to EAO's draft Part C. EAO obtained this Report from the Proponent on October 6, 2014 and considered the information in the final report.

The TLUS provides that to account for margin of error and protect confidentiality of locations, all reported use value point locations are randomized by 250 m and are shown with a 1 km buffer. The spatial boundaries depicted in the TLUS that are used in relation to hunting, fishing, trapping, gathering and significant sites for the Project Footprint, LSA and RSA by Saulteau First Nation differ from those used by EAO for wildlife (in Section 6.2.1 and 6.2.3 of this report), fish and fish habitat (Section 6.2.2), plants/gathering (Section 6.3.4), and archaeology and cultural heritage (Section 6.2.). EAO notes that the identified cultural, spiritual, environmental, habitation, subsistence and transportation areas identified in the TLUS are located within 250 m of the proposed Project route to 25 km away.

The Proponent provided Saulteau First Nations with the opportunity to be involved in socio-economic baseline data collection for the proposed Project. Saulteau First Nations provided a socio-economic interim report on September 9, 2013, which was used to

inform the Application and to inform collaborative and meaningful discussions about community benefits.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Sauteau First Nations on July 11, 2012, to share Project-related information, to determine the community's interest in the proposed Project and to develop a process for the community's involvement in Project activities. Since this date, Sauteau First Nations and the Proponent have held 22 meetings on various Project-related subjects. The discussions have included: ongoing Project information and updates; contracting and employment opportunities; Project benefits; distribution and review of a draft ancillary site map outlining the proposed features, such as access roads, compressor stations and camp sites; and the selection of the proposed route through their traditional territory, which involved a helicopter overflight. Issues raised by Sauteau First Nations and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Sauteau First Nations as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts from the proposed Project to Sauteau First Nations' Treaty rights and other interests

Hunting

Sauteau First Nations raised key concerns regarding wildlife, wildlife habitat and hunting, including:

- Potential effects on wildlife species including caribou, moose, beaver, bears and wolverine;
- Potential effects on wildlife habitat including nests, dens, mineral licks, calving areas, beaver dams and lodges, game trails and wildlife trees;
- Potential loss of feeding grounds and potential population loss, moose licks and calving areas;
- Habitat destruction and fragmentation;
- Movement of animals further away from preferred areas for harvesting;
- Increased traffic in preferred areas;
- Inability to pass on traditional knowledge due to lack of access to important places within the LSA and RSA;
- Impacts to beaver habitats (dams and lodges), deer, elk and grizzly habitat, wolverines and squirrel middens;
- Increased line-of-site and access for hunters and predators on moose and elk migration routes as well as related hunting areas;

- Potential destruction of historic trails, wildlife trails and game trails;
- Potential effects to bird (eagle) nests and habitat and bird migration;
- Potential effects of construction noise on wildlife; and
- Disruption of wildlife during mating season.

The Application states that moose, elk, deer, black bear, brown bear, grizzly bear and caribou are hunted by Saulteau First Nations members. Birds hunted include duck, goose and grouse. Eagle feathers are harvested as well. The following are the hunting locations identified as part of field studies by Saulteau First Nations and described in the Application (section 23, Table 23-6)

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
10 km east of KP 0	West of Kistatinaw
55 km north of KP 25	Boudreau Lake
6 km north of KP 33	Pine River
44 km north of KP 37.5	Monias Lake
28 km north of KP 46	Big Lake
40 km northwest of KP 46	Boucher Lake
60 km north of KP 48	Lower Farrell Creek
27 km north of KP 60	Jackfish Lake
32 km northwest of KP 72	Moberly Lake
41 km north of KP 73	Cameron Lakes
63 km northwest of KP 73	Klin-se-za
35 km northwest of KP 75	Moberly River

Saulteau First Nations conducted TEK and TLUS, which includes analysis of 64 knowledge and use mapping interviews conducted with 71 Saulteau First Nations members from July – August 2013. Within the Project footprint, Saulteau First Nations members reported 156 site-specific use values. Within the LSA, Saulteau First Nations members reported 574 site-specific use values. Members reported 1, 448 site-specific values within the RSA. Site-specific values reported in the LSA include cultural and spiritual sites, environmental values, habitation values, subsistence harvesting values, and transportation values. Additional non-site-specific values reported include: moose and other wildlife; fish and water; berries, medicine and other plants; access and continued use of lands and water; and cultural continuity.

A large concentration of these values occur in the Sukunka River Valley, which was shown to be an area of critical importance and use for Saulteau First Nations members,

particularly between the Sukunka River's confluence with the Pine River. Saulteau First Nations members reported that the valley provides important hunting for moose, elk, grizzly bear, and other wildlife, and that the Sukunka River has many good fishing areas along its length, which are relied on by Saulteau First Nations members. It is also an area for camping and for picking berries and medicinal plants. As the proposed Project route would run through the Sukunka Valley, the disturbance in the valley is of great concern to Saulteau First Nations members.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report. EAO notes that the hunting areas identified by Saulteau First Nations are between 6 and 63 km away from the proposed Project route.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use, and the relative distance between the area of the proposed Project and hunting locations identified by Saulteau First Nations, the proposed Project is expected to have moderate impacts on Saulteau First Nations' Treaty 8 right to hunt.

Fishing

Saulteau First Nations raised key concerns regarding fish and fish habitat and the Treaty 8 right to fish, including:

- Compressor station siting near watercourses and proximity of proposed compressor sites to active waterways and drainages;
- Potential effects on water quality and fish bearing streams related to construction, including equipment maintenance and watercourse crossings;
- Potential erosion on steep banked watercourse crossings;
- Potential effects on aquatic life, water flow, fish habitat, water quality/turbidity, watercourses and their watersheds, effects on water bodies;
- Potential pipeline leaks or spills near waterways; and
- Potential effects of construction on fish populations, contamination of fish spawning areas, habitat.

Section 23 (Table 23-6) of the Application identifies three important fishing locations for Saulteau First Nations:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
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Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
32 km northwest of KP 72	Moberly Lake
56 km northwest of KP 73	Peace River near Dinosaur Lake
35 km northwest of KP 75	Moberly River

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report. Fishing locations identified by Saulteau First Nations in the Application are between 32 and 56 km away from the proposed Project, where effects are expected to be negligible. In its letter to EAO on September 26, 2014, Saulteau First Nations identified the Sukunka River and Burnt River a high use fishing areas. The Final TLUS for Saulteau First Nations noted that fish was and continues to be historically an important component of Saulteau First Nations subsistence. Fish species caught by Saulteau First Nations included whitefish, grayling, jackfish, Dolly Varden or bull trout, rainbow trout, burbot, northern pike, and sucker.

Within the Project footprint, Saulteau First Nations members reported 156 site-specific use values. Within the LSA, Saulteau First Nations members reported 574 site-specific use values. Members reported 1, 448 site-specific values within the RSA. Site-specific values reported in the LSA include cultural and spiritual sites, environmental values, habitation values, subsistence harvesting values, and transportation values. Additional non-site-specific values reported include: moose and other wildlife; fish and water; berries, medicine and other plants; access and continued use of lands and water; and cultural continuity.

A large concentration of these values occur in the Sukunka River Valley, which was shown to be an area of critical importance and use for Saulteau First Nations members, particularly between the Sukunka River's confluence with the Pine River. Saulteau First Nations members reported that the Sukunka River has many good fishing areas along its length, which are relied on by Saulteau First Nations members. As the proposed Project route would run through the Sukunka Valley, the disturbance in the valley is of great concern to Saulteau First Nations members.

The proposed Project corridor would traverse approximately 139 km of the area understood to be Saulteau First Nations' area of traditional use, with approximately 140 watercourse crossings, 6 of which have indicated fish presence. There are 5 large crossings as follows:

- Sukunka River KP 64.03

- Highhat River KP 64.69
- Blind Creek KP 91.16
- Burnt River SideChannel KP 96.24
- Burnt River KP 96.34

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and conditions proposed by EAO, and EAO’s analysis of potential residual and cumulative effects on fish, fish habitat, current and traditional land use - as discussed in section 6.2.2 of this report - and the relative distance between the area of the proposed Project and fishing locations identified by Saulteau First Nations, the proposed Project is expected to have minor impacts on Saulteau First Nations’ Treaty 8 right to fish.

Trapping

Saulteau First Nations raised key concerns regarding wildlife, wildlife habitat and the Treaty 8 right to trap, including:

- Potential effects on trap lines;
- Potential effects of construction on declining porcupine populations; and
- A request for recognition of trap line owner rights and notification to registered trappers prior to scheduled construction.

Section 23 (Table 23-6) of the Application identifies the following trapping areas that are important to Saulteau First Nations:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
55 km north of KP 25	Boudreau Lake
6 km north of KP 33	Pine River
44 km north of KP 37.5	Monias Lake
28 km north of KP 46	Big Lake
40 km northwest of KP 46	Boucher Lake
60 km north of KP 48	Lower Farrell Creek
27 km north of KP 60	Jackfish Lake
63 km northwest of KP 73	Klin-se-za
35 km northwest of KP 75	Moberly River

In the final TLUS Report, Saulteau First Nations members reported 156 site-specific use values. Within the LSA, Saulteau First Nations’ members reported 574 site-specific use

values. Members reported 1, 448 site-specific values within the RSA. Site-specific values reported in the LSA include cultural and spiritual sites, environmental values, habitation values, subsistence harvesting values, and transportation values. Additional non-site-specific values reported include: moose and other wildlife; fish and water; berries, medicine and other plants; access and continued use of lands and water; and cultural continuity.

A large concentration of these values occur in the Sukunka River Valley, which was shown to be an area of critical importance and use for Saulteau First Nations members, particularly between the Sukunka River's confluence with the Pine River. Saulteau First Nations members reported that the valley provides important hunting for moose, elk, grizzly bear, and other wildlife, and that the Sukunka River has many good fishing areas along its length, which are relied on by Saulteau First Nations members. As the proposed Project route would run through the Sukunka Valley, the disturbance in the valley is of great concern to Saulteau First Nations members.

Saulteau First Nations have identified that there are trap lines held by Saulteau First Nations members that pass through the Sukunka River Valley and they have identified that the proposed Project route would pass through these trap lines. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report. EAO notes that trapping areas identified by Saulteau First Nations are located between 6 and 63 kilometres away from the proposed Project route.

In consideration of the Proponent's proposed mitigation measures and conditions proposed by EAO, and EAO's analysis of potential residual and cumulative effects on furbearers (trapped by Saulteau First Nations), and on current and traditional land use, and the relative distance between the area of the proposed Project and trapping locations identified by Saulteau First Nations, the proposed Project is expected to have minor impacts on Saulteau First Nations' Treaty 8 right to trap.

Gathering

Saulteau First Nations raised key concerns regarding vegetation and gathering, including:

- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants;
- Introduction and spread of invasive plant species; and
- Potential effects on wetlands areas with berries and medicinal plants, berry picking and harvesting sites.

Saulteau First Nations raised key concerns about the potential adverse effects on plants harvested, including the disturbance and alternation of plant gathering sites and places, and disruption of subsistence plant gathering activities.

Section 23 (Table 23-6) of the Application presents the following key plant gathering areas:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
10 km east of KP 0	West of Kiskatinaw
6 km north of KP 33	Pine River
44 km north of KP 37.5	Monias Lake
28 km north of KP 46	Big Lake
40 km northwest of KP 46	Boucher Lake
63 km north of KP 46	Northwest of Attachie
60 km north of KP 48	Farrell Creek
32 km northwest of KP 72	Moberly Lake
35 km north of KP 72	Moberly Lake
41km north of KP 73	Cameron Lakes
55 km northwest of KP 73	South of the Peace River
58 km northwest of KP 73	Dinosaur Lake north of Peace River
63 km northwest of KP 73	Klin-se-za
35 km northwest of KP 75	Moberly River
111 km northwest of KP 650	Alder Creek area

In the final TLUS Report, Saulteau First Nations identify that gathering plant foods for subsistence, medicinal and spiritual purposes was integral to Saulteau First Nations subsistence and livelihood. Berries were primarily harvested in mid-July through September, and were an important food source throughout the year. Berries harvested included saskatoons, huckleberries, blueberries, raspberries, gooseberries, crowberries, currants, chokeberries, juniper berries, and cranberries. Plants gathered for subsistence, medicinal and spiritual purposes included willow, mint, Labrador tea, rat root, and a variety of other herbs and roots. Fungi were also gathered for medicinal purposes and for consumption.

Within the Project footprint, Saulteau First Nations members reported 156 site-specific use values. Within the LSA, Saulteau First Nations members reported 574 site-specific use values. Members reported 1, 448 site-specific values within the RSA. Site-specific

values reported in the LSA include cultural and spiritual sites, environmental values, habitation values, subsistence harvesting values, and transportation values. Additional non-site-specific values reported include: moose and other wildlife; fish and water; berries, medicine and other plants; access and continued use of lands and water; and cultural continuity.

A large concentration of these values occur in the Sukunka River Valley, which was shown to be an area of critical importance and use for Saulteau First Nations members, particularly between the Sukunka River’s confluence with the Pine River. It is also an area for camping and for picking berries and medicinal plants. As the proposed Project route would run through the Sukunka Valley, the disturbance in the valley is of great concern to Saulteau First Nations members.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. EAO notes that Saulteau First Nations Gathering areas identified by Saulteau First Nations in the Application are located between 6 and 111 km away from the proposed Project route.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to vegetation, current and traditional land use – as discussed in section 6.3.3 of this report – and the relative distance between the area of the proposed Project and gathering locations identified by Saulteau First Nations, the proposed Project is expected to have minor impacts on Saulteau First Nations’ gathering activities.

Culturally important sites, trails, and travelways

Saulteau First Nations raised the following key concerns about the potential adverse effects on sacred areas, trails, travelways and habitation sites, including:

- Potential effects on CMTs, archaeological sites and culturally important sites; and
- Potential disruption to archaeological, sacred areas and historical sites.

Section 23 (Table 23-6) of the Application identifies the following Sacred and Culturally important sites for Saulteau First Nations:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Gathering Places	
56 km north of KP 45	Day camps on the Peace River between Dinosaur Lake and Attachie

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Sacred Areas	
46 km north of KP 40	Burial grounds at unnamed lake
28 km north of KP 46	Burial grounds at Big Lake
52 km northwest of KP 46	Burial grounds near Hudson's Hope
73 km west of KP 47	Spiritual site identified at Twin Sisters (Beattie Peaks)
32 km northwest of KP 72	Burial grounds at Moberly Lake
63 km northwest of KP 73	Spiritual site at Klin-se-za
Trails and Travelways	
44 km north of KP 37.5	Monias Lake trails
41 km northeast of KP 44	Boucher Lake to Boudreau Lake trail
38 km northwest of KP 47	South of Boucher Lake
26 km north of KP 54	At the mouth of the Moberly River
32 km northwest of KP 72	Moberly Lake
41 km north of KP 73	Cameron Lakes
Habitation Sites	
10 km east of KP 0	West of Kiskatinaw River
1.5 km west of KP 5	Near Foss and Groundbirch
55 km north of KP 29	East of Boudreau Lake
43 km north of KP 34	North of Pine River
45 km north of KP 35	North of Monias Lake
49 km north of KP 41	Near Moberly River south of Boudreau Lake
56 km north of KP 45	South of the Peace River near Attachie
56 km north of KP 45	Southwest and northeast of Attachie
21 km northwest of KP 46	Big Lake and Graveyard Creek
38 km northwest of KP 47	South of Boucher Lake
38 km northwest of KP 47	Southeast of Boucher Lake
29 km north of KP 63	South of the Moberly River
35 km northwest of KP 73	North of Moberly River

In the final TUS Report, Saulteau First Nations identify 156 site-specific use values within the Project footprint. Within the LSA, Saulteau First Nations members reported 574 site-specific use values. Members reported 1,448 site-specific values within the RSA. Site-specific values reported in the LSA include cultural and spiritual sites, environmental values, habitation values, subsistence harvesting values, and transportation values. Additional non-site-specific values reported include: moose and

other wildlife; fish and water; berries, medicine and other plants; access and continued use of lands and water; and cultural continuity.

A large concentration of these values occur in the Sukunka River Valley, which was shown to be an area of critical importance and use for Saulteau First Nations members, particularly between the Sukunka River's confluence with the Pine River. It is also an area for camping and for picking berries and medicinal plants. As the proposed Project route would run through the Sukunka Valley, the disturbance in the valley is of great concern to Saulteau First Nations members.

In consideration of the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Saulteau First Nations, the proposed Project is expected to result in minor to moderate impacts on Saulteau First Nations' culturally important sites, trails and travelways.

7.1.8 West Moberly First Nations

Context

- West Moberly First Nations is a signatory to Treaty 8 and a member of the Treaty 8 Tribal Association. West Moberly is a Beaver, or Dunne-Zaa, speaking community and was originally part of the Hudson Hope Band up until 1975. Halfway River was also part of this same band.
- The West Moberly First Nations community is located on the west side of Moberly Lake and the reserve occupies 2,034 ha. As of September 2013, West Moberly First Nations had a total registered population of about 887 people, with 454 members living on reserve and 433 members living off reserve. West Moberly First Nations are governed by a Chief and four Councillors.
- Closer to the West Moberly First Nations reserve, a smaller area of the Peace River sub-basin is identified by West Moberly First Nations as an Area of Critical Community Interest. This area includes:
 - the entire Upper Moberly River watershed, which drains into the west side of Moberly Lake;
 - all of the Peace Moberly tract north of the community, extending to the south shore of the Peace River;
 - the lands on the south side of the Peace River up to the Pine River confluence; and

- the Carbon River watershed draining into the Williston Lake Reservoir.
- Hunting, trapping and fishing remain integral to community members' lifestyles.

Treaty rights and EAO's assessment of Project impacts and depth of consultation

- The proposed Project is expected to cross 237 km of the area understood to be West Moberly First Nations' area of traditional use. Some of the Project lies outside what EAO understands to be the western boundary of Treaty 8 (the extent of which is generally close to KP 150, recognizing that the western boundary of Treaty 8 is an area of dispute and subject to litigation between the Province and certain Treaty 8 First Nations).
- Three proposed compressor stations would fall within West Moberly First Nations' area of traditional use (Wilde Lake, Sukunka Falls, and Mount Bracey). Although information on construction camps is preliminary, the Proponent has indicated four camps would fall within West Moberly First Nations' area of traditional use (Main #1A, Main #1B, Main #2A, and Main #3A).
- West Moberly First Nations is listed in Schedule B of the Section 11 Order. Given the nature and location of the proposed Project and EAO's assessment of the potential impact to Treaty 8 rights as discussed below, EAO is of the view that the duty to consult West Moberly First Nations lies in the middle part of the *Haida* spectrum.
- West Moberly First Nations is a member of the Treaty 8 Tribal Association, which is an administrative body that provides support and advice to 5 BC Treaty 8 First Nations residing in and around the Peace River Valley area of northeastern BC. EAO consults directly with Treaty 8 Tribal Association member nations regarding the potential effects of the proposed Project on their treaty rights.

Summary of consultation

West Moberly First Nations was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponent's Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. West Moberly First Nations was also provided with opportunities to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided West Moberly First Nations with \$5,000 in capacity funding during the pre-Application phase of the EA for the proposed Project, and \$10,000 in capacity funding during the Application Review phase of the EA. The Proponent provided initial

capacity funding for West Moberly First Nations to engage in discussions regarding the proposed Project Capacity funding Under a Letter of Agreement dated October 2012, and under a Memorandum of Understanding between West Moberly First Nations and the Proponent dated April 2014.

West Moberly First Nations, together with Saulteau First Nations, Doig River First Nation, and McLeod Lake Indian Band, provided input to the EA process through written comments on the screening of the Application and extensive written comments on the Application. West Moberly First Nations also participated in working group meetings on March 4 - 5, 2013 and participated in the Natural Gas Pipeline Workshop on February 4, 2014 and May 29-30, 2014.

Doig River First Nation, Saulteau First Nations, McLeod Lake Indian Band and West Moberly First Nations provided a letter to EAO on September 26, 2014 with final remarks about the proposed Project, as described below in section 7.1.10.

On October 2, 2014, West Moberly First Nations requested an extension for providing separate submissions to Minister for the proposed Project. EAO responded that the timeline would not be extended. On October 3, 2014, West Moberly First Nations provided EAO with its separate submission, which EAO has included in its referral package to Ministers.

West Moberly First Nations participated in biophysical field studies, but did not provide TEK. At the conclusion of the 2013 field season, West Moberly First Nations was provided with a Results Review Memo and was contacted with an offer to meet and review the information for accuracy, completeness and confidentiality. The Proponent offered West Moberly First Nations the opportunity to conduct a TLU study to inform the Application, site specific mitigation, and detailed construction planning to identify strategies to avoid, reduce or mitigate potential adverse effects on TLU activities. A draft Traditional Knowledge Agreement was provided to West Moberly First Nations on December 19, 2012. West Moberly First Nations committed to complete a TLU Study and submitted an interim progress report on September 25, 2013 to inform the Application.

The Proponent provided West Moberly First Nations with the opportunity to be involved in socio-economic baseline data collection for the proposed Project, but West Moberly First Nations elected not to participate.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with West Moberly First Nations on June 22, 2012, to share Project-related information, to determine the community's interest in the proposed Project and to develop a process for the community's involvement in Project activities. Since this date,

West Moberly First Nations and the Proponent have held 27 meetings on various Project-related subjects. The discussions have included distribution and review of a draft ancillary site map outlining the proposed features, such as access roads, compressor stations and camp sites; contracting and employment opportunities; Project benefits; and selection of the proposed route through their traditional territory, which involved a helicopter overflight. Issues raised by West Moberly First Nations and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with West Moberly First Nations as well as the Proponent's proposed mitigation to issues raised is provided in the CGL Aboriginal Consultation Report #3.

Potential impacts from the proposed Project on West Moberly First Nations' Treaty rights and other interests

Hunting

West Moberly First Nations raised concerns regarding wildlife, wildlife habitat and hunting (captured in the Application's section 23, Aboriginal Consultation Report #3 and Application Review Tracking Table), including:

- Potential adverse effects to wildlife hunted by West Moberly and wildlife habitat, and hunting areas, including the alteration of hunting sites and disruption of hunting activities;
- Potential effects on vegetation important to wildlife;
- Impacts to wetland vegetation;
- Potential effects on moose hunting area, moose calving area, moose licks, displacement of moose populations due to habitat loss, effects on moose wallows;
- Potential effects on wildlife habitat including nests, dens, mineral licks, calving areas, beaver dams and lodges and migration routes, as well as related hunting areas;
- Potential effects to eagle nesting sites, disruption of bird breeding activity, beaver dams, game trails, destruction of bear dens during hibernation and underground springs important to wildlife;
- Potential effects of construction noise on wildlife and disruption of wildlife during mating season;
- Potential blocking of currently active game trails during construction; and
- Increased access for wolves to caribou and increased access for people to wildlife.

EAO understands that moose, elk, sheep and goats are hunted by West Moberly First Nations members. The following table sets out hunting locations identified through field studies by West Moberly First Nations participants and described in Section 23 (Tables 23-1 and 23-3) of the Application. While uncertainty remains on the degree of impact on each of the sites listed, it is noteworthy that of the 15 locations and areas identified below, 11 would be impacted by the Project footprint.

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
500 km southeast of KP 0	Cameron Lakes
From KP 38 to KP 46	Pine River Breaks Provincial Park area
From KP 64 to KP 91	No additional details provided
Crosses at KP 64 and at KP 122	Sukunka River area, specific location unknown
Crosses at KP 96	Burnt River area, specific location unknown
From KP 94 to KP 127	No additional details provided
3.8 km southeast of KP 118	No additional details provided
From KP 136 to KP 184	No additional details provided
Crosses at KP 189.2	Parsnip River, specific location unknown
35.3 km southeast of KP 189	Wlcheeda Lake area
3 km southeast of KPs 192 to 202	Tacheeda Lakes area
Crosses at KP 212	Crooked River area near Redrocky Lake
11 km northwest of KP 226	Weedon Lake area
From KP 228 to KP 256	Area encompassing the Peculiar, Merton, Adrian, Slender, Bent, Alder, Poplar, Mossvale, Bugle, Snail, Rack, Hawk
29.6 km southeast of KP 244	Summit Lake area

Section 6.2.1 of this report characterizes the potential impacts of the proposed Project on Aboriginal Group's hunting activities. Access for West Moberly First Nations to the proposed Project area to hunt may be affected in the short term, including the areas identified by West Moberly First Nations who cross or are adjacent to the proposed route, during the construction phase when access may be restricted for safety reasons, and to a lesser extent over the medium term during the operation of the pipeline.

The distribution of some wildlife species in the area of the corridor would change during and after construction. The pipeline corridor would be revegetated after construction, but a corridor would be maintained with low early seral stage vegetation cover during operations. Full natural revegetation would occur after decommissioning.

In consideration of EAO's analysis of residual and cumulative effects to wildlife and wildlife habitat, current and traditional land use, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and taking into account information provided by West Moberly First Nations, the proposed Project may result in

moderate effects on West Moberly First Nations' hunting activities in some areas, particularly during the construction phase, such that the proposed Project is expected to have a moderate impact on West Moberly First Nations' Treaty right to hunt.

Fishing

West Moberly First Nations identified key concerns regarding fish and fish habitat and fishing (captured in the Application's section 23, Aboriginal Consultation Report #3 and Application Review Tracking Table), including:

- Potential adverse effects on fish and fish habitat, including the disruption of subsistence fishing activities and the potential alteration of fishing sites;
- Potential effects of contamination of fish spawning areas, effects of construction on fish population at watercourse crossings;
- Impacts to wetland vegetation;
- Potential effects on water quality related to construction including equipment maintenance and watercourse crossings; and
- Potential erosion on steep banked watercourse crossings and water turbidity.

According to the Application, species fished by West Moberly First Nations members include lake trout, northern pike, walleye, burbot, bull trout, arctic grayling and white fish. West Moberly First Nations considers all of the 45 water bodies proposed to be crossed by the proposed Project to be important fishing sites.

Angusmac Creek is used for various traditional activities, such as fishing, hunting and medicinal plant gathering, and is also a water source for West Moberly First Nations. Angusmac Creek flows into Crooked River, where fishing camps have been established for harvesting bull trout in the springtime.

The following important fishing locations to West Moberly First Nations were identified in Section 23 of the Application (Table 23-3):

Fishing Sites	
From KP 38 to KP 46	Pine River Breaks Provincial Park area
From KP 64 to KP 91	No additional details provided
Crosses at KP 64 and KP 122	Sukunka River area, specific location unknown
Crosses at KP 96	Burnt River area, specific location unknown
From KP 94 to KP 127	No additional details provided
3.8 km southeast of KP 118	No additional details provided
From KP 136 to KP 184	No additional details provided
Crosses at KP 189.2	Parsnip River
35.3 km southeast of KP 189	Wlcheeda Lake area

3 km southeast of KPs 192 to 202	Tacheeda Lakes area
Crosses at KP 212	Crooked River area near Redrocky Lake
11 km northwest of KP 226	Weedon Lake area
From KP 228 to KP 256	Area encompassing the Peculiar, Merton, Adrian, Slender, Bent, Alder, Poplar, Mossvale, Buole, Snail, Rack, Hawk, Terrapin and
29.6 km southeast of KP 244	Summit Lake area; ice fishing

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report. EAO notes that 4 of the 14 fishing sites important to West Moberly First Nations were identified in the Application as overlapping with the proposed route. Specific information on frequency and timing of West Moberly First Nations members' fishing activities is not available to EAO. Access for West Moberly to the proposed Project area to fish may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons; however mitigation measures, including proposed certificate conditions requiring further engagement with West Moberly First Nations prior to construction, are intended to address access management and minimize any impacts to fishing sites.

The proposed Project corridor would traverse approximately 237 km of area understood to be West Moberly First Nations' area of traditional use, with approximately 352 watercourse crossings, 25 of which have indicated fish presence. There are 18 large crossings as follows:

- Sukunka River 64.03
- Highhat River 64.69
- Blind Creek 91.16
- Burnt River SideChannel 96.24
- Burnt River 96.34
- Unnamed Tributary to Anzac River 142.91, 160.64, 173.32, 180.15
- Anzac River 154.29
- Crocker Creek 164.49
- Parsnip River 189.24
- Redrocky Creek 200.55
- Crooked River 211.89
- Unnamed Tributary to Crooked River 214.24, 215.07
- Unnamed Tributary to Muskeg River 229.35
- Clear Creek 328.55

EAO determined that the proposed Project would not have a significant adverse effect on fish and fish habitat, taking into account the proposed mitigation measures (detailed in Part B section 5.3.1 of the assessment report).

In consideration of the Proponent’s proposed mitigation measures and conditions proposed by EAO, and EAO’s analysis of potential residual and cumulative effects on fish, fish habitat, current and traditional land use - as discussed in section 6.2.2 of this report - and the relative distance between the area of the proposed Project and fishing locations identified by West Moberly First Nations, the proposed Project is expected to have minor impacts on West Moberly First Nations’ Treaty 8 right to fish.

Trapping

West Moberly First Nations raised key concerns regarding wildlife, wildlife habitat and trapping, including:

- Disruption of subsistence trapping activities and alteration to trapping sites;
- A request for notification to registered and unregistered trappers in vicinity of the project;
- Impact to small furbearers and bird habitat; and
- Impacts to wetland vegetation.

Section 23 of the Application identifies five trapping areas that are important to West Moberly First Nations. Two of the identified trapping areas may be crossed by the proposed Project alignment, although exact locations have not been identified. The following trapping locations were identified (Table 23-3):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping Areas	
From KP 38 to KP 46	Pine River Breaks Provincial Park area
From KP 64 to KP 91	No additional details provided
Crosses at KP 64 and KP 122	Sukunka River area, specific location unknown
Crosses at KP 96	Burnt River area, specific location unknown
From KP 94 to KP 127	No additional details provided

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report. As 2 of the trapping areas identified by West Moberly First Nations are expected to intersect the proposed pipeline route, EAO is of the opinion that there may be potential adverse effects to West

Moberly First Nations' Treaty 8 right to trap, although the Proponent's following proposed mitigation is expected to greatly reduce potential impacts:

- Provide Aboriginal groups with the proposed construction schedule and pipeline route maps;
- Before construction, notify trappers on an ongoing basis to confirm the timing and location of Project activities;
- Reduce the amount of land disturbance;
- In the event trapping sites are identified during the pre-construction TLU study with West Moberly First Nations, mitigation may include one or more of the following measures:
 - maintaining access to the trap line;
 - moving trap line equipment by the trapper prior to construction; and
 - implementing alternative site-specific mitigation strategies recommended by West Moberly First Nations;
- Losses will be paid as per the Trapper Compensation Schedule to registered trappers for demonstrated economic losses related to construction of the proposed Project;
- Implement mitigation outlined under the assessment of the atmospheric environment, vegetation, wetlands and wildlife ; and
- Implement the Environmental Management Plan, Access Control Management Plan, Reclamation Plan, and Chemical and Waste Management Plan to reduce the potential adverse effects on subsistence trapping activities and wildlife habitat.

In consideration of the Proponent's proposed mitigation measures and conditions proposed by EAO, and EAO's analysis of potential residual and cumulative effects on furbearers trapped by West Moberly First Nations and on current and traditional land use, the proposed Project may result in minor effects on West Moberly First Nations' trapping activities in some areas, particularly during the construction phase, such that the proposed Project is expected to have a minor impact on West Moberly First Nations' Treaty Right to trap.

Gathering

West Moberly First Nations raised key concerns regarding vegetation and gathering, including:

- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants;
- Potential effects on berry picking and harvesting sites, and reclamation of vegetation;

- Impacts to wetland vegetation; and
- Introduction and spread of invasive plant species.

Section 23 (Table 23-10) of the Application presents the following plant gathering areas of importance to West Moberly First Nations:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
500 km southwest of KP 0	Cameron Lakes
41 km northwest of KP 44	Boucher Lake
24 km northwest of KP 44	Moberly Lake
13.8 km northwest of KP 53	Peace-Moberly Tract
19 km northwest of KP 72	Pine River
From KP 15 to KP 64	No additional details provided
From KP 38 to KP 46	Pine River Breaks Provincial Park area
From KP 64 to KP 91	No additional details provided
Crosses at KPs 64 and at KP 122	Sukunka River area, specific location unknown
Crosses at KP 96	Burnt River area, specific location unknown
From KP 94 to KP 127	No additional details provided
3.8 km southeast of KP 118	No additional details provided
From KP 136 to KP 184	No additional details provided
35.3 km southeast of KP 189	Wlcheeda Lake area
3 km southeast of KPs 192 – 202	Tacheeda Lakes area
Crosses at KP 212	Crooked River area near Redrocky Lake
11 km northwest of KP 226	Weedon Lake area
From KP 228 to KP 256	Area encompassing the Peculiar, Merton, Adrian, Slender, Bent, Alder, Poplar, Mossvale, Bugle, Snail, Rack, Hawk, Terrapin and Raccoon lakes
29.6 km southeast of KP 244	Summit Lake area

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. EAO notes that 3 of the 19 gathering sites important to West Moberly First Nations were identified in the Application as overlapping with the proposed route. Specific information on frequency and timing of these current uses was not made available to EAO.

The proposed Project is expected to have a minor impact on West Moberly First Nations ability to access identified gathering sites, as the zone of project impacts to wetlands and vegetation is relatively narrow, and whether the final project route would cross gathering sites identified in the Application has not been finalized.. The proposed Project may increase access to some sites for West Moberly First Nations members as

well as other users, although the requirement of the Proponent to develop and implement an Access Management Plan would be expected to mitigate these potential effects. Impacts also have the potential to be mitigated through detailed route planning at the permitting stage.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to vegetation and to current and traditional land use, the proposed Project is expected to result in minor impacts to West Moberly First Nations’ gathering activities.

Culturally important sites, trails and travelways

West Moberly First Nations raised the following key concerns about the potential disturbance of sacred areas:

- Concern about the clearing of Culturally Modified Trees; and
- Disruption of archaeological sites or potential sites.

Two sacred sites of importance to West Moberly First Nations are identified in the Application (Table 23-1 and 23-3):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Sacred sites	
22.8km northwest of KP 43	Upper Moberly Watershed
29.6km southeast of KP 244	Summit Lake

In consideration of the Proponent’s proposed mitigations and proposed conditions of any EAC issued, EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by West Moberly First Nations, the proposed Project is expected to result in negligible impacts on West Moberly First Nations’ culturally important sites, trails and travelways.

7.1.9 Treaty 8 Tribal Association

The Treaty 8 Tribal Association is an administrative body that provides support and advice to 5 BC Treaty 8 First Nations residing in and around the Peace River Valley area of northeastern BC. These member Aboriginal Groups include: Doig River First Nation, Halfway River First Nation, Prophet River First Nation, Saulteau First Nations, and West Moberly First Nations.

EAO has consulted directly with Treaty 8 Tribal Association member nations regarding the potential effects of the proposed Project on their treaty rights, described above, and notified the Treaty 8 Tribal Association of key milestones during the EA process and review period.

The Proponent met with Treaty 8 Tribal Association twice between 2012 and 2014 to discuss the proposed Project, including the proposed route. The Proponent engaged with individual Treaty 8 Tribal Association member nations.

During the EA process, Treaty 8 Tribal Association member nations raised issues and concerns with the proposed Project. These are outlined in the table below.

Issues Raised	EAO/Proponent Response
Potential negative effects of multiple projects in the region	Refer to Part C, Section 2.1 for common concerns raised.
Confidentiality of TLU and TEK information	Refer to Part C, Section 2.1 for common concerns raised.
As a result of new roads, potential for increased access for recreational harvesters to the area, leading to increased pressure on wildlife and fish resources	Refer to Part C, Section 6.2.1 for common concerns raised. EAO has proposed a condition requiring the development of an Access Control Management Plan.
Need to maintain traditional food (e.g., berries and game)	Potential impacts of the proposed Project on vegetation and traditional gathering activities are characterized in section 23.23 of the Application, and have been assessed by Aboriginal Group in Part C of this report. EAO is proposing a condition that requires the Proponent to avoid prohibiting access, during operations, for Aboriginal to harvest medicinal and food source plants, or to carry out traditional use activities.

The following hunting, trapping, fishing, gathering, and other culturally important areas for Treaty 8 Tribal Association member communities were described in the Application, compiled through available literature (Section 23, Table 23-89):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
55 km northwest of KP 0	Cache Creek
56 km northwest of KP 0	Bear Flats
62 km north of KP 46	Halfway River area
52 km northwest of KP 47	Lynx Creek
6 km west of KP 54	Twidwell Bend (confluence of Sukunka and Pine rivers)
Fishing	
55 km northwest of KP 0	Cache Creek
56 km northwest of KP 0	Bear Flats
34 km north of KP 0	Peace River
52 km northwest of KP 46	Hudson's Hope
62 km north of KP 46	Halfway River area
52 km northwest of KP 47	Lynx Creek
6 km west of KP 54	Twidwell Bend (confluence of Sukunka and Pine rivers)
35 km northwest of KP 75	Moberly River area
Plant Gathering	
6 km west of KP 54	Twidwell Bend (confluence of Sukunka and Pine rivers)
Trails and Travelways	
55 km northwest of KP 0	Cache Creek
56 km northwest of KP 0	Bear Flats
5 km northwest of KP 75	Moberly River area
Habitation Sites	
55 km northwest of KP 0	Cache Creek
56 km northwest of KP 0	Bear Flats
52 km northwest of KP 46	Hudson's Hope
62 km north of KP 46	Halfway River area
52 km northwest of KP 47	Lynx Creek
35 km northwest of KP 75	Moberly River area
Gathering Sites	
55 km northwest of KP 0	Cache Creek
56 km northwest of KP 0	Bear Flats
62 km north of KP 46	Halfway River area
Sacred Areas	
56 km northwest of KP 0	Bear Flats
34 km north of KP 0	Peace River
52 km northwest of KP 46	Hudson's Hope
62 km north of KP 46	Halfway River area
73 km west of KP 47	Twin Sisters mountains

Since the Treaty 8 Tribal Association is an administrative body, EAO has assessed potential effects of the proposed Project on each of the Treaty 8 Tribal Association member nations' Aboriginal Interests separately above.

7.1.10 Matters of common concern to West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation

On April 22, 2014, EAO received comments on behalf of West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation on the Application during Application Review. These were responded to by the Proponent on June 9, 2014. Additional responses were provided by the Proponent on July 15, 2014.

Following are the key issues raised:

Issues Raised	EAO/Proponent Response
Insufficient capacity and resources (financial, human, technical)	Refer to Common Concerns section 2.1 in Part C.
Desire for integration of Aboriginal Groups' site-specific knowledge of caribou range into monitoring	The Proponent committed to completing a Post Construction Monitoring Plan, and EAO has proposed a condition that would require Mitigation and Monitoring plans for wildlife (including SARA species), grizzly bear and caribou to be developed in consultation with Aboriginal Groups and FLNR. The Proponent would also be required to consult with Aboriginal Groups in the development and implementation of its EMP's and its Wildlife Habitat Management Plan.
Preference for trenchless river crossings rather than isolation crossings Request for site-specific crossing plans in Sukunka Valley	The Proponent's considerations for selecting pipeline watercourse-crossing methods is described in the Application's section 1.2.5, Pipeline Watercourse Crossing Construction Activities, and section 1.4.16, Alternative Construction Methods for Pipeline Installation at Watercourses. EAO acknowledges that several Aboriginal Groups would like more specific information on methods of stream crossings. Provincial regulation of major projects occurs in stages – the Province is committed to consulting potentially affected Aboriginal Groups at

Issues Raised	EAO/Proponent Response
	<p>each stage. EAO is of the view that it can make a conclusion about the seriousness of impact of a Project even where additional detail is forthcoming at subsequent stages. EAO has, and will continue to work closely with OGC to ensure that the conceptual plans proposed at the EA stage are practical and implementable for the permitting process. The permitting process would include further consultation with Aboriginal Groups in the event this proposed Project is certified by EAO.</p>
<p>Desire for all fish species to be included and considered in assessment – fish species missed in sampling</p>	<p>EAO has assessed impacts to fish and fish habitat in Part B section 5.3 and 5.4 of this report.</p> <p>The Application identified a total of 52 fish species with potential to occur in watercourses within the aquatic environment RSA. A total of 21 of these fish species are considered recreationally, commercially or culturally important fish species, as listed in the definition of a “fish stream” under OGC’s EPMP, and were included as key indicator species.</p> <p>The key indicator species included, but were not limited to, all five species of Pacific Salmon (chinook, sockeye, coho, chum and pink salmon), rainbow trout, steelhead, coastal cutthroat trout, bull trout, Dolly Varden char, eulachon, northern pike, walleye, burbot and white sturgeon.</p> <p>Fish sampling was conducted during baseline field sampling on 209 watercourses for which historical inventory information was lacking. For all streams where fish sampling did not capture any fish, fish bearing status and species presence was automatically assumed by default and based on historical inventories, habitat information and known fish species distribution in each watershed.</p>
<p>Concern that traditional use information was not incorporated into the EA.</p>	<p>For the purposes of determining the appropriateness of the information in the Application, EAO was satisfied that the Proponent’s Application contained the information as set out in the Application Information Requirements (AIR). EAO has set out a proposed condition to require the Proponent to update the</p>

Issues Raised	EAO/Proponent Response
	<p>Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups.</p> <p>Any additional TLU information provided by Aboriginal Groups would inform the development of plans and any additional site-specific mitigation required.</p>
<p>Underestimated impacts to mountain goat habitat</p>	<p>In response to a formal request for additional information from EAO, the Proponent submitted Technical Memos on Mountain Goat and Access Management (Coastal GasLink, May 13, 2014).</p> <p>The proposed Project would be expected to cause direct and indirect disturbance to mountain goat habitat. The Project has the potential to cause habitat changes that facilitate access and disturbance that displace mountain goats from preferred habitat, although EAO has concluded there would likely not be significant effects to mountain goats.</p> <p>EAO's assessment of potential impacts to mountain goat is in section 5.5 of Part B of this report.</p>
<p>Lack of inclusion of hunting and trapping data in Application</p>	<p>Information on hunting and trapping, and proposed mitigations, were included in sections 16 and 23 in the Application, as well as in the Proponent's Aboriginal Consultation Reports.</p> <p>For the purposes of determining the appropriateness of the information in the Application, EAO was satisfied that the Proponent's Application contained the information as set out in the Application Information Requirements (AIR). In addition, EAO has set out a proposed condition to require the Proponent to update the Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups. Any additional ATK/TLU information provided by Aboriginal Groups, which would include additional aboriginal hunting or trapping data, would also help inform the development of plans and any additional site-specific mitigation required.</p>

Issues Raised	EAO/Proponent Response
	EAO has proposed a condition for the Proponent to avoid prohibiting access, during operations, to Aboriginal Group to carry out traditional use activities identified in TLUS.
Absence of information on economic benefits to Aboriginal Groups	Refer to Part C section 8.3 for information on the “Benefits of the Project to affected Aboriginal communities”.
A request that transient users of the area should be included as human receptors; not just residents	For the purposes of the EA, residences were considered for the assessment of health, and not transient users, because residences would have the longest exposure duration.
Impacts of multiple pipelines and a desire for a single corridor	EAO does not have a role in making decisions about the locations of proposed pipeline routes; however, EAO has and will continue to share this concern with proponents to help inform their routing decisions.
Potential adverse effects to the Sukunka watershed - an area where traditional use and cultural values are extremely high. Concern that the proposed Project would open up the Sukunka watershed to increased access resulting in additional poaching and resource extraction pressure. A request was made by West Moberly First Nations for a comprehensive Access Management Plan.	EAO has proposed a condition that requires the Proponent to develop and implement its Access Control Management Plan to control public access along the ROW, reduce line-of-sight and ease of access, and to reduce disturbance.
Potential effects on mature growth forest and concern	EAO has assessed the potential effects of the proposed Project on Old Growth Management Areas (OGMAs) and has proposed a condition to ensure OGMAs are mitigated to the satisfaction of FLNR, including adhering to the applicable replacement policy/process, where appropriate.
Safety of the pipeline in challenging terrain and concerns regarding potential spills or leaks after construction	EAO has assessed the potential effects of the proposed Project on the geophysical environment, including terrain integrity, and the potential risks of accidents and malfunctions in Part B sections 5.22 and

Issues Raised	EAO/Proponent Response
	10 of this report, respectively.
Provide opportunity to community for clearing contracts and a desire for merchantable timber to be provided to Aboriginal communities	The Proponent's response to this concern is outlined in section 23 of the Application (see Table 23-22). EAO has proposed a condition for a Timber Salvage Plan that would set out a legal requirement to uphold the Proponent's commitment to transport merchantable timber to interested Aboriginal Groups as well as conversion facilities or other end users.
A desire to participate in technical discussions and review the proposed Project with independently with the Proponent.	<p>EAO acknowledges that Sauteau First Nations, Doig River First Nation, McLeod Lake Indian Band, and West Moberly First Nations have expressed a desire to seek a forum other than, or in addition to, the Working Group meetings to engage in discussions with the Proponent about how the project may be impacting important values to the four Treaty 8 Nations (including Treaty Rights),</p> <p>On July 11, 2014 EAO directed the Proponent to engage the four Treaty 8 Nations in this venue, although EAO understands that this meeting has not yet been scheduled. In addition to the conditions proposed by EAO, which would require consultation with Aboriginal Groups in the development of all proposed Plans, EAO is also proposing a condition specifying that if the results of the desired Technical Review are shared with the Proponent, the Proponent must also provide the results of this review to EAO and the relevant regulatory authorities. The Proponent would also be required to demonstrate reasonable efforts to engage Aboriginal Groups on the results of the review.</p>

Doig River First Nation, Sauteau First Nations, McLeod Lake Indian Band and West Moberly First Nations provided a letter to EAO on September 26, 2014 with final remarks about the proposed Project. The letter expressed: concern about the EA timelines; concern about the lack of cumulative effects assessment for Greenhouse Gas emissions in Part B of the Report; disagreement with EAO's conclusions of residual adverse effects for grizzly bear, for which EAO concluded there would likely not be significant adverse effects; concern about technical issues that were felt to be unresolved through the Working Group process; and concern about cumulative effects

as a result of upstream gas exploration and development. The letter also outlined several recommended additional EA Certificate conditions, which EAO has considered in its proposed Table of Conditions. These Treaty 8 First Nations subsequently wrote on October 3, 2014 and requested that the September 26, 2014 concerns comprised a separate submission to Ministers. These letters were included as a separate submission to Ministers.

7.2 Carrier Aboriginal Groups

In consideration of the historic and current context of the Carrier Aboriginal Groups provided in section 3.2 of this report and information gathered throughout the consultation process, the following sections are intended to set out, in relation to each Carrier Aboriginal Group:

- A summary of concerns related to that Aboriginal Group's Aboriginal Interests; and
- EAO's evaluation of potential effects of the proposed Project to that Aboriginal Group's Aboriginal Interests.

7.2.1 Carrier Sekani Tribal Council

The Carrier Sekani Tribal Council (CSTC) provides political and technical support to eight interior BC Aboriginal Groups. These member Aboriginal Groups include: Nadleh Whut'en First Nation, Nak'azdli Band, Saik'uz First Nation, Stellat'en First Nation, Takla Lake First Nation, Tl'azt'en Nation, Ts'il Kaz Koh First Nation (Burns Lake Band), and Wet'suwet'en First Nation.

The population of the combined CSTC member Aboriginal Groups is more than 10,000 people. The CSTC serves as an advocate for its member First Nations to provide technical, professional and political support in the disciplines of fisheries, education, economic development, community and infrastructure planning, forestry, mining, oil and gas, financial management, mapping, and language resources. CSTC is a forum for Chiefs to work collectively to address issues affecting member communities, including employment, health, resource development, and treaty negotiations.

The CSTC is governed by a Tribal Chief (Chair), Vice-Tribal Chief and eight directors who are the Chiefs of each of the member Aboriginal Groups. Its main office is located in Prince George.

EAO consulted directly with the member Aboriginal Groups, with the exception of Takla Lake First Nation, as their asserted traditional territory is approximately 100 km away from the proposed Project.

Wet'suwet'en First Nation informed EAO that they are working independently from CSTC on the proposed Coastal GasLink Project. CSTC submitted a letter to EAO and the Premier on January 27, 2014 with a number of concerns with the EA process, the potential impacts on Aboriginal Groups from the development of the LNG industry, and a lack meaningful consultation with Aboriginal Groups on this and other proposed pipeline projects. EAO responded to that letter on March 13, 2014.

CSTC submitted a joint letter with Nak'azdli Band and Nadleh Whut'en First Nation on June 6, 2014, outlining concerns with the Application. Key Issues raised and EAO's responses are included in the table below.

Issues Raised	EAO/Proponent Response
Baseline information gaps including lack of meaningful integration of TLU and ATK into the Application	<p>Baseline information on all VCs and integration of available traditional land use and Aboriginal traditional knowledge in the Application was determined to be sufficient based on the AIR.</p> <p>EAO understands that the Proponent incorporated TLU and ATK into the Application where that information was made available to them before submission of the Application to EAO. During the EA, EAO considered all TLU and ATK provided by Aboriginal Groups. Any additional TLU information provided by Aboriginal Groups would also help inform the development of plans and any additional site-specific mitigation required.</p>
Inadequate rationale for spatial boundaries and missing or improper temporal boundaries for the scope of assessment	Spatial boundaries, methodology and consideration of temporal boundaries for the scope of assessment on all VCs was described in the Application and were determined by EAO to be sufficient based on the AIR.
Lack of evidence to support the purported benefits of the Project on Aboriginal people	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the

Issues Raised	EAO/Proponent Response
	<p>Proponent that would remain confidential; and</p> <ul style="list-style-type: none"> Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>Benefits are described in section 8 of this report.</p> <p>The Proponent must continue engagement with Aboriginal Groups about construction planning and Project design, including the schedule of construction activities</p>
<p>Poor conduct of the assessment on "Aboriginal Interests"</p>	<p>EAO uses the information required by Part C of the AIR, along with the Proponent's consultation reports and information derived from direct consultation between EAO and Aboriginal Groups to determine the nature of the Aboriginal Interests that may be impacted, and the seriousness of the potential impacts to Aboriginal Interests. In addition, EAO set out requirements for the Proponent to provide more detailed information in its third Aboriginal Consultation Report, which has helped inform the process.</p>
<p>Inadequate funding to support Aboriginal Groups' participation in the consultation process.</p>	<p>Capacity funding was provided by EAO to the Aboriginal Groups to assist in participating in consultation discussions and Working Group meetings during both the pre-Application and Application Review phases of the EA.</p> <p>In addition, the Proponent offered, and in many cases, provided funding to Aboriginal Groups to participate in regulatory processes, for Project-based information gathering to inform the Application, and to understand the impacts to</p>

Issues Raised	EAO/Proponent Response
	Aboriginal Interests posed by the Project.

CSTC wrote to the Minister of Environment and EAO Associate Deputy Minister on September 3, 2014 and September 11, 2014 raising concerns about delays in provision of the draft Assessment Reports to Aboriginal Groups, requesting an extension to the Application Review Period and the deadline for the separate submission to Ministers to accompany the referral package for Ministers' consideration, and requesting a meeting. Minister of Environment responded October 3, 2014.

EAO staff met with CSTC and three member Nations – Nak'azdli Band, Nadleh Whut'en First Nation, and Saikuz First Nation – in Prince George on October 1, 2014. CSTC hosted and facilitated the meeting, which discussed concerns raised in correspondence by the three member Aboriginal Groups (itemized in separate sections for each Aboriginal Group below). Concerns discussed include the EA process, timelines and request for extension; synchronous permitting demands on capacity; inadequate baseline information requirements; incomplete VC selection; impacts to asserted Aboriginal Title and inadequacy of EAO's title assessment; inadequate cumulative effects methodology including consideration of historic and past industrial disturbance; concerns for effects to Nechako white sturgeon; and concerns relating to GHG emissions and assessments. CSTC and the member Aboriginal Groups tabled the following proposals, requesting that they be conveyed to Ministers to consider:

1. No conversion guarantee (of pipelines from natural gas to oil, or any other repurposing such as water for export);
2. LNG-Production system level GHG emissions modeling and GHG reduction plan;
3. Expedited regional Cumulative Effects Assessment in CSTC territory;
4. A "blanket condition" requiring any proponent to implement and report on implementation of all its commitments;
5. Crown and Proponent support for efforts to re-establish caribou and Nechako white sturgeon in CSTC territory;
6. Heavy Aboriginal monitoring requirements at all High Risk Water Crossings;
7. Aboriginal monitors at all LNG-related work sites;
8. Aboriginal-focused human environmental monitoring program, especially re: impacts of in-migration/inmigrant workers on small communities and FN lands; and
9. Crown funding for individual Aboriginal Groups to undertake Title research and setting up proper consultation.

CSTC, on behalf of its member nations, provide a separate submission to Ministers on October 3, 2014. This submission included the concerns and proposals described above.

7.2.2 Cheslatta Carrier Nation

Context

- Cheslatta Carrier Nation is part of the Carrier, or Dakelh, Aboriginal group. The Dakelh language is part of the larger Athapaskan language family.
- As of May 2014, Cheslatta Carrier Nation had 345 registered members, with about 180 members living off reserve.
- In 1952, the Cheslatta village and Cheslatta Lake were flooded as a result of the construction of the Kenney Dam, which created the Nechako Reservoir. Members now live on a dozen small scattered reserves just south of **François** Lake.

Aboriginal Interests and EAO's assessments of strength of claims, Project impacts and depth of consultation

- Initially, EAO understood that the proposed Project would not overlap the area the Province understood to be Cheslatta Carrier Nation's asserted traditional territory.
- In March 2014, Cheslatta Carrier Nation asserted an expanded territory which overlaps with the proposed Project area. Cheslatta Carrier Nation expressed their desire to be on Schedule B of the section 11 Order. EAO requested further information to determine traditional use of the asserted boundary.
- EAO considered the potential for impacts to Cheslatta Carrier Nation's Aboriginal Interests based on the boundary assertion. However, in the absence of supporting information, EAO was unaware of any impacts on Cheslatta Carrier Nation's Aboriginal Interests. Cheslatta Carrier Nation was added to Schedule C of the Section 11 Order.
- Cheslatta Carrier Nation did not provide information supporting historic use of the area of the proposed Project, at the time of contact or at 1846. EAO determined that without more specific information regarding historic use of the areas immediately surrounding the proposed Project, consultation through the opportunities provided for Aboriginal Groups listed in Schedule C was sufficient for consulting Cheslatta Carrier Nation.

- Cheslatta Carrier Nation remains on Schedule C of the section 11 Order to allow for consultation at the lower end of the *Haida* spectrum.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in* which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846. Based on the information reviewed and test for title as set out in *Tsilhqot'in*, EAO continues to be of the view that there is no information indicating sufficient or exclusive occupation that supports a *prima facie* claim of Aboriginal title within or near those portions of the proposed Project area that overlap with the southern periphery of the newly asserted traditional territory of Cheslatta Carrier Nation.

Summary of consultation

Cheslatta Carrier Nation was provided with notification of key milestones in the EA. Cheslatta Carrier Nation was also provided an opportunity to review and comment on the draft Assessment Report. EAO did not receive any comments from Cheslatta Carrier Nation with respect to the proposed Project.

On April 16, 2014, the Province met with Cheslatta Carrier Nation to discuss their new asserted boundary and EAO joined the meeting via telephone. Cheslatta Carrier First Nation raised a concern that they have received differential treatment by the Province relative to their neighbouring groups. Cheslatta Carrier Nation indicated their strong interest in being added to Schedule B of the section 11 Order to allow for opportunities to be more engaged and to benefit from the LNG development activity occurring in the area. EAO confirmed with Cheslatta Carrier Nation that they would be consulted at the notification level in absence of historical information to support their asserted boundary expansion. EAO offered to meet again with Cheslatta Carrier Nation; however, EAO received no further contact from Cheslatta Carrier Nation.

On June 18, 2014, the Proponent met with Cheslatta Carrier Nation to share their mapbook of the proposed Project. Cheslatta Carrier Nation indicated areas of boundary overlap with the proposed Project.

Potential impacts of the proposed Project to Cheslatta Carrier Nation's Aboriginal Interests

As Cheslatta Carrier Nation did not provide historical information to support their asserted boundary expansion, EAO considered the impact of the proposed Project to the area understood to be Cheslatta Carrier Nation's traditional territory boundary. The

area understood to be Cheslatta Carrier Nation's area of traditional use lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSA are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into the area understood to be Cheslatta Carrier Nation's area of traditional use.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Cheslatta Carrier Nation's traditional territory, EAO concludes that the proposed Project is not expected to result in any adverse effects on Cheslatta Carrier Nation's Aboriginal Interest associated with any hunting, fishing or trapping, gathering activities, nor are adverse effects expected to Cheslatta Carrier Nation's culturally important sites.

Other matters of concern to Cheslatta Carrier Nation

EAO did not receive any comments from Cheslatta Carrier Nation with respect to the proposed Project.

7.2.3 Lake Babine First Nation

Context

- Before 1957, what is now Lake Babine First Nation was two separate bands: the Old Fort Band and the Fort Babine Band, both situated on Babine Lake. In 1957, the Department of Indian Affairs (now AANDC) amalgamated the two Bands.
- The people of Lake Babine First Nation are speakers of the *Nedut'en* dialect

of the Carrier family and are a member of the Athabaskan (Dene) language family.

- Lake Babine First Nation's traditional territory includes the area around Babine Lake and along the Babine River, as well as several smaller lakes. It lies northeast of Highway 16 and stretches from Burns Lake in the south to north of Hazelton.
- Lake Babine First Nation consists of five communities: Woyenne, Fort Babine, Tachek (also known as Tachet, Tache or Tachie), Old Fort (Nedo'ats), and Donald's Landing. Lake Babine First Nation has 27 parcels of reserve land and three communities.
- As of September 2013, Lake Babine First Nation had a registered population of 2,419 people, with an on-reserve population of 1,420. Lake Babine First Nation is governed by a custom electoral system with one Chief and nine Councillors elected for three-year terms. It has a Council of Elders and an Office of Hereditary Chiefs.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- Initially, EAO understood that the proposed Project would not overlap the area the Province understood to be asserted traditional territory of the Lake Babine First Nation. The southernmost extent of that territory boundary is about 20 km from the pipeline corridor.
- Lake Babine First Nation responded to EAO's initial assessment letter by submitting a revised Lake Babine Nation Statement of Intent map that indicates a territory that does not overlap the proposed Project. EAO replied that the extension of the asserted Lake Babine Nation territory in the southeastern most extent to include Cunningham Lake and the northwest arm of Stuart Lake does not have new consultation implications for the proposed Project. EAO determined that consultation through the opportunities provided for Aboriginal Groups listed in Schedule C would continue to be sufficient for consulting Lake Babine First Nation.
- The Province understands the Lake Babine First Nation is a modern entity with descendants from the subtribe of the Carrier historically associated with Babine Lake, focused at the lake's northern end. The Carrier subsisted from fishing, hunting, trapping and gathering resources.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in* which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation as at 1846. Based on the information reviewed and test for title as set out in *Tsilhqot'in*, EAO continues to be of the view that there is no information indicating sufficient or exclusive occupation that supports a *prima facie* claim of Aboriginal title within or near those portions of the proposed Coastal GasLink Project areas that overlap with the southern periphery of the asserted traditional territory of Lake Babine First Nation.

- EAO's consideration of the potential impacts of the proposed Project on specifically Lake Babine First Nation's Aboriginal Interests is discussed below. Given the location and nature of the proposed Project, EAO is of the view that consultation with Lake Babine First Nation at the low end of the *Haida* spectrum is appropriate.

Summary of consultation

The traditional territory of Lake Babine First Nation lies outside of the proposed Project area. The closest point in Lake Babine First Nation's 2009 asserted Traditional Territory to the proposed Project corridor is approximately 20 km away. Lake Babine Nation was provided with notification of key milestones in the EA, including issuance of the Application Information Requirements and the acceptance of the Application to Environmental Assessment Office for review. Lake Babine was also provided an opportunity to review and comment on the draft Assessment Report. EAO did not receive any comments from Lake Babine First Nation with respect to the proposed Project.

Potential impacts of the proposed Project to Lake Babine First Nation's Aboriginal Interests

The Lake Babine Nation asserted traditional territory lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSA are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into Lake Babine territory.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Lake Babine's asserted traditional territory, EAO concludes that the proposed Project is not expected to result in any

adverse effects on Lake Babine Nation's gathering, fishing or trapping, nor are adverse effects expected to Lake Babine Nation's culturally important sites.

7.2.4 Lheidli-T'enneh First Nation

Context

- Lheidli-T'enneh First Nation is part of the Carrier, or Dakelh, culture of indigenous people. The traditional Lheidli-T'enneh First Nation clans are frog (*lasilyoo*), grouse (*'utsut*), beaver (*t**sa*) and bear (*Sus*).
- An elected Chief and Council provide governance for Lheidli-T'enneh First Nation and the election system used is the *Indian Act* Election System. Chief and Council are elected every two years, with the most recent election being held in March 2013.
- Lheidli-T'enneh First Nation has four reserves with a total area of about 675.5 ha. The most populated reserve is Khast'an Lhughel IR 2 (Fort George) (North and South Lheidli-T'enneh). The Lheidli-T'enneh First Nation has about 380 registered members, with about 120 members living on Khast'an Lhughel IR 2 (North and South Lheidli-T'enneh).

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project would be expected to cross and impact a 50 km long tract of land through the northwest corner of Lheidli-T'enneh First Nation's asserted territory, from Slender Lake southwest to where Stuart River enters the Nation's asserted territory.
- The Province understands that the Lheidli-T'enneh First Nation is a modern entity with descendants from the pre-contact Tanoten Carrier subtribe, who had a traditional territory centred on what is now Prince George. The Carrier subsisted from fishing, hunting, trapping and gathering resources, using seasonal villages and camps along lakes and rivers.
- Although historic descriptions of the traditional territory of the pre-contact Tanoten are vague about specific boundaries, traditional territory probably would have included an area in moderate proximity to the area of the proposed Project. This would support a moderate to strong *prima facie* claim to Aboriginal rights to fish, gather, hunt and trap within the area overlapping the asserted territory of Lheidli-T'enneh First Nation.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in* which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846. Based on the information reviewed and test for title as set out in *Tsilhqot'in*, EAO continues to be of the view that there is no information indicating sufficient or exclusive occupation at 1846 that supports a *prima facie* claim of Aboriginal title within or near those portions of the proposed Project areas that overlap with the northern

- extent of the asserted traditional territory of Lheidli-T'enneh First Nation.
- Lheidli-T'enneh First Nation is listed in Schedule B of the Section 11 Order. EAO's consideration of the potential impacts of the proposed Project on specifically Lheidli-T'enneh First Nation's Aboriginal Interests is discussed below. EAO is of the view that, given the nature and location and potential impacts of the proposed Project on Lheidli-T'enneh Aboriginal Interests, the duty to consult Lheidli-T'enneh First Nation lies in the low to middle part of the *Haida* spectrum.

Summary of consultation

Lheidli-T'enneh First Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponent's Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Lheidli-T'enneh First Nation was also provided with opportunities to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Lheidli-T'enneh First Nation during the Pre-Application stage of review, as well as \$10,000 in capacity funding during the Application Review phase of the EA process to assist with costs associated with Lheidli-T'enneh-First Nation participation in the environmental review. Under a Letter of Agreement dated November 2012, the Proponent provided initial capacity funding for Lheidli-T'enneh First Nation to engage in discussions regarding the proposed Project. A Memorandum of Agreement between Lheidli-T'enneh First Nation and the Proponent, dated June 2013, provided continued capacity funding for Lheidli-T'enneh First Nation.

EAO did not receive any comments directly from Lheidli-T'enneh First Nation with respect to the proposed Project. Lheidli-T'enneh First Nation participated in working group meetings on April 11, 2013 and May 27-28, 2014 and participated in the Natural Gas Pipeline Workshop on November 26, 2013 and May 29-30, 2014.

Lheidli-T'enneh First Nation provided the Proponent with TEK, facilitated through their participation in biophysical field studies. They also conducted a TLUS and collected socioeconomic baseline data. The results of these studies were included in the Proponent's Application (section 16) and Aboriginal Consultation Reports #2 and #3.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Lheidli-T'enneh First Nation 42 times (during 2012–2014) to discuss project-related issues and concerns, including the selection of the proposed route through their asserted traditional territory, information requirements for environmental baseline studies, traditional land use studies and cumulative effects assessments. Issues raised by Lheidli-T'enneh First Nation and the Proponent's responses are provided in the

Tracking Table (Appendix 2). A summary of the Proponent’s engagement activities with Lheidli-T’enneh First Nation as well as the Proponent’s proposed mitigation to issues raised is provided in the CGL Aboriginal Consultation Report #3.

Potential impacts of the proposed Project to Lheidli-T’enneh First Nation’s Aboriginal Interests

Hunting

The main stated concerns of the Lheidli-T’enneh First Nation are about wildlife, wildlife habitat and the asserted Aboriginal right to hunt, including:

- Potential effects on wildlife species including caribou, moose, beaver, bear and wolverine;
- Potential effects on wildlife habitat, including feeding grounds, nests, dens, beaver dams and lodges, wildlife trees and game trails;
- Potential effects of increased access on moose, including increased moose predation, changes to moose habitat, and continued decline of moose population due to development;
- Limited use of game trails and impacts to migration patterns;
- Loss or contamination of mineral salt licks;
- Potential effects of construction noise on wildlife;
- Disruption of wildlife during mating season; and
- Potential impacts to small furbearers and furbearer habitat.

Key hunting areas identified by Lheidli-T’enneh and noted in the Application (Section 23) include the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
62 km southeast of KP 271	Khas’t’an Lhughel IR 2 (North and South Lheidli-T’enneh)
48 km southeast of KP 279	Lhezbaonichek Reserve

The proposed Project Footprint area post-construction is less than 0.01% of Lheidli-T’enneh First Nation’s asserted traditional territory and represents a relatively small level of overall habitat disturbance, which would be further reduced following construction through revegetation along the Project right-of-way. Vegetation clearing along the right-of-way and revegetation may also have positive effects for some wildlife species, such as increased foraging habitat value for deer and moose. The proposed Project location is 48 km away from the nearest hunting area identified by Lheidli-T’enneh First Nation in their traditional territory.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to hunting – as discussed in section 6.2.1 of this report – and the relative distance between the area of the proposed Project and the hunting locations identified, the proposed Project is expected to have negligible impacts on Lheidli-T’enneh First Nation’s asserted Aboriginal right to hunt.

Gathering

Lheidli-T’enneh First Nation raised concerns regarding potential effects on vegetation and the asserted right to gather plants, including:

- Potential loss of culturally important plants;
- Potential effects on traditionally harvested vegetation including ceremonial and medicinal plants;
- Introduction or spread of invasive plant species;
- Potential effects of logging activities on the local ecosystem; and
- Concern over the use of pesticides.

Plant gathering areas identified by Lheidli-T’enneh in the Application (Section 23) for assessment of potential effects to current and traditional land use include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
62 km southeast of KP 271	Khast’an Lhughel IR 2 (North and South Lheidli-T’enneh)
48 km southeast of KP 279	Lhezbaonichek Reserve

The proposed Project location is 48 km away from the nearest plant gathering area identified by Lheidli-T’enneh First Nation in their traditional territory.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on vegetation, current and traditional land use related to gathering – as discussed in section 6.2.4 of this report – and the relative distance between the area of the proposed Project and gathering locations identified by Lheidli-T’enneh First Nation, the proposed Project is expected to result in negligible impacts on Lheidli-T’enneh First Nation’s asserted Aboriginal right to gather.

Fishing

Lheidli-T'enneh First Nation raised the following key concerns related to potential effects on fish and fish habitat and the asserted Aboriginal right to fish, including:

- Potential effects on water quality related to construction including equipment maintenance and watercourse crossings;
- Industrial contamination and riparian erosion effects on water flow
- Fish mortality during construction;
- Potential impacts on Nechako white sturgeon habitat or spawning areas; and
- Potential impacts on fishing areas and cabin sites.

Lheidli-T'enneh First Nation did not identify any fishing areas within their traditional territory in proximity to the proposed Project area in the Application or in the Proponent's Aboriginal Consultation Reports.

The proposed Project corridor would traverse approximately 50 km of Lheidli-T'enneh First Nation asserted traditional territory, with approximately 45 watercourse crossings, 14 of which have indicated fish presence. The Salmon River, East of KP 254, is the only large river that would be crossed and the Proponent has recommended a trenchless crossing with site specific plans. White sturgeon are not known to occur in the Salmon River.

The nature and extent of potential effects on fish and fish habitat would depend on the sensitivity of each fish species and fish habitat affected in each watershed, the extent and timing of the disturbances, and the effectiveness of proposed mitigation. A detailed assessment on the effects of the proposed Project on fish and fish habitat is contained in section 7.5 of the Application and summarized in section 5.3.1 of this Assessment Report and section 6.2.2 of this report.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – the proposed Project is expected to have negligible impacts on Lheidli-T'enneh First Nation's asserted Aboriginal right to fish.

Trapping

Lheidli-T'enneh First Nation raised concerns regarding the asserted Aboriginal right to trap, including:

- Potential impacts to small furbearers and furbearer habitat;
- Potential effects on traplines; and
- Impacts to trap boxes for marten.

Lheidli-T'enneh did not identify any trap lines within their traditional territory in proximity to the proposed Project area in the Application or in the Proponent's Aboriginal Consultation Reports.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to trapping – as discussed in section 6.2.3 of this report – the proposed Project is expected to have negligible impacts on Lheidli-T'enneh First Nation's asserted Aboriginal right to trap.

Cultural sites and trails

Lheidli-T'enneh First Nation raised concerns about potential effects on culturally modified trees (CMT), archaeological sites and culturally important sites, including

- Concerns regarding identification and avoidance of CMTs;
- Community involvement in CMT scoping;
- Potential impact on archaeological sites and resources;
- Potential impact on traditional trails, and requesting that trails be treated like other culturally important sites.

Culturally important habitation sites and sacred areas identified in the Application (section 23) associated with Lheidli-T'enneh First Nation traditional land and resource use include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
53 km southeast of KP 295	Dzulhyazchun Tsalakoh Reserve
60 km southeast of KP 280	Ts'un'k'ut Reserve

In consideration of the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Lheidli-T'enneh First Nation, the proposed Project is expected to result in negligible impacts on Lheidli-T'enneh First Nation's culturally important sites, trails and travelways.

Other issues raised

During the EA process, Lheidli-T'enneh raised a number of other concerns. These are summarized in the following table, along with a brief response from the EAO. Detailed comments raised by Lheidli-T'enneh and the Proponents response to each comment are provided in the Aboriginal Consultation Report #3.

Issues Raised	EAO/Proponent Response
<p>Pipeline safety and integrity, including concerns regarding corrosion, leaks, possibility of explosions, and emergency response plans</p>	<p>EAO has assessed the potential effects of the proposed Project on the geophysical environment, including terrain integrity, and the potential risks of accidents or malfunctions in Part B sections 5.22 and 10 of the assessment report. EAO is of the opinion that safety risks have been mitigated appropriately.</p>
<p>Concern that proposed Project timelines are too tight and that there may be insufficient capacity for Aboriginal Groups to engage in the EA</p>	<p>Refer to Part C section 2.1 for Common Concerns raised.</p>
<p>Desire for long-term benefits over the life of the proposed project including economic benefits and employment</p> <p>Need for training and employment opportunities, including Aboriginal contracting opportunities during construction</p>	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the Proponent that would remain confidential; and • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information to ensure that meaningful partnerships are developed for both the Project and the community. Objectives and</p>

Issues Raised	EAO/Proponent Response
	<p>measurable outcomes would be developed alongside the training/education partner and will be part of the final partnership plans.</p> <p>The Proponent must continue engagement with Aboriginal groups about construction planning and Project design, including the schedule of construction activities. In the Aboriginal Consultation Report, the Proponent committed to provide opportunities to qualified local Aboriginal contractors to provide clearing and associated services. The Proponent confirms that the selected Pipeline Contractor(s) would be required to submit an Aboriginal Participation Plan (APP) to the Proponent.</p>

7.2.5 Nadleh Whut'en First Nation

Context

- Nadleh Whut'en First Nation is part of the Carrier, or Dalekh, people belonging to the Yinka Dene Alliance. They call themselves the “people who live where the salmon return” and are divided into five clans: frog (*Ihtseh yoo*), bear (*Dumdehm yoo*), caribou (*Luk sil yoo*), owl/grouse (*Ulstah mus yoo*) and beaver (*Tsah yoo*).
- In 2013, Nadleh Whut'en First Nation reported a registered population of 519, with 224 living on reserves. Council elections occur every two years and the most recent election was held in April 2012. Nadleh Whut'en First Nation still practices the *bahlats* (potlatch) system of traditional governance.
- Nadleh Whut'en First Nation has seven reserves located in north-central BC, with a combined area of about 969 ha. The most populated reserve is Nautley IR 1 (Fort Fraser), which is 150 km from Prince George and 6.3 km south of KP 364.5.
- Community members rely on the land for hunting, sustenance, medicine, renewal of spirit, cultural teachings and health.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project is expected to cross and impact a 79-km tract of land through the centre of Nadleh Whut'en asserted territory, just north of Fraser Lake, from Nadleh Whut'en asserted eastern boundary to its western boundary.
- As articulated in a letter dated January 31, 2014, EAO assessed Nadleh Whut'en First Nation's Aboriginal rights claims, based on currently available information related to the activities, practices, traditions and customs integral to the distinctive culture of the Nadleh Whut'en people prior to contact with Europeans (understood to be around 1806). The Province understands that the Nadleh Whut'en First Nation and Stellat'en

First Nation are descendants of what was considered a single sub-group of the Carrier with two villages: Nadleh on the east side of Fraser Lake (now Nautley IR 1), and Stella on the west side of Fraser Lake. Historically, this group was referred to as the Fraser Lake Indians or tribe. It is also understood that fishing, hunting, trapping and gathering practices were an important part of Carrier culture, with fish having primary importance. Although historic descriptions of the traditional territory of the Fraser Lake Indians are vague about specific boundaries, it would have included a portion of the proposed Project route, an area where the Nadleh Whut'en First Nation is assessed to have a strong *prima facie* claim to Aboriginal rights to fish, hunt, gather and trap.

- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in*, which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846. EAO has reconsidered its initial assessment of Aboriginal title claims in the vicinity of the proposed Project and is now of the view that Nadleh Whut'en First Nation has a strong *prima facie* claim to Aboriginal title to a portion of the proposed Project area in proximity to the area historically used as a village or dwelling site (Nadleh village – IR 1, and the winter residences located at Ormand Lake) and nearby resource harvesting areas (hunting, gathering, trapping and fishing) that appear to have been used regularly between Fraser Lake and Ormand Lake as demonstrated by trail systems in that area. The proposed Project would pass about 5.6 km from IR 1 and 4.3 km from IR 2. Although there is some overlap with Yekooche First Nation's asserted territory in the Ormand Lake area north of Fraser Lake, there is no information available indicating that Yekooche historically utilized this area.
- Nadleh Whut'en First Nation is listed in Schedule B of the Section 11 Order. EAO's consideration of the potential impacts of the proposed Project on specifically Nadleh Whut'en First Nation's Aboriginal Interests is discussed below. Given the nature and location of the proposed Project, and the potential impacts to Nadleh Whut'en First Nation's Aboriginal interests, EAO is of the view that the duty to consult the Nadleh Whut'en First Nation lies in the middle to deep part of the *Haida* spectrum.

Summary of consultation

Nadleh Whut'en First Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponent's Aboriginal Group Consultation Plan and Reports, the screening of the Application and on the Application. Nadleh Whut'en First Nation was also provided with opportunities to attend Working Group meetings and workshops, and to meet with EAO staff directly.

EAO provided Nadleh Whut'en First Nation with \$5,000 in capacity funding during the pre-Application phase of the EA for the proposed Project, and offered \$10,000 in capacity funding during the Application Review phase of the EA. The Proponent provided initial capacity funding under an Initial Engagement Agreement dated February

2013. A Memorandum of Understanding between Nadleh Whut'en First Nation and the Proponent, dated August 2013, provided continued capacity funding for Nadleh Whut'en First Nation.

Nadleh Whut'en First Nation also participated in the Natural Gas Pipeline Workshops on November 26, 2013 and May 29-30, 2014.

Nadleh Whut'en First Nation submitted a joint letter with Nak'azdli Band on June 6, 2014, to the EAO about Application Review. Key issues raised by Nadleh Whut'en included: baseline information gaps; lack of meaningful integration of traditional land use and Aboriginal traditional knowledge into the Application; and poor conduct in the assessment of potential impacts on Aboriginal Interests. Comments on EAO's initial draft referral materials were provided to EAO on July 21, 2014 in a joint letter with Nak'azdli Band. Nadleh Whut'en First Nation and Nak'azdli Band also sent a joint letter to EAO on September 26, 2014, highlighting outstanding concerns, including: seeking additional information to understand effect pathways, residual effects and mitigation efficacy; disappointment with EAO's consultation during the EA and with the Proponent's responses in the Issues Tracking Table; and concern with the timelines of the EA.

A meeting had been scheduled between EAO and Nadleh Whut'en First Nation, Nak'azdli Band and Saik'uz First Nation on September 3, 2014, but as a revised version of the Aboriginal Consultation Report had not yet been completed and discussion of changes made to reflect their input on the first draft could not occur on that date, EAO cancelled that meeting. EAO acknowledges Nadleh Whut'en's disappointment that EAO cancelled that meeting. EAO met with Nadleh Whut'en First Nation, Nak'azdli Band, Saik'uz First Nation, and Carrier Sekani Tribal Council on October 1, 2014. At the meeting, topics of discussion included synchronous permitting and concerns with permitting; concern that a cumulative effects assessment had not been required for Greenhouse Gas emissions as part of the EA; outstanding concerns with the EA methodology, sufficiency of baseline data and monitoring; and further information desired on impacts to key indicator species, including white sturgeon. Nadleh Whut'en First Nation proposed several EA certificate conditions for EAO's consideration (refer to Carrier Sekani Tribal Council section, 7.2.1. of Part C, for the conditions proposed).

Nadleh Whut'en First Nation participated in biophysical field studies conducted by the Proponent. Nadleh Whut'en First Nation did not provide TEK, but did conduct a TLUS and collected socioeconomic baseline data in collaboration with Nak'azdli Band and facilitated by CSTC. The preliminary results of these studies were included in the Proponent's Application and Aboriginal Consultation Report #3.

In addition to EAO-led consultation activities throughout the EA, the Proponent met with Nadleh Whut'en First Nation 32 times (during 2012–2014) to discuss contracting and employment, ancillary features and issues and concerns about the route selection within their asserted traditional territory. Issues raised by Nadleh Whut'en First Nation and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Nadleh Whut'en First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts of the proposed Project to Nadleh Whut'en First Nation's Aboriginal Interests

Potential impacts of the proposed Project on Aboriginal Interests, including Aboriginal Groups' rights to hunt, trap, gather, fish and make use of culturally significant sites, are characterized in general terms in section 6.3 of this report. Below, EAO outlines issues identified during the EA, provides additional background information specific to the Nadleh Whut'en First Nation's Aboriginal Interests, and lays out its considerations and conclusions on the seriousness of impacts to the Nadleh Whut'en First Nation's Aboriginal Interests.

The Proponent notes that the following preliminary construction camp locations would potentially overlap with Nadleh Whut'en First Nation's asserted territory: Main #7 and Main #7 (alternate). Nadleh Whut'en First Nation expressed concerns that the effects of these potential camps and other ancillary sites were not included in the first draft of this consultation report. Nadleh Whut'en concerns regarding the locations of ancillary facilities, including worker camps, laydown and storage areas, include:

- Potential for regeneration of resources used following construction and reclamation;
- Lost abilities to pass on knowledge about the lands disturbed and the practices and laws derived from these sites; and
- Perceived and real risks associated with accidents or pollution from all phases of the proposed Project that may lead to changes in behaviour, willingness and ability to use title lands.

EAO has included its assessment of the potential risks of accidents and or malfunctions and effects of the environment in Part B section 10 of this report.

EAO has included a condition that would require the Proponent to continue to engage with Aboriginal Groups regarding issues and site-specific mitigation post-EA. This could include discussions on the state of the land base, including any concerns regarding use of

the proposed Project area, and an Access Control Management Plan that requires the Proponent to provide information on all access (temporary and permanent) requirements.

Aboriginal title

EAO identified Nadleh Whut'en First Nation as having potential strong *prima facie* title claims, as previously described. During the EA process, the following Indian Reserves were identified near the proposed route:

- 6.3 km from Nautley I.R. 1
- 5.0 km from Fraser Lake I.R. 2
- 8.4 km from Yensischuck I.R. 3
- 5.5 km from Seaspunkut I.R. 4
- 5.0 km from Ormond Lake I.R. 7
- 5.0 km from Ormond Creek I.R. 8
- 2.5 km from Fondeure I.R. 9

The following habitation sites were identified:

- 3.1 km north of KP 368- Ormond Lake
- 11.2 km northwest of KP 368 - Camping at Peta Lake
- 5.6 km northwest of KP 369 - Oona Lake
- 11 km north of KP 380 - North of Fraser Lake, specific location unknown

Further to the discussion in section 6.2.6 of Part C of this report regarding the potential impacts of the proposed Project on Aboriginal title claims, in EAO's opinion, the proposed Project would have low to moderate impacts on Nadleh Whut'en First Nation's asserted Aboriginal title. EAO has addressed potential impacts to Nadleh Whut'en First Nation's Aboriginal title claims by ensuring that Nadleh Whut'en First Nation is meaningfully consulted and accommodated around the potential effects of this proposed Project.

In a joint letter with Nak'azdli Band sent to EAO on September 5, 2014, Nadleh Whut'en First Nation indicated its objection to the spatial extent of EAO's assessment of a strong *prima facie* title claim applying to only a specified portion of the proposed Project. Nadleh Whut'en First Nation requests that the evidence used and rationale for the Crown's preliminary findings on strength of title claims be provided. The original strength of claim letter provided to Nadleh Whut'en First Nation on January 31, 2014 articulated EAO's initial assessment of strength of claim, which cited references on which the information was based in Appendix B. Two references were noted to have been provided previously to Nadleh Whut'en First Nation by the Province in 2010 and 2013. EAO received a request on August 28, 2014 inquiring whether EAO had produced any ethnographic reports or preliminary strength of claims assessments,

including bibliography and reference materials. The original January 31, 2014 letter and the 2010 report created by the Ministry of Attorney General “Nadleh Whut’en: Review of Ethnographic and Historical Sources” were provided in response that same day.

Furthermore, the Province and the Proponent have approached Nadleh Whut’en First Nation to discuss initiatives relating to effects of this and other LNG projects that would provide financial, environmental and training benefits as outlined above in section 2.2 of this report. To this end, economic benefits of the project are being discussed with Nadleh Whut’en First Nation, including those arising on potential Aboriginal title lands, and Nadleh Whut’en has a role in considering the proposed use for those lands.

Hunting

Nadleh Whut’en First Nation identified key concerns regarding wildlife, wildlife habitat and its asserted Aboriginal right to hunt, including:

- Opening up access to areas previously inaccessible and the potential for increased hunting pressure on wildlife;
- Effects on caribou: Nadleh Whut’en First Nation historically harvested caribou in their traditional territory;
- Effects on moose and concerns about moose declines in their territory;
- Potential adverse effects on ungulates and ungulate calving areas;
- Potential loss of beaver habitat;
- Potential adverse effects on bear habitat including disturbance of bear dens during construction;
- Potential adverse effects of construction on small furbearers;
- Effects on wetland wildlife habitat and land use areas; and
- Loss or contamination of mineral licks during pipeline construction.

Key hunting areas identified in the Application (Section 23, Tables 23-32 and 23-34) as being used by Nadleh Whut’en First Nation included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
3.3 km northwest of KP 366	Sutherland River Valley
33 km north of KP 393	
1.5 km north of KP 350.5	Barlow Lake
From KP 330.5 to KP 351.5	Barlow Road
13 km northwest of KP 386	Ormond Creek
3.1 km north of KP 368	Ormond Lake
24.4 km northwest of KP 360	Sutherland River

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
3.3 km northwest of KP 366	Sutherland River Valley, specific location unknown
Crosses at KP 409.5	Tchesinkut Creek, specific location unknown
8.7 km northwest of KP 360	Angly Lake
40 km northwest of KP 572	Top Lake
2.4 km northwest of KP 363	Etcho Lake

Out of the 12 hunting areas identified in the Application, two Nadleh Whut'en First Nation hunting areas are identified as overlapping with the proposed Project corridor - KP 330.5 to 351.5 (Barlow Rd) and 409.5 Tchesinkut Creek. EAO has not been provided with specific information about what is hunted there.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat and current and traditional land use related to hunting – as discussed in section 6.3.1 of this report – the proposed Project is expected to have minor impacts on Nadleh Whut'en First Nation's ability to hunt.

Trapping

Nadleh Whut'en First Nation raised key concerns regarding wildlife, wildlife habitat and the asserted Aboriginal right to trap, including:

- Potential adverse effects of construction on traplines;
- Potential loss of beaver habitat;
- Potential adverse effects of construction on small furbearers; and
- Effects on wetland wildlife habitat and land use areas.

One key trapping area was identified in the Application (Section 23, Table 23-32) as being used by Nadleh Whut'en First Nation:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
3.3 km northwest of KP 366	Sutherland River Valley

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat and current and traditional land use related to trapping – as discussed in section 6.3.3 of this report – and the relative distance

between the area of the proposed Project and trapping locations identified by Nadleh Whut'en First Nation, the proposed Project is expected to have minor impacts on Nadleh Whut'en First Nation's asserted Aboriginal right to trap.

Gathering

Nadleh Whut'en First Nation identified key concerns regarding vegetation and the asserted Aboriginal right to gather, including:

- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants;
- Concerns regarding right-of-way clearing (impacts on the land, forestry goods, food and medicinal plants along with animal habitat);
- Potential loss of culturally important plants;
- Introduction or spread of invasive plant species;
- Use of herbicides or pesticides;
- Permanent loss of the right-of-way to gathering as their members would not consider this an appropriate place to gather food or medicine;
- Cumulative effects on traditional foods; and
- Effects on wetlands which are important for traditional use.

Key gathering areas identified in the Application (Section 23, Tables 23-32 and 23-34) as being used by Nadleh Whut'en First Nation included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
11 km north of KP 380	North of Fort Fraser, specific location unknown
From KP 330.5 to KP 351.5	Barlow Road.
13 km northwest of KP 386	Ormond Creek
3.1 km north of KP 368	Ormond Lake
24.4 km northwest of KP 360	Sutherland River
3.3 km northwest of KP 366	Sutherland River Valley, specific location unknown
5.6 km northwest of KP 369	Oona Lake
8.7 km northwest of KP 360	Angly Lake
40 km northwest of KP 572	Top Lake

One gathering area was identified by Nadleh Whut'en First Nation as overlapping with the corridor - KP 330.5 to 351.5 (Barlow Rd). EAO has not been provided with specific information about what is gathered in that location. Other identified areas of use were 3 to 40 km away from the propose route. Access to gathering areas may be temporarily

disrupted during construction and maintenance activities; however, engagement of Nadleh Whut'en during construction planning would, to a large extent, mitigate these effects.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on vegetation, current and traditional land use as it relates to gathering – as discussed in section 6.2.4 of this report – the proposed Project is expected to have minor impacts on Nadleh Whut'en First Nation's ability to gather.

Fishing

Nadleh Whut'en First Nation identified key concerns regarding fish and fish habitat and the asserted right to fish, including:

- Potential adverse effects on fish and fish habitat, especially salmon;
- Potential impacts from river and stream crossings and disturbance to riparian habitat;
- Potential impacts to fish from increased sedimentation;
- Concerns of water contamination along Tchesinkut Creek;
- Concerns about adverse impacts to Etcho Lake, Top Lake, Angly Lake, Oona Lake, Peta Lake, Ormond Lake, Ormond Creek and Trout Lake; and
- Potential adverse effects on water quality.

Key fishing areas identified in the Application as being used by Nadleh Whut'en (Section 23, Tables 23-32 and 23-34) included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
31 km north of KP 339	Mouth of the Stuart River
3.3 km northwest of KP 366	Sutherland River
3.5 km north of KP 370	Ormond Lake area
13 km northwest of KP 386	Ormond Creek
3.1 km north of KP 368	Ormond Lake
24.4 km northwest of KP 360	Freshwater spring at Sutherland River
5.6 km northwest of KP 369	Oona Lake
8.7 km northwest of KP 360	Angly Lake
40 km northwest of KP 572	Top Lake

Several important fishing areas were identified in the Application as being 3 to 40 km away from the proposed Project corridor.

The proposed Project corridor would traverse approximately 79 km of Nadleh Whut'en First Nation asserted traditional territory, with approximately 131 watercourse crossings, 15 of which have indicated fish presence. Clear Creek (KP 328.55), Ormond Creek (KP373.73), and the Endako, River (KP 390.46) are the only large crossings.

The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method to avoid and minimize potential impact to fish and fish habitat. Open cut trench method would be used only for non-fish bearing watercourse crossings, or where the channel is dry or frozen to the bottom.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – and the relative distance between the area of the proposed Project and fishing locations identified by Nadleh Whut'en First Nation, the proposed Project is expected to have minor impacts on Nadleh Whut'en First Nation's ability to fish.

Culturally important sites

Nadleh Whut'en First Nation identified key concerns regarding culturally important sites, including:

- Potential adverse effects on areas of cultural significance;
- Potential disturbance of archaeological sites;
- Potential adverse effects on culturally modified trees; and
- Interfering to aquifers containing medicinal properties;
- A desire for Aboriginal Groups to participate in mitigation of found archaeological, historical or paleontological materials.

Key culturally important sites identified in the Application (Section 23, Tables 23-32 and 23-34) as being used by Nadleh Whut'en First Nation included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trails and Travelways	
16 km north of KP 356	From Whool-tan to Marie Lake
1 km south of KP 368	No additional information provided
Crosses at KP 816	Fort St. James near Nadleh

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Habitation Sites	
11 km north of KP 380	North of Fraser Lake, specific location unknown
3.1 km north of KP 368	Ormond Lake
11.2 km northwest of KP 368	Camping at Peta Lake
5.6 km northwest of KP 369	Oona Lake
Sacred Areas	
16 km north of KP 356	Burial sites in the Marie Lake region

One trail was identified as crossing the proposed Project route. Several other trails, habitation sites and sacred areas were identified in the Application as being 1 to 16 km away from the proposed route.

In consideration of the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – the proposed Project is expected to result in minor impacts on Nadleh Whut'en First Nation's culturally important sites, trails and travelways.

Other issues raised

During the EA process, Nadleh Whut'en First Nation raised a number of other concerns. These are summarized in the following table, along with a brief response from the EAO. Detailed comments raised by Nadleh Whut'en and the Proponents response to each comment are provided in the Aboriginal Consultation Report 3.

Issues Raised	EAO/Proponent Response
Concern that the proposed Project would be converted to an oil pipeline	Refer to section 2 of Part C for Common Concerns.
Need for attention to pipeline safety	The Proponent has undertaken detailed terrain analysis, the results of which continues to inform the construction planning and detailed engineering design of the proposed Project. In addition to the current process administered by the EAO, the Proponent is required to provide detailed information regarding the design of the Project for review by the OGC and meet detailed design and operational safety requirements specified in legislation administered by the OGC.
Need for training and employment	For Aboriginal Groups, the proposed Project would

Issues Raised	EAO/Proponent Response
<p>opportunities and contracting opportunities</p> <p>Benefits to Aboriginal Groups</p>	<p>have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the Proponent that would remain confidential; and • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent must continue engagement with Aboriginal Groups about construction planning and Project design, including the schedule of construction activities. In the Aboriginal Consultation Report, the Proponent committed to provide opportunities to qualified local Aboriginal contractors to provide clearing and associated services. The Proponent confirms that the selected Pipeline Contractor(s) would be required to submit an Aboriginal Participation Plan (APP) to the Proponent.</p>
<p>Potential effects on air quality</p>	<p>See analysis in section 5.2 of Part B of this report. The effects of the proposed Project on air quality from proposed compressor stations are expected to be low to moderate in magnitude, and are estimated to remain below provincial and federal guidelines and exceedances are not expected to occur in locations where sensitive receptors would be adversely affected.</p>
<p>Location of ancillary features and facilities</p>	<p>Refer to response in Common Concerns Section 2.1 in Part C.</p>
<p>Hydrostatic testing – do not want biocides to get into local water table, concerned about effects on drinking water</p>	<p>The Proponent has committed that biocides would not be used during hydrostatic testing.</p>
<p>ATK collection inadequate</p>	<p>For the purposes of determining the appropriateness of</p>

Issues Raised	EAO/Proponent Response
	<p>the information in the Application, EAO was satisfied that the Proponent's Application contained the information as set out in the Application Information Requirements (AIR). EAO has set out a proposed condition to update the Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups. Any additional ATK/TLU information provided by Aboriginal Groups would also help inform the development of plans and any additional site-specific mitigation required.</p> <p>EAO has proposed a condition requiring the Proponent to avoid prohibiting access for Aboriginal Groups to carry out traditional use activities identified in Traditional Use Studies .</p>
Concerns about Acid Rock Drainage (ARD)	<p>EAO acknowledges this concern about ARD. EAO has assessed potential residual effects of ARD in Part B section 5.2.3 of this report.</p> <p>The risk of producing ARD would be greatest during pipeline construction and could result from activities associated with grading, trenching or tunneling. The exposure and subsequent weathering of some types of bedrock could cause ARD and metal leaching. Metal leaching may co-exist with ARD as they both originate from oxidation of metal sulphides in mineralized rock.</p> <p>With appropriate measures applied to fully mitigate any potential adverse effects, EAO expects any potential residual adverse effects to be of low magnitude. EAO has proposed a condition requiring the development of an Acid Rock Construction Response Plan.</p>
Inadequate rationale for spatial boundaries and missing or improper temporal boundaries for the scope of assessment	<p>Spatial boundaries, methodology and consideration of temporal boundaries for the scope of assessment on all VCs was described in the Application and were determined by EAO to be sufficient based on the AIR.</p> <p>EAO has set out a proposed condition to require the update of Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups.</p>

Issues Raised	EAO/Proponent Response
	The plans would be implemented, and would continue to be updated prior to and during construction based on site-specific conditions.
Improper consideration of cumulative effects and assessment	Refer to section 2.1 in Part C of this report.
Concern that EAO has mischaracterized Nadleh Whut'en's strength of title claim in the proposed Project area	<p>EAO reviewed these sources when assessing the strength of Nadleh Whut'en's Aboriginal rights and title claims:</p> <ul style="list-style-type: none"> • Ministry of Attorney General (2010). Nadleh Whut'en: Review of Ethnographic and Historical Sources; • Ministry of Attorney General (2008). Stelat'en and Nadleh Whut'en First Nation, November 2008 ; and • The History of the Northern Interior of British Columbia: Formerly New Caledonia, 1160-1880. Adrian Garbiel Morice. 1905. <p>EAO requested Nadleh Whut'en First Nation to provide EAO with any additional information regarding traditional use of the area of the proposed Project at around the time of contact and 1846 to inform the assessment of the strength of its claims to Aboriginal rights and title.</p> <p>EAO also considered the feedback received in the September 5 letter, as included in the Aboriginal Title discussion above. Based on the information available, EAO continues to believe its assessment is appropriate for the purposes of determining the required level of consultation.</p>
Concern regarding EAO using the effects of VCs to assist with the characterization of effects to Aboriginal Interests	EAO used a number of sources when determining the potential effects of the proposed Project to Aboriginal Interests, including information provided by Aboriginal Groups, as well as information provided by the Proponent. For VCs that coincide with Aboriginal Interests, such as caribou, the assessment of the VC informed EAO's consideration of the potential impacts to Aboriginal Interests where relevant.
Concern regarding EAO's treatment of the comments that have been	Nadleh Whut'en First Nation, together with Nak'azdli Band, have provided many substantive comments to

Issues Raised	EAO/Proponent Response
provided by Nadleh Whut'en	EAO during the EA for the proposed Project. EAO has considered all of these comments during the EA. EAO has included a summary of the comments received in this report. Refer to the issues tracking table in Appendix 2 .
<p>Concern regarding missing information in the first draft of the referral documents, including:</p> <ul style="list-style-type: none"> • Issues tracking tables; • References for strength of claims for each Aboriginal Group; • List of consultation activities; • Correspondence log; • Final conclusions on significant adverse effects; • Traditional land and resource use section of the assessment report, and • Heritage section of the assessment report. 	<p>EAO delayed sending out some material to the working group as, in the case of the tracking tables, conclusions, traditional land use and heritage sections of the assessment report, EAO was still considering the material and committed to sending this material to the working group at a later time.</p> <p>At the time that the first draft of EAO's Aboriginal Group's Consultation Report was sent out, the consultation log and list of consultation activities were being compiled, and in EAO's view, it was better to get the report out instead of waiting for the logs to be completed.</p> <p>EAO included the information sources that were relied on in conducting the initial assessment of strength of claims in the appendix to the January 31, 2014 letter to Nadleh Whut'en First Nation.</p>

7.2.6 Nak'azdli Band

Context

- Nak'azdli Band is made up of Dakelh-speaking members of the Carrier people. Clan territories (*keyohs*) are governed under Hereditary Chiefs in a matrilineal line of clan Elders. There are 42 *keyohs* within Nak'azdli Band, and the clan system is a strong part of the Nak'azdli community organization and identity. Chief and Council are elected to two- or three-year terms.
- Nak'azdli Band has 17 reserves. Nak'azdli (Necoslie) IR 1, Sowchea IR 3 and Williams Prairie Meadow IR 1A are currently occupied. Nak'azdli (Necoslie) IR 1 is the administrative centre and most populated reserve. In 2013, Nak'azdli Band had a registered population of 1,850, with 695 living on reserve.
- A key value identified by Nak'azdli Band is access to undisturbed land to practice traditional customs. Nak'azdli Band community members continue to hunt, fish and gather staple country foods in the region.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project crosses 117 km of the southern portion of Nak'azdli Band's asserted traditional territory. The proposed corridor route enters the east border of the asserted territory near the confluence of Salmon River and Muskeg River, crosses the asserted territory in a southwest direction, and exits at its west border near Fraser Lake.
- The Province understands that the Naz'azdli Band's is a modern entity with descendants from the pre-contact Necosilweten Carrier subtribe, the people of Na'kraztli of southern Stuart Lake and Stuart River. It is also understood that fishing, hunting and gathering practices were an important part of Carrier culture, with fish having primary importance.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in* which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846. Based on the information reviewed and test for title as set out in *Tsilhqot'in*, EAO is of the view that there is no information indicating sufficient or exclusive occupation that supports a *prima facie* claim of Aboriginal title within or near the portion of the proposed Project route that overlaps the southern extent of the asserted traditional territory of Nak'azdli Band and beyond the areas south and east of the Stuart River and Great Beaver Lake historically relied on by Nak'azdli.
 - In a joint letter with Nadleh Whut'en First Nation sent to EAO on September 5, 2014, Nak'azdli Band indicated its objection to EAO's assessment of a low to moderate *prima facie* title claim, indicating the information relied on by EAO was inadequate, and that EAO had not consulted with Nak'azdli on this topic and requested that the evidence used and rationale for the Crown's preliminary findings on strength of title claims be provided. EAO provided a letter to Nak'azdli on December 20, 2013 discussing the initial assessment of strength of claims, which included in Appendix B a list of references that was relied on that assessment, enclosing a 2009 ethnohistoric report.
 - Nak'azdli Band expressed concerns that the assessment of title claim did not consider Nak'azdli Band's perspective, nor did it use a culturally sensitive approach to consider sufficiency of occupation, as called for in the *Tsilhqot'in* decision, including Nak'azdli Band's laws and practices, number of people, technologies, and character of the land and water as essential considerations.
- In relation to Title, Nak'azdli Band also specifically identified Chunlak as being "*central to our people before 1846; when Tso'dih was preparing for battle with the Chilcotin, he went from Chunlak to McLeod to ask for their assistance. There are historical references and oral history handed down over time tell us that our territory was east of the Stuart River.*"

It is EAO's understanding that, in relation to *Chunlak* (also referred to in ethnohistoric sources as *Chinlac* or *Tcinlak*), this is the site of a former large village, probably

occupied at 1846. A review of ethnohistoric sources notes that Morice considered the inhabitants to be have been Tanotene (understood to be the ancestors of the Lheidli T'enneh), but also allied in blood and dialect to Lower Carriers of Stoney Creek (understood to be the ancestors of the Saik'uz). Sources document an attack at *Chunlak* in 1745 by Tsilhqot'in raiders resulting in residents of *Chunlak* being "practically annihilated". Survivors of the 1745 attack were described in the sources to have lived with the Stoney Creek population, and some also at Lheitli. Sources also indicate that *Chunlak* residents are closely related to Nadleh and probably Nak'azdli, who frequently gathered together for ceremonial feasts and socialized together. Aboriginal presence is noted at *Chunlak* in the early 1800s. However, there is uncertainty about which Carrier groups occupied this site around 1846.

EAO invites further information from Nak'azdli Band to help understand this reference as supporting Nak'azdli Band's title claim in relation to the proposed Project and its potential effects, including information demonstrating exclusive, sufficient occupation and use of areas by Nak'azdli Band at 1846.

- Nak'azdli Band is listed in Schedule B of the Section 11 Order. EAO's consideration of the potential impacts of the proposed Project on specifically Nak'azdli Band's Aboriginal Interests is discussed below. Given the nature and location of the proposed Project corridor route and the potential impacts to Nak'azdli Band's Aboriginal Interests, EAO is of the view that the duty to consult lies in the low to middle part of the *Haida* spectrum.

Summary of consultation

Nak'azdli Band was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponent's First Nations Consultation Plan and Reports, the screening of the Application and the Application. Nak'azdli Band was also provided with opportunities to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided Nak'azdli Band with \$5,000 in capacity funding during the pre-Application phase of the EA for the proposed Project, and offered \$10,000 in capacity funding during the Application Review phase of the EA. The Proponent provided a Letter of Agreement dated December 2012, for initial capacity funding for Nak'azdli Band to engage in discussions regarding the proposed Project. A Memorandum of Understanding between Nak'azdli Band and the Proponent, dated July 2013, provided continued capacity funding for Nak'azdli Band.

Nak'azdli Band submitted several letters to EAO and the Minister of Environment (February 19, 2014, and April 22, 2014) and a letter June 6, 2014 together with Nadleh

Whut'en First Nation to EAO with extensive comments and concerns about deficiencies in the AIR, Application Screening/Evaluation and Application Review.

Key issues raised by Nak'azdli Band included baseline information gaps, lack of meaningful integration of traditional land use (TLU) and Aboriginal traditional knowledge (ATK) into the Application and poor conduct in the assessment of potential impacts on Aboriginal Interests. EAO provided a detailed letter (February 28, 2014) in response to issues and concerns raised by Nak'azdli Band in their letter dated February 19, 2014, about the Application and EA process. Comments on EAO's initial draft referral materials were provided to EAO on July 21, 2014 in a joint letter with Nadleh Whut'en First Nation. Nadleh Whut'en First Nation and Nak'azdli Band sent a joint letter to EAO on September 26, 2014, highlighting outstanding concerns, including: seeking additional information to understand effect pathways, residual effects and mitigation efficacy; disappointment with EAO's consultation during the EA and with the Proponent's responses in the Issues Tracking Table; and concern with the timelines of the EA. A meeting had been scheduled between EAO and Nadleh Whut'en First Nation, Nak'azdli Band and Saik'uz First Nation on September 3, 2014, but as a revised version of the Aboriginal Consultation Report had not yet been completed and discussion of changes made to reflect their input on the first draft could not occur on that date, EAO cancelled that meeting. EAO acknowledges Nak'azdli Band's disappointment that EAO cancelled that meeting. EAO met with Nadleh Whut'en First Nation, Nak'azdli Band, Saik'uz First Nation, and Carrier Sekani Tribal Council on October 1, 2014. At the meeting, topics of discussion included synchronous permitting and concerns with permitting; concern that a cumulative effects assessment had not been required for Greenhouse Gas emissions as part of the EA; outstanding concerns with the EA methodology, sufficiency of baseline data and monitoring, and further information desired on impacts to key indicator species, including white sturgeon. Nadleh Whut'en First Nation proposed several EA certificate conditions for EAO's consideration. (refer to Carrier Sekani Tribal Council section, 7.2.1. of Part C, for the conditions proposed).

Nak'azdli Band participated in working group meetings on March 4 - 5, 2013, May 20-22, 2014, May 27-28, 2014 and June 5, 2014. Nak'azdli Band also participated in the Natural Gas Pipeline Workshop on November 26, 2013, February 4, 2014 and May 29-30, 2014.

Nak'azdli Band participated in biophysical field studies. It did not provide TEK, but did conduct a Traditional Land Use study and collected socioeconomic baseline data in collaboration with Nadleh Whut'en First Nation and facilitated by CSTC. The results of these studies were included in the Proponent's Application Aboriginal Consultation Report #3.

The Application (section 14) included assessments of Aboriginal Group's land use plans and policies, as well as regional land and resource management plans (LRMPs) related to other land use values (such as recreational hunting, fishing and trapping). In addition to traditional land use information, the Nak'azdli Stewardship Policy was included in the review of available information on Aboriginal Group land use plans.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with the Nak'azdli Band 32 times (during 2012–2014) to discuss Project-related issues and concerns, including the route selection within Nak'azdli Band's asserted traditional territory, information requirements for environmental baseline studies, traditional land use studies and cumulative effects assessments. Issues raised by Nak'azdli Band and the Proponent's responses are provided in the Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Nak'azdli Band as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts of the proposed Project on Nak'azdli Band's Aboriginal Interests

Potential impacts of the proposed Project on Aboriginal Interests, including Aboriginal groups' rights to hunt, trap, gather, fish and make use of culturally significant sites, are characterized in general terms in section 6.2 of this report. Below, EAO outlines issues identified during the EA, provides additional background information specific to Nak'azdli Band's Aboriginal Interests, and lays out its considerations and conclusions on the seriousness of impacts to the Nak'azdli Band's Aboriginal Interests. Concerns related to ancillary facilities and sites, including general concerns raised by Nak'azdli Band, are addressed in Section 2.1 above.

Hunting

Nak'azdli Band raised key concerns regarding wildlife, wildlife habitat and the asserted right to hunt, including:

- Potential effects on moose and concerns about moose declines within their asserted traditional territory;
- Potential access related effects on moose, including increased predation and hunting pressure and potential disturbance and mortality at high use areas for moose including the Hwy 27 crossing.
- Potential effects on caribou (Nak'azdli historically harvested caribou in their traditional territory);

- The Application did not consider that caribou occur throughout Nak’azdli territory in low density (not captured by the cited ranges), and that caribou were historically harvested and are of cultural importance;
- Potential effects on wildlife breeding, calving, resting and feeding grounds;
- Effects to beaver habitat including dams and lodges;
- Potential effects to bear and bear habitat including disturbance of bear dens during construction;
- Potential impacts to small furbearers and furbearer habitat (squirrel middens);
- Potential impacts to wolf and wolf habitat; and
- Destruction of historic game trails.

Nak’azdli Band hunting areas identified in the Application (Section 23, Tables 23-37 and 23-39) included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
30 km north of KP 341 to KP 299	6 Mile Meadow on the Stuart River
6 km north of KP 303	Necoslie River
28 km north of KP 351	Sowchea Creek
15 km north of KP 356	Marie Lake area
Crosses at KP 296.7	Stuart River, specific location unknown
29.4 km north of KP 338	Highway 27 crossing

One of six of Nak’azdli Band’s hunting areas was identified as overlapping with the proposed Project corridor - 296.7 Stuart River, the specific location unknown. EAO has not been provided with specific information about what is hunted there. Other Nak’azdli Band hunting areas range from 6 to 30 km away from the proposed Project corridor.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to hunting – as discussed in section 6.2.1 of this report - the proposed Project is expected to have minor impacts on Nak’azdli’s ability to hunt.

Trapping

Nak’azdli Band raised concerns about the potential effects on trap lines and traditional trapping practices.

Three trap lines within Nak’azdli territory in proximity to the proposed Project Area were identified in the Application (Section 23, Table 23-37):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
8 km west of KP 252	North shore of Mossvale Lake
Crosses at KP 256	Muskeg River, specific location unknown
42.2 km northwest of KP 222	McDougall River

One of three trap lines identified by Nak’azdli Band intersects the proposed Project corridor- KP 256 Muskeg River, the specific location unknown. EAO has not been provided with specific information about what is hunted there. Other trap lines identified by Nak’azdli Band in their traditional territory range from 8 to 42 km away from the proposed Project corridor.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to trapping – as discussed in section 6.2.3 of this report – the proposed Project is expected to have minor impacts on Nak’azdli Band’s ability to trap.

Fishing

Nak’azdli Band raised the following key concerns related to potential effects to fish and fish habitat:

- Potential impacts from river and stream crossings and disturbance to riparian habitat;
- Impacts to fish, particularly salmon;
- Potential impacts to fish from increased sedimentation;
- Potential effects on water quality related to construction including watercourse crossings, equipment maintenance and potential spills;
- Potential effects on fish and fish habitat associated with watercourse crossings (including reclamation and restoration methods);
- Cumulative effects to fish and fish habitat in the Nak’azdli Band’s traditional territory, including concerns related to overall fish health in this area as a result of the Mount Polley Mine spill; and
- Specific water bodies of concern included Beaver Lake, Salmon River, Muskeg River, Stuart River and Fraser River. The Salmon River and Muskeg River confluence is an important area for salmon spawning habitat. The Stuart River

crossing provides important habitat for salmon and critical habitat for white sturgeon (a SARA-listed species).

The proposed Project corridor would traverse approximately 117 km of Nak’azdli Band’s asserted traditional territory, with approximately 136 watercourse crossings, 22 of which have indicated fish presence. There are four large crossings: Salmon River (KP 253.65), Stuart River (KP 296.78), Clear Creek (KP 328.55) and an unnamed tributary to Muskeg River (KP 229.35).

Fishing areas identified in the Application (Section 23, Tables 23-37 and 23-39) for assessment of potential effects to Nak’azdli Band’s current and traditional land use included the following sites in proximity to the proposed pipeline route:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
27 km west of KP 254	Salmon River
Crosses at KP 299	Stuart River, specific reach/location unknown
30 km north of KP 341 to KP 299	6 Mile Meadow on the Stuart River
6 km north of KP 303	Necoslie River
34 km north of KP 334	Spad Lake
32 km north of KP 352	Stuart Lake
27.4 km north of KP 371	Long Island at the south end of Stuart Lake
Crosses at KP 296.7	Stuart River, specific reach unknown
909 m north of KP 253.9	Salmon River and Muskeg Junction

There is an important fishing village (Nakalkoh) on the Stuart River located about 15 km north of the proposed route. The proposed pipeline crossing the Stuart River (at KP 299) was initially identified in the Application with a potential for a significant adverse effect to fish and fish habitat due to the presence of critical habitat for white sturgeon (a SARA-listed species) and important salmon habitat. However, in response to concerns raised during Application Review, the Proponent provided an Addendum to the Application (March 2014) with a route revision and a proposed trenchless (HDD) crossing of the Stuart River in order to avoid potential impacts to critical habitat for white sturgeon as the primary option for crossing the Stuart River.

The other fishing areas identified in the traditional land use assessment are located about 6 km–30 km away from the proposed pipeline and are not expected to be impacted by the proposed Project.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – and the relative distance between the area of the currently proposed Project route which included a re-routing to avoid the previous KP299 concerns for sturgeon, and fishing locations identified by Nak’azdli Band, the proposed Project is expected to have minor impacts on Nak’azdli Band’s ability to fish.

Gathering

Nak’azdli Band raised the following key concerns regarding potential effects to gathering activities:

- Do not allow herbicides or pesticides used in Nak’azdli Band’s territory;
- Nak’azdli members would not consider the ROW an appropriate place to gather food or medicine, therefore this area would be permanently lost to plant gathering;
- Cumulative effects on traditional foods; and
- Effects on wetlands – important for traditional use.

Nak’azdli Band’s plant gathering areas identified in the Application (Section 23, Tables 23-37 and 23-39) include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
29 km north of KP 347	No additional details provided
Crosses at KP 296.7	Stuart River, specific location unknown
909 m north of KP 253.9	Salmon River and Muskeg River Junction

One of three gathering areas identified by Nak’azdli Band is intersected by the proposed Project corridor- KP 296.7 Stuart River, the specific location unknown. EAO has not been provided with specific information about what is gathered there.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on vegetation, current and traditional land use related to gathering – as discussed in section 6.2.4 of this report - the proposed Project is expected to have minor impacts on Nak’azdli Band’s ability to gather.

Impacts to culturally important sites, trails and travelways

Nak'azdli Band raised concerns about the potential effects on CMTs, archaeological sites and culturally important sites.

Nak'azdli Band is concerned that there has not been a large amount of archaeological investigations in their traditional territory. Nak'azdli Band is concerned that the Proponent's interpretation of archaeological values may be different from those of Nak'azdli Band. Nak'azdli Band is concerned that archeologists that have worked in other areas of the province may not have enough knowledge of Dakelh culture and history. Nak'azdli Band is concerned that archaeological investigations that occur without Nak'azdli Band's involvement may not be fully informed and that mitigation may not be sufficient to address the potential effects.

Culturally important trails and travelways, habitation sites, gathering places and sacred areas identified in the Application (Section 23, Tables 23-37 and 23-39) associated with Nak'azdli Band traditional land use include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trails and Travelways	
23 km northwest of KP 200	From Carrier Lake to Salmon River and Carp Lake to McLeod Lake
2 km east of KP 248	From Carp Lake to Slender Lake
9 km northwest of KP 247	From Beaver Lake to Terrapin Lake
27 km west of KP 254	East of Great Beaver Lake
180 km southeast of KP 295	Along Cunningham Forest Service Road
Unknown location	From Sochea to Nadleh
Unknown location	From Dog Creek to Nadleh River
Habitation Sites	
8 km west of KP 252	Trapping cabin on the northwest shore of Mossvale Lake
40 km northwest of KP 277	Historic village at Carrier Lake
98 km northwest of KP 277	Cabin site at the confluence of Rainbow Creek and Nation River
33 km north of KP 301	Cabin at the mouth of Beaver Creek
29 km north of KP 306	Historic villages on the south shore of the west end of Beaver Lake outlet
12 km north of KP 312	Historic village at Thompson Lake near the Stuart River
15 km north of KP 356	Cabin in the Marie Lake region
27.4 km north of KP 371	Historic village at Stuart Lake near Gordon

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
241 km southeast of KP 351	Historic village at Marguerite Lake near Stuart River
35.6 km south of KP 331	Historic village at Nahounly Creek
Crosses at KP 296.7	Stuart River, specific location unknown
29.4 km north of KP 338	Highway 27 crossing
Gathering Places	
15 km northwest of KP 277	Southern tip of Great Beaver Lake
Sacred Areas	
27 km northwest of KP 274	Burial site at Great Beaver Lake
37 km northwest of KP 277	Burial site at the north tip of Great Beaver Lake
34 km north of KP 302	Burial site at Great Beaver Lake
18 km north of KP 331	Spiritual sites along east side of Stuart River
30 km north of KP 341	Ceremonial site at the mouth of Stuart River
17 km north of KP 356	Burial sites north of Marie Lake

In consideration of the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Nak'azdli Band, the proposed Project is expected to result in minor impacts on Nak'azdli Band's culturally important sites, trails and travelways.

Other issues raised

During the EA process Nak'azdli Band raised a number of other concerns. These are summarized in the following table, along with a brief response from EAO. Detailed comments raised by Nak'azdli Band and the Proponents response to each comment is provided in the Tracking Table (Appendix 2).

Issues Raised	EAO/Proponent Response
Lack of evidence to support the purported benefits of the proposed Project on Aboriginal people	For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include: <ul style="list-style-type: none"> Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the Proponent that would remain confidential.

Issues Raised	EAO/Proponent Response
	<ul style="list-style-type: none"> • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>Information on the "Benefits of the Project to affected Aboriginal communities" is located in section 8.3 of this Report.</p>
Baseline information gaps including lack of meaningful integration of TLU and ATK into the Application	<p>Baseline information on all VCs and integration of available traditional land use and Aboriginal traditional knowledge in the Application was determined to be sufficient based on the AIR.</p> <p>EAO understands that the Proponent incorporated TLU and ATK into the Application where that information was made available to them before submission of the Application to EAO. During the EA, EAO considered TLU and ATK provided by Aboriginal Groups.</p>
Inadequate rationale for spatial boundaries and missing or improper temporal boundaries for the scope of assessment	<p>Spatial boundaries, methodology and consideration of temporal boundaries for the scope of assessment on all VCs was described in the Application and were determined by EAO to be sufficient based on the AIR. During the pre-application stage of the EA, EAO provided the working group opportunities to review and provide comment on the assessment boundaries in the AIR.</p> <p>EAO has set out a proposed condition to require the Proponent to update the Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups. The plans would be implemented, and would continue to be updated prior to and during construction based on site-specific conditions.</p>
Improper consideration of cumulative	Refer to response in Part C section 2.1 of this Report.

Issues Raised	EAO/Proponent Response
effects and assessment	
Lack of proper consideration of socio-economic effects	Refer to Part B sections 6 and 7 for assessment of potential social and economic effects on Aboriginal Groups, local governments, communities, and service providers.
Improper consideration of cumulative effects and assessment	Refer to Common Concerns in Part C section 2.1.
Concern that EAO has mischaracterized Nak'azdli's strength of title claim in the proposed Project area	<p>EAO considered the following sources assessing the strength of claims of Nak'azdli in the area of the proposed Project:</p> <ul style="list-style-type: none"> • Ministry of Attorney General (2009). Nak'azdli Band: Review of Anthropological and Historical Sources Relating to the Use and Occupation of Land; and • Ministry of Justice (2013). Coastal GasLink Pipeline Project: Review of Ethnographic and Historical Sources, June 12, 2013 Draft. <p>EAO requested that Nak'azdli Band provide to EAO any additional information relating to its traditional use of the area of the proposed Project at around the time of contact and 1846 to inform the assessment of the strength of its claims to Aboriginal rights and title.</p> <p>EAO also considered the feedback received in the Sept 5, 2014 letter.</p>
Concern regarding the locations of ancillary facilities, including worker camps, laydown and storage areas.	Refer to section 2.1 in Part C for EAO's response relating to ancillary facilities.
Concern regarding EAO using the effects of VCs to assist with the characterization of effects to Aboriginal Interests	EAO used a number of sources when determining the potential effects of the proposed Project to Aboriginal Interests, including information provided by Aboriginal Groups, as well as information provided by the Proponent. For VCs that coincide with Aboriginal Interests, such as caribou, the assessment of the VC informed EAO's consideration of potential impacts to Aboriginal Interests where relevant.
Concern regarding EAO's treatment of the comments that have been provided by Nak'azdli Band	Nak'azdli Band, together with Nadleh Whut'en First Nation, has provided many substantive comments to EAO during the EA for the proposed Project. EAO

Issues Raised	EAO/Proponent Response
	has considered all of these comments during the EA. EAO has included a summary of the comments received in this report. Refer to the issues tracking table in Appendix 2.
<p>Concern regarding missing information in the first draft of the referral documents, including:</p> <ul style="list-style-type: none"> • Issues tracking tables; • References for strength of claims for each Aboriginal Group; • List of consultation activities; • Correspondence log; • Final conclusions on significant adverse effects; • Traditional land and resource use section of the assessment report; and • Heritage section of the assessment report. 	<p>EAO delayed sending out some material to the working group since in the case of the tracking tables, conclusions on traditional land use and heritage sections of the assessment report, EAO was still considering the material and committed to sending this material to the working group at a later time.</p> <p>At the time that the first draft of EAO's Aboriginal Group Consultation Report was sent out, the consultation log and list of consultation activities were being compiled, and in EAO's view, it was better to get the report out instead of waiting for the logs to be completed. In the December 20, 2013 letter from EAO to Nak'azdli Band, EAO included in Appendix B the information sources that informed the initial assessment of strength of claims.</p>

7.2.7 Nazko First Nation

Context

- Nazko First Nation is part of the Carrier, or Dakelh (Athapaskan), Aboriginal linguistic group. The main community of Nazko First Nation is located near Quesnel on the Nazko River.
- Nazko First Nation follows the *Indian Act* Election System and is represented by a Chief and two Councillors. The Chief and Council are elected for two-year terms. The current term ends in December 2014.
- As of September 2013, Nazko First Nation's registered population was 372, with about 167 members living on Nazko First Nation reserves. Nation has 21 reserves, the most populated being Nazko IR 20 which is located about 132 km south of KP 306.5.
-

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project passes, at the closest point, about 20 km to the north of the northernmost extent of Nazko First Nation's asserted traditional territory.

- EAO's consideration of potential impacts of the proposed Project on specifically Nazko First Nation's Aboriginal Interests is discussed below. Nazko First Nation is listed in Schedule C of the Section 11 Order. Given the location and nature of the proposed Project, EAO is of the view that the duty to consult Nazko First Nation lies at the low end of the *Haida* spectrum.

Summary of consultation

Nazko First Nation was provided with notification of key milestones in the EA, including issuance of the Application Information Requirements and the acceptance of the Application by EAO for review. Nazko First Nation was also provided an opportunity to review and comment on the draft Assessment Report; no comments were received by EAO.

Potential impacts of the proposed Project on Nazko First Nation's Aboriginal Interests

Nazko First Nation asserted traditional territory lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSA are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into Nazko territory. Cumulative effects resulting from the interactions of the proposed Project with other reasonably foreseeable projects for wetlands and aquatics are not expected to be significant.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Nazko First Nation's asserted traditional territory, EAO concludes that the proposed Project is not expected to result in any adverse effects on Nazko First Nation's Aboriginal Interests.

7.2.8 Saik'uz First Nation

Context

- Saik'uz First Nation is part of the Carrier, or Dakelh, Aboriginal linguistic group. The name Saik'uz is derived from the Dakelh word meaning “on the sand,” referring to the sandy soil on which the main community is located.
- An elected Chief and Council provide governance for Saik'uz First Nation and the election system used is the *Indian Act* election system. Chief and Council are elected every two years. The most recent election was held in January 2013.
- Saik'uz First Nation has 10 reserves. Stony Creek IR 1 is the most populated and is about 14 km south of Vanderhoof and about 18 km south of KP 328. In 2013, the registered population was 941, with an estimated 429 members living on reserve.
- Saik'uz First Nation corresponds to two semi-nomadic Carrier clans, the Tachickwotin and the Nulkiwotin, that were based at the time of contact at Tachick and Nulki Lakes. The two clans amalgamated into a single group, whose territory is described in ethnohistoric data as centred on Tachick and Nulki Lakes.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project pipeline would pass through 30 km of Saik'uz First Nation asserted territory, the boundary of which is located on the east side at the junction of the Stuart and Nechako Rivers and finishes at their western boundary, which runs as far as the east side of Fraser Lake.
- As articulated in its letter dated January 31, 2014, EAO has assessed the Saik'uz First Nation's Aboriginal rights claim, based on currently available information related to the activities, practices, traditions and customs integral to the distinctive culture of the Saik'uz people prior to contact with Europeans (understood to be around 1806). Based on the information reviewed, EAO's assessment is that the Saik'uz First Nation has a strong *prima facie* claim to Aboriginal rights to fish, hunt, gather and trap within or near those portions of the proposed Project.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in*, which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation as at 1846. Based on the information reviewed and test for title as set out in *Tsilhqot'in*, EAO continues to be of the view that there is no information indicating sufficient or exclusive occupation that supports a *prima facie* claim of Aboriginal title within or near those portions of the proposed Project areas that overlap with the northern periphery of the asserted traditional territory of the Saik'uz First Nation.
- Saik'uz First Nation is listed on Schedule B of the Section 11 Order. EAO's

consideration of the potential impacts of the proposed Project on specifically Saik'uz First Nation's Aboriginal Interests is discussed below. EAO's assessment of the required scope of the duty to consult the Saik'uz First Nation is in the low to middle part of the *Haida* spectrum.

Summary of consultation

Saik'uz First Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponent's Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Saik'uz First Nation was also provided with opportunities to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Saik'uz during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. The Proponent also provided funding to Saik'uz First Nation through a Consultation Agreement dated September 2013 to engage in the EA process.

Saik'uz First Nation provided several letters (November 25, 2013, April 22, 2014 and April 30, 2014) to EAO and the Ministry of Environment with extensive comments and concerns regarding the Application Evaluation and Review. Saik'uz First Nation also requested that EAO consider the Saik'uz First Nation Consultation and Accommodation Policy. Saik'uz First Nation participated in working group meetings on March 5, 2013, April 11, 2013, April 15, 2013, May 27-28, 2014, and June 5, 2014. Saik'uz First Nation also participated in the Natural Gas Pipeline Workshop on November 26, 2013.

Saik'uz First Nation provided EAO with initial comments on the draft referral materials in letters dated July 21, 2014, September 9, 2014 and September 29, 2014. The letters expressed concerns that impacts to Aboriginal title had not been appropriately dealt with in EAO's Assessment Report, that TEK and TLU information had not been adequately considered, that mitigation and monitoring had been poorly defined during the EA, and that the cumulative effects assessed did not adequately consider health or a resilience of a VC. EAO followed up with a meeting on October 1, 2014 with Saik'uz First Nation, Nak'azdli Band, Nadleh Whut'en First Nation and Carrier Sekani Tribal Council to discuss outstanding concerns and also presented recommended EA conditions, for EAO's consideration (refer to Carrier Sekani Tribal Council section, 7.2.1. of Part C, for the conditions proposed). On October 3, 2014 Saik'uz First Nation provided EAO with its separate submission, which EAO has included in its referral package to Ministers.

Saik'uz First Nation provided TEK facilitated through participation in biophysical field studies; however Saik'uz expresses concern with the representative nature of the TEK on behalf of Saik'uz, and that information is misleading as not collected or interpreted systematically (refer to concern below). Saik'uz First Nation also conducted a TUS and participated in a dialogue with the Proponent regarding socio-economics. The results of these studies were included in the Proponent's Application and Aboriginal Consultation Reports #2 and #3. Saik'uz First Nation provided their TUS (dated December 30, 2013) to EAO on September 9, 2014, and the TUS was considered in this report.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Saik'uz First Nation 29 times (during 2012-2014) to discuss issues and concerns regarding the route selection within their asserted traditional territory, information requirements for environmental baseline studies, traditional land use studies and cumulative effects assessments. Issues raised by Saik'uz First Nation and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Saik'uz First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Saik'uz First Nation's Aboriginal Interests

Hunting

Saik'uz First Nation identified key concerns regarding wildlife, wildlife habitat and its asserted Aboriginal right to hunt, including:

- Potential effects on wildlife species including caribou, moose, beaver, bears, wolverines and other furbearing animals;
- Potential effects of construction on canids, lynx, moose movements and habitat;
- Potential effects on wildlife habitat including nests, dens, mineral licks, calving areas, game trails, wildlife trees, and migration routes;
- Potential effects on wildlife breeding, calving, resting and feeding grounds;
- Effects to beaver habitat including dams and lodges;
- Potential effects to bear and bear habitat including disturbance of bear dens during construction; and
- Potential increase in hunting access during construction.

Key hunting areas identified by Saik'uz First Nation in the Application (Section 23, Table 23-50) included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
4 km south of KP 344	Nechako River area
37 km south of KP 271	South of Saxan Lake on the south side of Nechako River
21 km southeast of KP 293	Finmoore, upstream from Chunlac

The proposed Project footprint area post-construction is less than 0.01% of Saik'uz First Nation's asserted traditional territory and represents a relatively small level of overall habitat disturbance, which would be further reduced following construction through re-vegetation along the right-of-way. Vegetation clearing along the right-of-way and re-vegetation may also have positive effects for some wildlife species such as increased foraging habitat value for moose and deer.

Saik'uz First Nation expressed concern that the sites identified in the Application do not consider information in their TUS. The Saik'uz TUS shows at least one pre-1997 Hunting line that would be transected by the proposed Project corridor, and three in the vicinity of the proposed Project. In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 of this report – the proposed Project is expected to result in minor impacts on Saik'uz First Nation's asserted Aboriginal right to hunt.

Trapping

Saik'uz First Nation raised concerns about the potential effects on traplines and traditional trapping practices. Saik'uz identified a registered trapline would be potentially impacted by the proposed Project - trapline TR0713T010 held by Dickson Alexis (now deceased) which is reported to now be used by Harold Alexis and is crossed by the proposed Project corridor. Saik'uz First Nation expressed concern that the Application did not consider trapping information in their TUS. The Saik'uz TUS shows two pre-1997 trapping polygons that would be transected by the proposed Project corridor.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.3.3 of this report – the proposed Project is expected to result in minor effects to Saik'uz First Nation's asserted Aboriginal right to trap.

Gathering

Saik'uz First Nation identified the following concerns related to plant communities and its asserted Aboriginal right to gather:

- General potential adverse effects on vegetation and plant communities; and
- Concern of the introduction of spread of invasive plant species

Two key gathering areas were identified by Saik'uz First Nation in the Application (Section 23, Table 23-50):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
37 km south of KP 271	South of Saxan Lake on the south side of Nechako
21 km southeast of KP 293	Finmoore, upstream from Chunlac

Saik'uz First Nation expressed concern that the sites identified in the Application do not consider information in their TUS. The Saik'uz TUS shows at least one pre-1997 Berry Sources line that would be transected by the proposed Project corridor.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to vegetation, and current and traditional land use – as discussed in section 6.2.4 of this report – the proposed Project is expected to have negligible impacts on Saik'uz First Nation's asserted Aboriginal right to gather.

Fishing

Saik'uz First Nation raised the following key concerns related to fish, fish habitat, and the asserted Aboriginal right to fish:

- Potential effects on fish and fish habitat including the potential for water contamination;
- Potential effects on water quality related to construction including watercourse crossings, equipment maintenance and potential spills;
- Concerns about watercourse crossing methods and number of open trench crossings;
- Potential effects on spawning white sturgeon around Vanderhoof; and
- Concerns about levels of habitat loss and riparian disturbance.

Fishing areas identified in the Application (Section 23, Table 23-50) for assessment of potential effects to Saik'uz First Nation's current and traditional land use included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
37 km south of KP 271	South of Saxan Lake on the south side of Nechako
21 km southeast of KP 293	Finmoore, upstream from Chunlac
7.2 km southeast of KP 365	Nautley River
3.1 km north of KP 368	Ormond Lake
5.6 km northwest of KP 369	Oona Lake
3 km south of KP 373	Fraser Lake

Fishing areas identified in the traditional land use assessment are located approximately 3 km to 37 km away from the proposed pipeline centreline and are not expected to be impacted by the proposed Project. However, Saik'uz First Nation notes that these are not the only fishing areas used by Saik'uz First Nation members. No specific fishing site information was provided by Saik'uz First Nation, nor contained in the TUS.

The proposed Project corridor would traverse approximately 30 km of Saik'uz First Nation's asserted traditional territory, with approximately 48 watercourse crossings, two of which have indicated fish presence. Clear Creek, East of KP 329, is the only large crossing.

The Stuart River crossing is the only watercourse within the aquatic environment LSA which is known to support white sturgeon. The Proponent submitted an Addendum to the Application on March 24, 2014 identifying six revisions to the application corridor. Section 3 of the Addendum discusses the alternate corridor at the Stuart River crossing location that was chosen as a result of the identification of critical habitat for white sturgeon at the previous crossing location. The revised proposed route would cross the Stuart River at approximately KP 289, outside and downstream of Saik'uz First Nation's asserted traditional territory.

In consideration of the Proponent's proposed mitigation measures including those taken to respond to concerns for white sturgeon habitat, and EAO's analysis of potential residual and cumulative effects to fish and fish habitat, surface water, groundwater and traditional land use – as discussed in section 6.2.2 of this report – and the relative distance between the area of the proposed Project and fishing locations identified by

Saik'uz First Nation, the proposed Project is expected to have negligible impacts on Saik'uz First Nation's asserted Aboriginal right to fish.

Culturally important sites, trails and travelways

Saik'uz First Nation raised concerns about the potential impacts on culturally important sites, trails and travelways:

- Potential adverse effects on trails;
- Disruption of use of trails and travelways; and
- Potential disturbance of archaeological sites.

Culturally important trails and travelways and habitation sites identified in the Application (Section 23, Table 23-50) associated with Saik'uz First Nation traditional land use included:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trails and Travelways	
10 km south of KP 323	From Vanderhoof airport north to Stuart River
20 km south of KP 332	Telegraph Trail (between Tachick Lake and Nadleh Whut'en asserted traditional territory)
20 km south of KP 332 <u>EAO Note:</u> This appears to be an error, copying the information immediately above. This trail would be crossed by the proposed Project	Tachick Lake to Nak'azdli asserted traditional territory trail
26.5 km south of KP 331	Laketown IR 3 to Tatuk Lake trail
26 km south of KP 331	Grease trail between Nulki Lake and Bella Coola
32 km south of KP 291	Nulki Lake to Cluculz Lake and Fort George trail
70 km south of KP 336	Tatuk Lake to Bobtail Lake trail
Habitation Sites	
37 km south of KP 271	Cabin, smokehouse and cultural camp south of Saxan Lake on the south side of Nechako
21 km southeast of KP 293	Cabin and cultural camp at Finmoore
32 km south of KP 295	Chunlac (historical village site) near Cluculz Lake

Saik'uz First Nation expressed concern that the sites identified in the Application do not consider information in their TUS, and that the Tachick Lake to Nak'azdli asserted traditional territory trail would be crossed by the proposed Project corridor. The Saik'uz TUS shows approximately six pre-1997 Archaeology sites in the vicinity of the proposed Project corridor. Saik'uz First Nation also identify a traditional trail that extends from Tachick Lake to Nak'azdli that would be crossed by the proposed Pipeline corridor.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigations and proposed conditions of any EAC issued, and EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – the proposed Project is expected to result in negligible impacts on Saikuz First Nation’s culturally important sites, trails and travelways.

Other issues raised

During the EA process Saik’uz First Nation raised a number of other concerns. These are summarized in the following table, along with a brief response from EAO.

Issues Raised	EAO Response
Lack of information on number, location and total area of compressor, meter stations, and temporary facilities.	Refer to Part C section 2.1 for Common Concerns raised.
<p>Aboriginal Interests are not adequately identified or assessed</p> <p>TEK information is misleading as not collected or interpreted systematically</p>	<p>EAO is of the opinion that Aboriginal Interests have been identified and assessed in part by the Proponent in the Application and as described in the Proponent’s Aboriginal Consultation Report. EAO has assessed the seriousness of impacts on Aboriginal Interests in this report.</p> <p>EAO proposes a condition that would require the Certificate holder to continue to implement the EAO-approved Aboriginal Consultation Plan for all phases of the Project, which includes continued information sharing and discussion of issues about site-specific mitigation and the development of specific environmental management plans listed in commitment 1, as well as any compensation plans developed to meet regulatory requirements.</p> <p>The Proponent would also continue to consider additional TLUS/TEK information obtained, if a Certificate is issued, to inform detailed planning or additional site-specific mitigation during construction.</p>
Stream crossings are not assessed and effects not mitigated e.g. Where is the “unnamed” tributary on the Nechako River	Appendix C of the Fish and Fish Habitat TDR presents the master Watercourse Crossing List and indicates specific mitigation measures for each

Issues Raised	EAO Response
	crossing, and a recommended crossing method for each watercourse.
Cumulative effects not properly scoped or assessed. Need to consider total effects load rather than contribution of Projects load	Refer to section 2.1 of this Report for Common Concerns.
Pipeline safety in the event of an earthquake or forest fire	Refer to analysis in Part B section 11 of this report.
Need for economic benefits including contracting and employment opportunities	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the Proponent that would remain confidential; and • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>In the Aboriginal Consultation Report, the Proponent committed to provide opportunities to qualified local Aboriginal contractors to provide clearing and associated services. The Proponent confirms that the selected Pipeline Contractor(s) would be required to submit an Aboriginal Participation Plan (APP) to the Proponent.</p> <p>See section 8.3 in Part C for information on the "Benefits of the Project to affected Aboriginal communities".</p>
Potential adverse impacts of upstream fracking	EAO acknowledges Saik'uz First Nation's concern of potential effects from upstream development. EAO will focus its assessment regarding these

Issues Raised	EAO Response
	<p>particular proposed natural gas processing facilities in relation to the adverse impacts flowing from these particular proposed Projects. However, each EA will consider the cumulative effects assessments of a Project in combination with past, present and reasonably foreseeable projects.</p> <p>In addition, EAO has requested that MNGD and the OGC provide an upstream forecast to provide information to Aboriginal Groups and Ministers for their consideration.</p>

7.2.9 Stellat'en First Nation

Context

- Stellat'en First Nation is part of the Carrier, or Dakelh, Aboriginal group. Their traditional language is Dakelh, which is part of the Athapaskan language group. Stellat'en means "people of Stella." Stellat'en First Nation culture is based on a matrilineal clan system with four clans: bear, beaver, caribou and frog. Clans and names are inherited through matrilineal descent.
- The Dakelh-asserted traditional territory lies primarily in north-central BC. The community of Stellaquo (IR 1) is located at the confluence of the Stellaquo and Endako Rivers.
- Stellat'en First Nation follows a custom electoral system and is governed in accordance with the *Indian Act*. Chief and Council are elected every two years, alternating elections for the Chief one year and Councillors the next. The last election took place in July 2013.
- Stellat'en First Nation has two reserves. The most populated is Stellaquo (Stella) IR 1, which is 2.9 km southeast of KP 387. As of 2013, the total registered population was 517, and with an estimated 204 members living on reserve.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project would cross about 96 km of Stellat'en First Nation's asserted territory, from its asserted east to west, north of Fraser Lake and Tchesinkut Lake. Although information on construction camps is preliminary, the Proponent has indicated that there is one camp proposed that would overlap with the asserted territory of Stellat'en First Nation (Main #7 or Main #7 alternate).

- The Stella reserve is about 2 km from the proposed Project area.
- As articulated in its letter dated December 20, 2013, EAO assessed the Stellat'en First Nation's Aboriginal rights claims, based on currently available information related to the activities, practices, traditions and customs integral to the distinctive culture of the Stellat'en people prior to contact with Europeans (understood to be around 1806). The Province understands that the Stellat'en First Nation and Nadleh Whut'en First Nation are descendants of what was considered a single sub-group of the Carrier with two villages: Nadleh on the east side of Fraser Lake, and Stella on the west side of Fraser Lake. Historically, this group was referred to as the Fraser Lake Indians or tribe. It is also understood that fishing, hunting, trapping and gathering practices were an important part of Carrier culture, with fish having primary importance.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in* which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846. EAO has reconsidered its initial assessment of Aboriginal title claims in the vicinity of the proposed Project and continues to be of the view that Stellat'en First Nation has a strong *prima facie* claim to Aboriginal title to a portion of the proposed Project area in proximity to the area historically used as a village or dwelling sites (*Stella* village – IR#1) that could also extend to nearby resource harvesting areas (hunting, gathering, trapping and fishing) as demonstrated by trail systems in that area.
- Stellat'en First Nation is listed on Schedule B of the Section 11 Order. EAO's consideration of the potential impacts of the proposed Project on specifically Stellat'en First Nation's Aboriginal Interests is discussed below. Given the nature and location of the proposed Project, EAO is of the view that that the duty to consult lies in the middle to deep part of the *Haida* spectrum.

Summary of consultation

Stellat'en First Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, the Proponents Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Stellat'en First Nation was also provided with opportunities to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Stellat'en First Nation during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. Under a Letter of Agreement dated October 2012, the Proponent provided initial capacity funding for Stellat'en First Nation to engage in discussions regarding the proposed Project. A

Capacity Funding Agreement between Stellat'en First Nation and the Proponent, dated May 2013, provided continued capacity funding for Stellat'en First Nation.

No comments were received by EAO from Stellat'en First Nation. Stellat'en First Nation participated in the Natural Gas Pipeline Workshop on November 26, 2013.

Stellat'en First Nation participated in biophysical field studies, conducted a Traditional Land Use (TLU) study and collected socio-economic baseline data. The results of the TLU study are not yet available, although the Proponent has committed to using this information to inform detailed planning for the proposed Project prior to construction.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Stellat'en First Nation 32 times (during 2012-2014) to discuss ancillary features, contracting and employment opportunities, project benefits and route selection through their asserted traditional territory. Issues raised by Stellat'en First Nation, and the Proponent's responses, are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Stellat'en First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

The Proponent engaged in information sharing and discussions with Stellat'en First Nation during consultation activities regarding the selection of the proposed route through their asserted traditional territory, which included a helicopter overflight. Routing information and maps were provided by the Proponent to Stellat'en First Nation and discussed at face-to-face meetings.

Potential impacts from the proposed Project to Stellat'en First Nation's Aboriginal Interests

Aboriginal title

EAO identified Stellat'en First Nation as having potential strong *prima facie* title claims, as described above. During the EA process, the following Indian Reserves were identified near the proposed route:

- Stellaquo (Stella) IR 1 which is 2.9 km southeast of KP 387; and
- Binta Lake 2.

Stellat'en First Nation representatives have not yet identified issues relating to their potential title claims to EAO.

Further to the discussion in section 6.2.6 of this report regarding the potential impacts of the proposed Project on Aboriginal title claims, in EAO's opinion, the proposed Project would have low to moderate impacts on Stellat'en First Nation's asserted Aboriginal title. EAO has addressed these potential impacts to Stellat'en First Nation's Aboriginal title claims by ensuring that Stellat'en First Nation is meaningfully consulted and accommodated around the potential effects of this proposed Project.

Furthermore, the Province and the Proponent have approached Stellat'en First Nation regarding this and other LNG-related projects relating to effects of this and other LNG-related projects, to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2 of this report. To this end, economic benefits of the project are being discussed including those arising on potential Aboriginal title lands, and Stellat'en First Nation has a role in considering the proposed use for those lands.

Hunting

Stellat'en First Nation raised key concerns regarding wildlife, wildlife habitat and its asserted Aboriginal right to hunt, including:

- Potential effects on wildlife habitat including nests;
- Displacement of wildlife due to habitat disturbance and increased lines of sight;
- Potential for increased access for recreational harvesters to the area as a result of new roads, leading to increased pressure on wildlife and fish resources;
- Effects of construction on moose movements, habitat, breeding and calving areas and moose licks;
- Effects of construction on deer and elk habitat;
- Potential adverse effects on ungulates and protection of potential calving areas;
- Disruption of bear dens and habitat, and eagles and eagle habitat;
- Effects on game trails;
- Potential adverse effects of construction on small furbearers; and
- Potential loss of wetland habitat, function and water quality also affecting wildlife and vegetation during construction of the proposed Project.

The proposed corridor would traverse approximately 96 km of Stellat'en First Nation asserted traditional territory. However, no key hunting areas were identified within Stellat'en First Nation's asserted territory in proximity to the proposed Project Area in the Application or Aboriginal Consultation Reports.

The potential impacts on Aboriginal Group's hunting activities is described in section 6.2.1, which details the potential effects to wildlife and wildlife habitat, along with mitigation proposed in the Application and proposed conditions for the EA Certificate.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 of this report – the proposed Project is expected to result in minor impacts on Stellat'en First Nation's asserted Aboriginal right to hunt.

Trapping

Stellat'en First Nation identified key concerns regarding wildlife, wildlife habitat and its asserted Aboriginal right to trap (captured in the Application's section 23 and Aboriginal Consultation Report #3), including:

- Potential effects from the proposed project on trap lines and trappers;
- Potential adverse effects of construction on small furbearers;
- Trap line owner notification required and trapper compensation; and
- Potential adverse effects of construction on trap lines.

The potential impact on Aboriginal Group's trapping activities is described in section 6.2.3, which details the potential effects to wildlife and wildlife habitat, along with mitigation proposed in the Application and proposed conditions for an EA Certificate.

The proposed corridor would traverse approximately 96 km of Stellat'en First Nation asserted traditional territory. However, no key trapping areas were identified within Stellat'en First Nation's asserted territory in proximity to the proposed Project Area in the Application or Aboriginal Consultation Reports.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project is expected to result in negligible impacts on Stellat'en First Nation's asserted Aboriginal right to trap.

Gathering

Stellat'en First Nation identified key concerns regarding vegetation and the asserted right to gather, including:

- Effects of construction on medicinal and traditional use plants, berry picking and harvesting areas;
- That the route for the proposed Project avoid medicinal plant locations;

- That the route for the proposed Project avoid old forest;
- Effects on mature and old growth forest; and
- Introduction and spread of invasive plants, use of pesticides

One plant gathering area was identified in the Application (Section 23, Table 23-60) as being used by Stellat'en First Nation:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
5.8 km north of KP 513	Endako River

The proposed Project corridor is 5.8 km away from the nearest gathering area identified by Stellat'en First Nation in their traditional territory. The potential impact on Aboriginal Groups' gathering activities is discussed in section 6.2.4, which details the potential effects to native vegetation, along with mitigation proposed in the Application and proposed conditions for an EA certificate.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to vegetation, and current and traditional land use – as discussed in section 6.2.4 of this report – and the relative distance between the area of the proposed Project and the gathering location identified by Stellat'en First Nation, the proposed Project is expected to have negligible impacts on Stellat'en First Nation's asserted Aboriginal right to gather.

Fishing

Stellat'en First Nation raised key concerns regarding fish, fish habitat and its asserted Aboriginal right to fish, including:

- Water contamination and potential impacts to fish and fish habitat, specifically salmon;
- Potential adverse effects on water quality including impact on water tables and impact of increased turbidity on fish and fish habitat;
- Alteration or loss of riparian habitat;
- Effects on the salmon run and sturgeon habitat on the Nechako River;
- Potential effects on water quality related to construction and effects on watercourse crossings, including potential impact of increased turbidity on fish and fish habitat;
- Potential for increased access for recreational harvesters to the area as a result of new roads, leading to increased pressure on wildlife and fish resources; and

- Potential soil erosion run off and landslides into the Kitimat River.

Fishing areas identified in the Application (Section 23, Table 23-60) as being used by Stelat'en included:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
1.4 km south of KP 380	Fraser Lake
5.8 km north of KP 513	Endako River

The potential impact on Aboriginal Group's fishing activities is described in section 6.2.2, which details the potential effects to fish and fish habitat, along with mitigation proposed in the Application and proposed conditions for an EA certificate.

The proposed corridor would traverse approximately 96 km of Stelat'en First Nation asserted traditional territory, including 148 watercourse crossing, 21 of which have indicated fish presence.

There were no fishing areas that were crossed by the proposed corridor, and the two fishing areas noted were 1.4 and 5.8 km away from the proposed corridor. Access to fishing areas may be temporarily disrupted during construction and maintenance activities; however engagement of Stelat'en First Nation during construction planning would mitigate these effects.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to fish and fish habitat, surface water, groundwater and traditional land use – as discussed in section 6.2.2 of this report – and the relative distance between the area of the proposed Project and fishing locations identified by Stelat'en First Nation, the proposed Project is expected to have negligible effects on Stelat'en First Nation's asserted Aboriginal right to fish.

Culturally important sites

Stelat'en First Nation stated concerns about the protection of culturally modified trees and archaeological sites, including:

- Potential disturbance of archaeological sites;
- Potential adverse effects on Culturally Modified Trees; and
- Potential adverse effects on cabins.

Key culturally important areas identified in the Application as being used by Stellat'en First Nation (Section 23, Table 23-60) included the following sites:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Sacred Areas	
5 km north of KP 371	Oromond-oona Mountain
38.8 km north of KP 378	Shass Mountain

The potential impact on Aboriginal Group's archaeological and cultural heritage values is described in section 6.2.5, which details the potential effects to heritage sites, along with mitigation proposed in the Application and proposed conditions for an EA certificate.

The sacred areas identified in the Application are some distance from the proposed Project route, with the closest area located 5 km away.

In consideration of the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Stellat'en First Nation, the proposed Project is expected to result in negligible impacts on Stellat'en First Nation's culturally important sites, trails and travelways.

Other matters of concern to Stellat'en First Nation

Issues Raised	EAO/Proponent Response
Impacts of construction on mature and old growth forests	EAO has assessed the potential effects of the proposed Project on OGMA's and has proposed a condition requiring that the Proponent avoid Old Growth Areas, to the extent practicable, and to adhere to any orders under provincial legislation. Where the area of the incursion exceeds a threshold, the Proponent must prepare a proposal for replacement or recruitment of that area.
Offer cleared timber to local communities	EAO has proposed a condition requiring the Proponent to develop and implement a Timber Salvage Strategy.

Issues Raised	EAO/Proponent Response
<p>Employment opportunities including a request for employment opportunities on pipeline work within their traditional territory.</p> <p>Interested in long-term benefits associated with the proposed Project and need for training and employment opportunities.</p>	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the Proponent that would remain confidential; and • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent must continue engagement with Aboriginal groups about construction planning and Project design, including the schedule of construction activities. In the Aboriginal Consultation Report, the Proponent committed to provide opportunities to qualified local Aboriginal contractors to provide clearing and associated services. The Proponent confirms that the selected Pipeline Contractor(s) would be required to submit an Aboriginal Participation Plan (APP) to the Proponent.</p> <p>The Proponent has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information to ensure that meaningful partnerships are developed for both the Project and the community. Objectives and measurable outcomes will be developed alongside the training/education partner and will be part of the final partnership plans.</p>
<p>Existing development already has noticeable effect on land and wildlife.</p>	<p>Refer to the assessment of Wildlife and Wildlife Habitat in Part B section 5.5.</p>

Issues Raised	EAO/Proponent Response
The proposed Project could add to these effects.	
Safety of pipeline	<p>The EAO has assessed the potential effects of the proposed Project on the geophysical environment, including terrain integrity, and the potential risks of accidents and or malfunctions in Part b sections 5.22 and 10 of this report, respectively.</p> <p>The Proponent has undertaken detailed terrain analysis, the results of which continue to inform the construction planning and detailed engineering design of the proposed Project. In addition to the current process administered by the EAO, the Proponent is required to provide detailed information regarding the design of the Project for review by the OGC.</p>

7.2.10 Tl'azt'en Nation

Regional context

- Tl'azt'en Nation is part of the Carrier, or Dakelh, Aboriginal group. The Dakelh language is part of the larger Athapaskan language family. The main communities of Tl'azt'en Nation are Tache, K'uzche, Binche and Dzit'ainli. Tl'azt'en Nation follows a custom electoral system and is represented by a Chief and six Councillors.
- As of September 2013, Tl'azt'en First Nation had 1,724 registered members, with about 546 members living on Tl'azt'en reserves. Tl'azt'en Nation has 46 reserves, the most populated being Tache IR 1 located about 53 km north of KP 355.
- Tl'azt'en Nation community members continue to live off the land by hunting for moose, deer, bear, caribou, mountain goats and small furbearing animals, and fishing for several species of salmon, white fish, trout and ling cod. Community members travel to campsites in the summer and gather food for the winter. Elders are recognized for their effort to share and perpetuate their language and culture.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project does not overlap Tl'azt'en Nation's asserted territory. The proposed corridor at its closest point is about 20 km south of the southern

boundary.

- Tl'azt'en Nation is listed in Schedule C of the Section 11. Given the nature and location of the proposed Project and the asserted boundary of the Nation, EAO is of the view that the Crown's duty to consult Tl'azt'en First Nation is at the low end of the *Haida* spectrum.

Summary of consultation

Tl'azt'en Nation was provided with notification of key milestones in the EA, including issuance of the Application Information Requirements, and the acceptance of the Application to EAO for review. Tl'azt'en was also provided an opportunity to review and comment on the draft Assessment Report; no comments were received by EAO.

Potential impacts from the proposed Project to Tl'azt'en Nation's Aboriginal Interests

The Tl'azt'en Nation asserted traditional territory lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSAs are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

The effects of the proposed Project are expected primarily within the Project footprint and LSA. Therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into Tl'azt'en Nation's asserted traditional territory. There are not expected to be any significant cumulative effects to grizzly bear from interactions in the RSA between the proposed Project and other possible future projects.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Tl'azt'en Nations asserted traditional territory, EAO concludes that the proposed Project is not expected to result in any adverse effects on Tl'azt'en Nation's Aboriginal Interests.

7.2.11 Yekooche First Nation

Context

- Yekooche First Nation is part of the Carrier, or Dakelh (“people who travel upon water”), Aboriginal group. Dakelh is part of the wider Athabaskan language family.
- Yekooche First Nation is located at the north end of Stuart Lake, about 75 km northwest of Fort St. James. There are four Yekooche First Nation reserves: Nan Tl’at, Ucausley, Ye Koo Che, and Ye Koos Lee. Yekooche First Nation can be reached by road or by boat across Stuart Lake.
- As of September 2013, Yekooche First Nation had about 224 registered members, 100 of whom lived on reserve and 124 of whom off reserve. Yekooche First Nation is governed by a Chief and three Councillors.

Aboriginal Interests and EAO’s strength of claim assessment and depth of consultation

- The proposed Project would cross about 75 km of Yekooche First Nation asserted traditional territory. Yekooche First Nation provided a new asserted boundary on April 30, 2013 and the expanded area of that boundary include the area of proposed Project.
- As a result of the proximity of the proposed Project area to the southern and southwest boundary of Yekooche First Nation’s Statement of Intent area, EAO added Yekooche First Nation to Schedule B of the Section 11 Order for the proposed Project.
- The Proponent notes that one preliminary construction camp would be proposed to overlap with Yekooche First Nation’s asserted traditional territory: Main # 7.
- The ethnographic sources indicate that Carrier sub-tribes were politically and economically autonomous communities with their own villages and territories. The Province understands that the Yekooche First Nation is a modern entity with descendants from the pre-contact group, known as the Portage Band, and ethnographically part of the Stuart Lake Carrier. It is understood that the Stuart Lake people originally consisted of five groups with villages beside or near Stuart Lake. It is also understood that in 1959, the inhabitants of Pinchi, Tachie, Portage (Yekooche) and the Grand Rapids and Middle River were amalgamated into one large band called the Stuart-Trembleur Lake Band. The Portage Band subsequently left the Tl’azt’en Nation in 1994 to form their own community, becoming Yekooche First Nation.
- As articulated in a letter dated December 20, 2013, EAO assessed the Yekooche First Nation’s Aboriginal rights claims, based on currently available information related to the activities, practices, traditions and customs integral to the distinctive culture of the Portage Band/Stuart Lake Carrier prior to contact with Europeans (understood to be around 1806). The area of the

proposed Project does not overlap with the description of the traditional territory of the Stuart Lake people at around the time of contact, and any use of the area by Stuart Lake people at that time is likely to have been based on permission of the Fraser Lake people. The southwestern portion of the Yekooche First Nation's asserted territory does not overlap with descriptions of the traditional territory of the Stuart Lake people around the time of contact, but overlaps with what was considered the territory of the Wet'suwet'en people.

- On January 17, 2014 Yekooche expressed concern with the Province's reliance on the Statement of Intent map, which they indicated was prepared solely for the purpose of treaty negotiations, and provided a new asserted Consultation Boundary map including a report prepared by Thomas McIlwraith entitled "Yekooche First Nation Review of Ethnographic and Historical Sources, Response to Ministry of Justice Report". After careful review and consideration of that information, the Province concluded that no amendment to the initial assessment of strength of claim or scope of consultation with Yekooche First Nation was required.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in*, which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation as at 1846. Based on the information reviewed and test for title as set out in *Tsilhqot'in*, EAO continues to be of the view that there is no information indicating sufficient or exclusive occupation that supports a *prima facie* claim of Aboriginal title within or near those portions of the proposed Project areas that are located outside of, but in proximity to, the southern periphery of its previous asserted territory.
- Given the nature and location of the proposed Project, EAO is of the view that the duty to consult Yekooche First Nation lies toward the low end of the *Haida* spectrum.

Summary of consultation

Yekooche First Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application and the Application, Yekooche First Nation was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Yekooche First Nation during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. Under a Letter of Agreement dated April 2013, the Proponent provided initial capacity funding for Yekooche First Nation to engage in discussions regarding the proposed Project. A MOU

between Yekooche First Nation and the Proponent, dated November 2013, provided continued capacity funding for Yekooche First Nation.

Yekooche First Nation provided comments on the draft s. 11 Order. Ecora Resource Group on behalf of Chief Allan Joseph of Yekooche First Nation also provided extensive comments on the Application in a letter to EAO dated April 22, 2014. Yekooche First Nation participated in working groups meetings May 20-22, 2014 and participated in the Natural Gas Pipeline Workshops November 26, 2013, February 4, and May 29-30, 2014.

Yekooche First Nation participated in biophysical field studies but did not provide TEK. Yekooche also conducted a TLUS (TLUS) and participated in data collection and dialogue with the Proponent regarding socio-economics. The preliminary results of these studies were included in the Proponent's Application and the Proponent's Aboriginal Consultation Report #3.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Yekooche First Nation 10 times (during 2012-2014) to discuss the proposed route selection, information requirements for environmental baseline studies, and review of proposed traditional land use studies. Issues raised by Yekooche First Nation, and the Proponent's responses, are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Yekooche First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

The Proponent submitted an Addendum to the Application on March 13, 2014 to widen the application corridor by 200 m along approximately 4 km at the Highway 16 crossing. The Proponent met with Yekooche First Nation prior to the submission to discuss the revisions to the Application Corridor. Yekooche expressed concern with potential environmental effects, trap lines, and impacts to white sturgeon. The Proponent's mitigation measures addressing these concerns are found in the Application as follows:

- Environmental effects - sections 5, 7, 8 10 and Appendix 2A;
- Trap lines - section 16 and Appendix 2A; and
- White sturgeon - section 7 and Appendix 2A.

Potential impacts from the proposed Project on Yekooche First Nation's Aboriginal Interests

Hunting

During the EA process, Yekooche First Nation representatives identified the following issues related to wildlife, wildlife habitat and its asserted Aboriginal right to hunt:

- Potential effects on wildlife including declining moose populations, deer and elk;
- Potential effects on wildlife habitat including nests, mineral licks, game trails, wildlife trees and migration routes;
- Potential adverse effects on ungulates and protection of calving areas;
- Disturbance of bear dens during construction;
- Potential increase in hunting access during construction;
- Potential for construction activities to limit use of game trails, restricting wildlife movement; and
- Downstream potential adverse effects, including on important moose hunting areas north of the 2 km buffer zone around the Stuart River and north of the 2 km buffer at Taltapin Lake.

According to the preliminary results of the TLUS, Yekooche First Nation hunt moose, deer and black bear year-round, with elk hunting occurring in the fall. However, no specific geographic areas for hunting were identified by Yekooche First Nation in or around the Project area in the Application or Aboriginal Consultation Reports. The Yekooche TLUS indicated that Stuart River is important for hunting of moose and fowl, and the region around Pitka and Peta Mountains is significant for large game hunting including moose and bear. The Taltapin Lake and Tchesinku Lake areas are also important hunting areas.

Yekooche First Nation members have indicated that their entire asserted traditional territory is important for food and resource collection. The available ethnographic and historical material for Yekooche First Nation suggests the hunting of large mammals was not as integral to subsistence as fishing, hunting small game, and gathering of berries¹⁸.

Access for Yekooche First Nation to the proposed Project area to hunt may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons, and to a lesser extent over the medium term during the operation of the pipeline. The Proponent has committed to provide Yekooche First Nation the proposed construction schedule and pipeline route maps in advance of construction activities.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 of this report – the proposed Project

¹⁸ Ministry of Attorney General (2012). Yekooche First Nation: Review of Ethnographic and Historical Sources, pg. 32

is expected to result in negligible impacts on Yekooche First Nation's asserted Aboriginal right to hunt.

Trapping

During the EA process, Yekooche First Nation identified the following issues related to its asserted Aboriginal right to trap:

- Potential effects on trap lines and trappers, including potential adverse effects of construction on trap lines;
- Potential adverse effects of construction on small furbearers; and
- Potential loss of beaver dams or lodges.

No trap lines were identified by Yekooche First Nation in proximity to the proposed Project Area in the Application or Aboriginal Consultation Reports. The Stuart River area is significant for trapping, as are the Taltapin Lake and Tchesinku Lake areas.

According to their TLUS, Yekooche First Nation trap beaver in the fall along watercourses, and trap other furbearing animals during the winter, when rabbits, marten, fisher lynx and squirrel are snared for food and fur.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project is expected to result in negligible impacts on Yekooche First Nation's asserted Aboriginal right to trap.

Gathering

Yekooche First Nation identified the following concerns related to plant communities and its asserted Aboriginal right to gather:

- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants;
- Potential effects on berry harvesting areas;
- Introduction and spread of invasive plant species; and
- General potential adverse effects on vegetation and plant communities.

The Application (Section 23, Table 23-68) identified one plant gathering area associated with Yekooche First Nation traditional land use:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
53 km north of KP 405	Ucausley (east end of Cunningham Lake)

According to the preliminary results of the TLUS, plants are harvested throughout Yekooche First Nation’s asserted traditional territory for cultural, subsistence and medicinal purposes. Berries and other plant material are harvested through the territory year round, primarily during the spring to fall growing seasons. The bark and wood of trees are harvested year round. The Yekooche TLUS indicated the Taltapin Lake and Tchesinku Lake areas are significant plant gathering areas.

The proposed Project location is more than 50 kilometres away from plant gathering areas known to be used by Yekooche First Nation in their asserted traditional territory. In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to vegetation, and current and traditional land use – as discussed in section 6.2.4 of this report – and the relative distance between the area of the proposed Project and the gathering location identified by Yekooche First Nation, the proposed Project is expected to result in negligible impacts on Yekooche First Nation’s asserted Aboriginal right to gather.

Fishing

Yekooche First Nation raised the following key concerns related to fish, fish habitat, and its asserted Aboriginal right to fish:

- Potential effects on fish and fish habitat including the potential for river water contamination;
- Potential effects on the salmon run;
- Alteration or loss of riparian habitat;
- Impacts to white sturgeon at the Stuart River Crossing;
- Potential effects on water quality related to construction including: watercourse crossings, equipment maintenance and potential spills;
- Concerns about watercourse crossing methods and number of open trench crossings;
- Concerns about levels of habitat loss and riparian disturbance; and
- Downstream potential adverse effects, including on an important trout fishing area north of the 2 km buffer zone in the Stuart River and another fishing area north of the 2 km buffer at Taltapin Lake.

The Application (Section 23, Tables 23-68 and 23-70) identified the following fishing

sites in the vicinity of the proposed Project corridor:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
21 km north of KP 371	Upper Sutherland River
32 km north of KP 334	Stuart Lake and tributaries
27 km north of KP 356	Sutherland River
54 km north of KP 402	Cunningham Lake
45 km north of KP 403	Babine Lake
8 km north of KP 443	Lake Babine
39 km north of KP 424	Babine Lake
28 km north of KP 345	Stuart Lake

According to the preliminary results of the TLUS, fish are an important part of Yekooche First Nation diet. Fish are harvested from lakes and rivers using nets and hooks through the year, including winter when fish are caught using nets through the ice. Late August and September are critical salmon fishing months. Yekooche First Nation harvest salmon returning to their spawning streams on Babine Lake in the headwaters of the Skeena River system and Fraser River salmon swimming up to Stuart Lake. Freshwater species of fish, such as lake trout, char and rainbow trout are also caught. Ormond Creek and Tchesinkut Lakes are indicated to be an important fishing river for trout in Yekooche's TLUS.

Yekooche First Nation fishing areas identified in the Application and TLUS are located approximately 8 km to 54 km away from the proposed Project corridor, and are therefore not expected to be impacted by the proposed Project.

The proposed Project corridor would traverse the southern boundary of Yekooche First Nation's asserted traditional territory outlined in their Consultation Boundary Map for approximately 73 km. The Project corridor would cross approximately 116 watercourses, 18 of which have indicated fish presence. There are 5 large crossings including the Endako River and Tchesinkut Creek, for which the Application recommends specific site plans and isolation crossing methods.

The Stuart River crossing is the only watercourse within the aquatic environment LSA which is known to support white sturgeon. The Proponent submitted an Addendum to the Application on March 24, 2014 identifying six revisions to the application corridor. Section 3 of the Addendum discusses the alternate corridor at the Stuart River crossing location that was chosen as a result of the identification of critical habitat for white

sturgeon at the previous crossing location. The revised proposed route would cross the Stuart River at approximately KP 289.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to fish and fish habitat, surface water, groundwater and traditional land use – as discussed in section 6.2.2 of this report – and the relative distance between the area of the proposed Project and fishing locations identified by Yekooche First Nation, the proposed Project is expected to have negligible effects on Yekooche First Nation’s asserted Aboriginal right to fish.

Culturally important sites and trails

Yekooche First Nation raised concerns about the potential impacts on culturally important sites, trails and travelways:

- Potential adverse effects on cabins and habitation sites;
- Disruption of use of trails and travelways and restriction of access along the pipeline corridor;
- Increased access to remote areas of the traditional territory;
- Impact on two highly significant trails which are intercepted by the proposed Project, the first originating at Taltapin Lake and heading south to Tchesinkut Lake (an important fishing area), and the second originating at Babine Lake, stretching southwards to Burns Lake and continuing further to Tchesinkut Lake; and
- Potential disturbance of archaeological sites.

Culturally important trails and travelways and habitation sites identified by the Proponent in the Application (Section 23, Table 23-68) associated with Yekooche First Nation traditional land use included:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trails and Travelways	
53 km north of KP 405	Yekooche Village to Ucausely
Habitation Sites	
8 km north of KP 443	Lake Babine
53 km north of KP 405	Ucausley (east end of Cunningham Lake)
45 km north of KP 403	Babine Lake

The Yekooche TLUS indicated the Taltapin Lake and Tchesinku Lake areas as being significant for trail systems, lake transportation corridors, and campsites.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigations and proposed conditions of any EAC issued, EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report the proposed Project is expected to result in negligible impacts to Yekooche First Nation’s culturally important sites, trails and travelways.

Other issues raised

During the EA process, Yekooche First Nation raised a number of additional concerns. These are summarized in the following table, along with a brief response from EAO.

Issues Raised	EAO/Proponent Response
Existing development already has noticeable effect on land and wildlife. The proposed Project could add to these effects.	Refer to the assessment of Wildlife and Wildlife Habitat in Part B section 5.5 of this report.
Need for economic benefits including contracting and employment opportunities	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the Proponent that would remain confidential; and • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups’ contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent will continue engagement with Aboriginal Groups about construction planning and Project design, including the schedule of construction activities.</p> <p>Refer to Part C section 8.3 of this report for</p>

Issues Raised	EAO/Proponent Response
	information on the “Benefits of the Project to affected Aboriginal communities”.
<p>Yekooche First Nation requested the results (spatially if possible) of grizzly bear habitat modelling in the vicinity of the Stuart River, as Yekooche First Nation has identified this area as an environmentally-sensitive, and the coarse scale of modelling conducted might not adequately identify the mitigative requirements for this area.</p>	<p>Grizzly Bear modelling baseline in proximity of the Stuart Crossing was provided by the Proponent on July 30, 2014 and shared with Yekooche First Nation, as well as added to the EAO SharePoint site.</p>
<p>Yekooche First Nation requested that the possible effects of frost bulb formation be considered, particularly for cold regions.</p>	<p>The Proponent has stated that Frost bulb formations are not likely to occur within the environmental setting of the proposed Project as Arctic conditions which facilitate them are not typically encountered within the project area.</p>
<p>Yekooche First Nation requested that areas where surface water and groundwater interact be identified, and that appropriate mitigation measures be identified, such as avoiding trenched crossings at sites where surface water and groundwater interact. This information should be presented in the Application.</p>	<p>The Application assumes that the proposed route may cross areas with natural groundwater/surface water, and outlines water quality mitigation based on industry accepted best practices accordingly.</p>
<p>Yekooche First Nation requests that the Application indicate that compressor and meter stations will be located to avoid disturbance to wetlands, and keep road construction to a minimum.</p> <p>Yekooche First Nation requested that the pipeline be re-routed to avoid wetlands at the following locations:</p> <ul style="list-style-type: none"> • Map sheet 56 KP 350.5-351.7 • Map sheet 68 KP 426.5-427.7 • Map sheet 71 KP 447.2-448 • Map sheet 72 KP 453.2-453.8 	<p>Where a wetland cannot be avoided, the Proponent would seek to reduce the footprint in the wetland through detailed construction planning and engineering design by limiting extra temporary workspace and minimizing construction footprint.</p> <p>EAO acknowledges that avoidance of construction footprint in all of the wetlands listed may not be practical, due to terrain features, overlapping footprint with other projects, and constructability challenges. Where a wetland cannot be avoided, the Proponent would seek to reduce the footprint in the wetland through detailed construction planning</p>

Issues Raised	EAO/Proponent Response
<ul style="list-style-type: none"> • Map sheet 73 KP 455-455.8 • Map sheet 75 KP 471.7-472.2 	<p>and engineering design by limiting extra temporary workspace and minimizing construction footprint.</p> <p>The Proponent provides further evaluation criteria information used in the selection of potential compressor and meter station sites in section 1.4.14 of the Application.</p> <p>EAO has proposed a condition requiring the Proponent to develop and implement a Wetlands Management Plan.</p>
<p>The Application should identify where Wildlife Tree Patches (WTPs) will be removed or negatively impacted and identify appropriate mitigation measures (e.g., replacement, timing restrictions and avoidance).</p>	<p>In its route selection, the Proponent noted that it would avoid these areas where practical. Where avoidance is not practical, the Proponent would adhere to the requirements of the Oil and Gas Activities Act and regulations, and follow direction in the OGC's Environmental Protection and Management Guide.</p>
<p>Yekooche First Nation recommends that work timing restrictions be implemented for deer, elk and moose winter range located within the Stuart River corridor. Yekooche First Nation requests specific commitments be made by the Proponent regarding the timing of construction around wetlands.</p>	<p>The Proponent would continue to reference restricted activity periods as construction planning and detailed engineering design advances.</p> <p>In the case where site-specific situations arise where Project activities may be a concern with respect to restricted activity periods, the Proponent will work with the appropriate regulatory authorities to develop a practical approach.</p>
<p>Yekooche First Nation requested that habitat ratings for moose be properly assigned and habitat values properly determined, and that this information be included in the Application.</p>	<p>The Proponent noted that suitable habitat adjacent to busy primary roads was downgraded by two classes to a minimum of (5) 'very low', and habitat suitable adjacent to less-busy tertiary roads (moderate intensity disturbance features) was downgraded by one class to a minimum of (5) 'very low'. The Proponent also acknowledged that moose may make use of habitat adjacent to roads and that this is captured within the models used. However, the models are adjusted to provide results in alignment with known moose habitat preferences.</p>
<p>Table 4-10 documents Wildlife and Wildlife Habitat TEK and related issues of concern for the Vanderhoof LRMP</p>	<p>In section 3.2.1 of the Application, the Proponent describes how available Aboriginal Traditional Knowledge would inform the assessment.</p>

Issues Raised	EAO/Proponent Response
<p>Region. Few concerns related to TEK were identified, and for identified concerns, the Application does not indicate how these concerns will be addressed or mitigated. In particular, a request that the Application describe follow-up and mitigation activities that would be undertaken within the following Yekooche First Nation areas:</p> <ul style="list-style-type: none"> • 12.5m north of KP298.2 “wildlife watering hole” (no concern); • 15.6m northeast of KP328.4 “stick nest” (no concern); • 70.1m northeast of KP338.3 “moose bed and browse and well-used game trail” (no concern); • 39m north of KP341.5 “migratory waterbird stick nest” (no concern); and • 8.9m south of KP351 “salt lick and moose habitat” with the issue/concern stated as “effects of construction on moose habitat”. <p>Table 4-11 Wildlife and Wildlife Habitat TEK Recorded in the Lakes LRMP Region lists locations of findings and issues or concerns. At KP444, “Columbian Spotted Frogs” were noted with no concern and should be followed up to determine if there are associated wildlife habitat features.</p>	<p>For the purposes of determining the appropriateness of the information in the Application, EAO was satisfied that the Proponent’s Application contained the information as set out in the Application Information Requirements (AIR). The Proponent committed to develop and update – and EAO has set out a proposed condition to require the Proponent to do so – the EMP’s presented in the Application to reflect a number of comments made by Aboriginal Groups. Any additional TLU information provided by Aboriginal Groups would also help inform the development of plans and any additional site-specific mitigation required.</p>

7.3 Wet’suwet’en

In consideration of the historic and current context of Wet’suwet’en Aboriginal Groups provided in section 3.3 of this report and information gathered throughout the consultation process, the following sections are intended to set out, in relation to each Wet’suwet’en Aboriginal Group:

- A summary of concerns related to Wet’suwet’en Aboriginal Interests; and

- EAO's evaluation of potential effects of the proposed Project to Wet'suwet'en Aboriginal Interests.

Wet'suwet'en Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- About 180 km of the proposed Project's pipeline would pass through what is understood to be the Wet'suwet'en traditional territory, the broadest territory being that asserted by the Office of the Wet'suwet'en.
- Although each individual Wet'suwet'en entity has individual assertions of Aboriginal rights and title within what has been identified as their specific traditional territory, the Province views these assertions not as competing rights and title claims, but as multiple political entities asserting representation on behalf of either subsets or the whole of the same Wet'suwet'en collective. As such, each of the Wet'suwet'en claimants are listed on Schedule B of the Section 11 Order.
- The following Wet'suwet'en-derived entities all assert Aboriginal rights including title separately, but the Province is of the understanding that all these groups descend from the same cultural collective as organized around the time of contact and 1846:
 - Office of the Wet'suwet'en
 - Skin Tyee Nation
 - Nee-Tahi-Buhn Indian Band
 - Burns Lake Band (Tsil-Kaz-Koh)
 - Wet'suwet'en First Nation (Broman Lake Band)
 - Dark House
- This analysis flows from EAO's understanding of Wet'suwet'en's Aboriginal Interests regarding the historic and current social organization and governance of the Wet'suwet'en.
- EAO articulated its initial views on strength of claim to each Wet'suwet'en-derived entity listed above on the following dates:
 - January 10, 2014 to Office of the Wet'suwet'en
 - January 28, 2014 to Dark House
 - January 28, 2014 to Wet'suwet'en First Nation
 - January 29, 2014 to Nee Tahi Buhn Indian Band
 - January 29, 2014 to Skin Tyee Nation
 - January 29, 2014 to Tsil Kaz Koh (Burns Lake Band)
- As articulated in these letters, EAO had assessed the Wet'suwet'en's Aboriginal rights claims, based on currently available information related to the activities, practices, traditions and customs integral to the distinctive culture of the Wet'suwet'en people prior to contact with Europeans (understood to be in the early 1820's).
- Based on the information reviewed, EAO assessed Wet'suwet'en as having a

strong *prima facie* claim to Aboriginal rights to fish, hunt, gather and trap within the areas of the proposed CGL project that overlap with the asserted territory of the Wet'suwet'en.

- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in* which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846. EAO has reconsidered its initial assessment of Aboriginal title claims in the vicinity of the proposed Project and continues to be of the view that Wet'suwet'en has a strong *prima facie* claim to known home site locations within approximately 2 km of the proposed Project area and nearby resource harvesting areas (hunting, gathering, trapping and fishing sites) that appear to have been regularly used and interconnected by major trail networks in an area within the CGL project between Burns Lake in the east to the Morice River in the west. There is no information available indicating that other First Nations had utilized this area around 1846.
- Given the nature and location of the proposed Project, EAO articulated its initial view that the potential impacts to Wet'suwet'en Aboriginal Interests may be moderate to serious and the required scope of the duty to consult Wet'suwet'en lay towards the deeper end of the *Haida* spectrum.

7.3.1 Dark House

Context

Dark House is a house of the Wet'suwet'en Big Frog Clan (for further information, see Office of the Wet'suwet'en, below).

Summary of Consultation

Dark House did not provide comments on the Proponent's Application, attend the technical Working Group meetings held by EAO, meet with EAO, or provide any information or correspondence to EAO.

In the absence of the provision of any information from Dark House related to their Aboriginal Interests in the proposed Project area, the analysis that follows is informed by the information brought forward by the Wet'suwet'en Hereditary Chiefs, represented by the Office of the Wet'suwet'en (see section 7.3.3).

Aboriginal Group land use plans and policies, as well as regional land and resource management plans (LRMPs) related to other land use values, including recreational hunting, fishing and trapping, were assessed in the Application (section 14; Land and Resource Use).

The Proponent shared Project information with Dark House directly or through Moricetown First Nation through email, phone calls, and in-person meetings. The Proponent first met with the Hereditary Chief of Dark House following a Moricetown Council meeting on June 12, 2013 to share Project-related information, to determine Dark House's interest in the proposed Project and to develop a process for their involvement in proposed Project activities.

Since June 12, 2013, Dark House and the Proponent have held six meetings on Project-related subjects. Information has been shared with the Hereditary Chief of the Dark House and other community members via email and letters. Dark House did not respond with comments on proposed Project routing, accept capacity funding from the Proponent or participate in field studies or TLU/TEK data collection. Dark House has not responded to the Proponent's request to engage in discussions regarding social and economic information.

Potential impacts of the proposed Project on Wet'suwet'en Aboriginal Interests

Aboriginal title

Based on the discussion of the possible effects of the proposed project to asserted Aboriginal title in section 6.2.6 of this report, EAO is of the view that the proposed Project would have low to moderate impacts on Wet'suwet'en asserted Aboriginal title to the Project area. EAO has addressed these potential impacts to Wet'suwet'en asserted Aboriginal title by ensuring that Dark House and other Wet'suwet'en groups are meaningfully consulted and accommodated around the potential effects of this proposed Project. Furthermore, the Province and the Proponent have approached Dark House and other Wet'suwet'en groups in relation to this and other LNG-related projects, to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2. To this end, economic benefits of the project are being discussed, including those arising on potential Aboriginal title lands.

Hunting

Dark House did not identify any specific hunting sites that could be impacted by the proposed Project. The Proponent has committed to continue to consult Dark House and if hunting sites are identified, will consider these in on-going planning and design. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report.

Access for Aboriginal Groups to the proposed Project area to hunt may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons; however, engagement with Dark House by the

Proponent during construction planning can help to mitigate these effects. Access may be restricted to a lesser extent over the medium term during operation of the pipeline.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 of this report – the proposed Project may affect Dark House members' hunting activities in some areas particularly during the construction phase such that the proposed Project may have minor impacts on Dark House members' asserted Aboriginal right to hunt.

Gathering

Dark House did not identify any specific gathering sites that could be impacted by the proposed Project. The Proponent commits to continue to consult Dark House and if gathering sites are identified, will consider these in on-going planning and design. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to vegetation, and current and traditional land use, the proposed Project may affect Dark House members' ability to gather in some areas, particularly during the construction phase, such that the proposed Project may have minor impacts on Dark House members' ability to gather.

Fishing

Dark House did not identify any fishing sites that could be impacted by the proposed Project. The Proponent commits to continue to invite Dark House to consult and if fishing sites are identified by Dark House, to consider these in on-going planning and design. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – the proposed Project may affect Dark House members' ability to fish in some areas, particularly during the construction phase, such that the proposed Project may have minor impacts on Dark House members' asserted Aboriginal right to fish.

Trapping

Dark House did not identify any trap lines that could be impacted by the proposed Project. The Proponent commits to continue to try to consult Dark House and if trap lines are identified, consider these in on-going planning and design. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project may affect Dark House members' trapping in some areas, particularly during construction phase, such that the proposed Project may have minor impacts on Dark House members' asserted Aboriginal right to trap.

Culturally important sites, trails and travelways

Dark House did not identify any culturally important sites that could be impacted by the proposed Project ROW.

In consideration of the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to archaeology and cultural heritage interests – as discussed in section 6.2.5 of this report – the proposed Project is expected to result in negligible impacts on Dark House's culturally important sites, trails and travelways.

7.3.2 Nee-Tahi-Buhn Band

Context

- The asserted traditional territory of Nee-Tahi-Buhn Band includes areas around François Lake, Uncha Lake and Grassy Plains.
- Nee-Tahi-Buhn Band has five reserves. The most populated are François Lake IR 7, Omineca IR 1 and Uncha Lake IR 13A, which is a shared reserve with Skin Tyee Nation. In 2013, the total registered population was 142 and it was estimated that 40 members lived on reserve.
- Nee-Tahi-Buhn people used different parts of their asserted territory at different times of the year and at different times in their history, following a seasonal round of resource activities.
- Traditional land use studies indicate that fishing, hunting, trapping and plant gathering for subsistence and medicinal purposes continue to be integral to Nee-Tahi-Buhn Band traditional practices.

Summary of consultation

Nee-Tahi-Buhn Band was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Nee-Tahi-Buhn First Nation was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Nee-Tahi-Buhn Band during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. Under a Letter of Agreement dated February 2013, the Proponent provided initial capacity funding for Nee-Tahi-Buhn First Nation to engage in discussions regarding the proposed Project. A MOU between Nee-Tahi-Buhn First Nation and the Proponent, dated June 2013, provided continued capacity funding for Nee-Tahi-Buhn First Nation.

Nee-Tahi-Buhn Band provided comments on the draft Application Information Requirements. Nee-Tahi-Buhn First Nation participated in working groups meetings May 20-22, 2014 and May 27-28, 2014 and participated in the Natural Gas Pipeline Workshops May 29-30, 2014.

Nee-Tahi-Buhn Band participated in biophysical field studies, but did not provide TEK. However, Nee-Tahi-Buhn Band conducted a Traditional Land Use study and collected socio-economic baseline data. The results of these studies will form the basis for ongoing dialogue between the Proponent and Nee-Tahi-Buhn Band to inform detailed planning for the proposed Project. The results of these studies were included in the Proponent's Application Aboriginal Consultation Report 3.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Nee-Tahi-Buhn Band 24 times (during 2012–2014) to discuss project-related issues and concerns including the route selection within their asserted traditional territory, information requirements for environmental baseline studies, traditional land use studies and cumulative effects assessments. Issues raised by Nee-Tahi-Buhn, and the Proponent's responses, are provided in the Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Nee-Tahi-Buhn First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Aboriginal title

Based on the discussion of the possible effects of the proposed project to asserted Aboriginal title, EAO is of the opinion that the proposed pipeline project would have low to moderate impacts on Wet'suwet'en asserted Aboriginal title to the project area. EAO has addressed these potential impacts to Wet'suwet'en asserted Aboriginal title by ensuring that Nee-Tahi-Buhn Band and other Wet'suwet'en groups are meaningfully consulted and accommodated around the potential effects of this proposed Project.

Furthermore, the Province and the Proponent have approached Nee-Tahi-Buhn Band and other Wet'suwet'en groups potentially affected by this and other LNG-related projects, to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2. To this end, economic benefits of the project are being discussed, including those arising on potential Aboriginal title lands.

Hunting

Nee-Tahi-Buhn Band identified the following key concerns regarding wildlife, wildlife habitat and its asserted Aboriginal right to hunt:

- Potential effects on wildlife habitat including migration area, calving areas and nests, including:
 - Potential impacts to ungulates and moose calving areas - request protection of potential calving areas; and
 - Potential impacts of development to the following habitats: moose, eagle's nests, lynx, small furbearers, birds, nests and nesting grounds;
- Potential adverse effects on wildlife, including:
 - Effects of tree clearing and construction on wildlife, moose breeding areas, loss or contamination of mineral / moose licks;
 - Disturbance to bears / bear dens; and
 - Animal health due to disruption and impacts on waterways;
- Potential effects of increased access on wildlife species, including furbearers, including pipeline ROW could potentially increase access and line of site for hunters and predators; and
- Potential land use conflicts between Nee-Tahi-Buhn Band cultural hunting values and activities and construction that would impact moose, deer, goats, grouse, grizzly and black bear, marmot, porcupine, ducks, caribou and geese.

Nee-Tahi-Buhn Band identified hunting the following animals: deer, goat, black bears, ducks and geese. Mountain goat was considered as a key wildlife indicator. Nee-Tahi-

Buhn Band did not identify any specific hunting sites that could be impacted by the proposed Project.

In addition to species harvested for subsistence and medicinal purposes, culturally and spiritually important animal species were named, particularly birds, which are not hunted or trapped. These species include loons, bald eagles, golden eagles, hawks, ospreys, whiskey jacks, robins, cowbirds, chickadees, sandpipers, owls, humming birds and woodpeckers.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report. Access for Aboriginal Groups to the proposed Project area to hunt may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons; however, engagement of Nee-Tahi-Buhn Band during construction planning can help to mitigate these effects. Access may be restricted to a lesser extent over the medium term during operation of the pipeline.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 of this report – the proposed Project may affect Nee-Tahi Buhn Band's hunting activities in some locations, particularly during the construction phase, such that the proposed Project is expected to have a moderate impact on Nee-Tahi-Buhn Band's asserted Aboriginal right to hunt.

Gathering

Nee-Tahi-Buhn raised the following concerns regarding vegetation and its asserted Aboriginal right to gather, including:

- Disturbances or contaminations to soil and water quantity/quality and plant species used by the Nee-Tahi-Buhn Band;
- Potential loss of wetland habitat, function and water quality also affecting wildlife and vegetation during construction of the proposed Project;
- Potential effects on traditionally harvested vegetation including ceremonial and medicinal plants, including:
 - Loss of, or increased access to culturally important and harvesting sites and medicinal plants; and
 - Request to avoid these sites;
- Access management along cleared ROW, including increased access to pristine areas and important plant harvesting sites;
- Potential impact to wetlands, including:

- Potential loss of wetland habitat, function and water quality effecting wildlife and vegetation; and
- Potential effects of construction on wetland ecosystem;
- Introduction and spread of invasive plant species, including impacts of invasive vegetation species and restoration of natural vegetation; and
- Potential land use conflicts between Nee-Tahi-Buhn gathering values and activities during construction that would impact Saskatoon berry, soapberry, huckleberry, raspberry, strawberry, blueberry, Hudson's Bay Tea, cranberry, fireweed, mushrooms, kinnikinnick, moss, and birch.

The species of plants described to be integral to Nee-Tahi-Buhn Band's traditional land use for gathering include, soapberry, juniper, Hudson's Bay tea, devil's club, woman's medicine plant, goose berry, grouse berry, fireweed, wild flowers, alder, poplar, cottonwood, balsam/fir, spruce, birch, Indian rice, wild rose, pine, rhubarb, mushrooms, pussy willow and stinging nettle. Nee-Tahi-Buhn Band did not identify any specific gathering sites that could be impacted by the proposed Project.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to vegetation, and current and traditional land use – as discussed in section 6.3.4 of this report – the proposed Project may affect Nee-Tahi-Buhn members' gathering in some areas, particularly during construction, such that the proposed Project is expected to have a minor impact on Nee-Tahi-Buhn Band's asserted Aboriginal right to gather.

Fishing

Nee-Tahi-Buhn raised the following key concerns related to potential effects to fish and fish habitat and its asserted Aboriginal right to fish:

- Disturbances or contaminations to soil and water quantity/quality and plant species used by the Nee Tahi Buhn;
- Potential effects on fish in the Morice River;
- Alteration or loss of riparian habitat;
- Potential effects on water quality related to construction including equipment maintenance and watercourse crossings, contamination, including:
 - Impacts to water quality at and downstream watercourse crossings; and
 - Compounding residual effects of water contamination and fish due to developments;

- Potential effects on fish, fish habitat, and fish camps, including disruption and contamination of fish habitat during construction;
- Potential disruption of navigability; and
- Potential land use conflicts between Nee-Tahi-Buhn cultural gathering values and activities and construction that would impact rainbow trout, ling cod, lake trout, whitefish, kokanee, sturgeon, salmon, char, Dolly Varden and sucker.

Nee-Tahi-Buhn Band have indicated their members fish the following species: rainbow trout, ling cod, lake trout, whitefish, kokanee, salmon, char, sturgeon and sucker fish.

EAO understands that Nee-Tahi-Buhn members fish along the Morice River; however, specific locations are unknown. The Morice River is crossed by the proposed Project route at KP 558.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report. The proposed Project corridor would traverse approximately 179 km of Nee Tahi-Buhn Band asserted traditional territory, with approximately 223 watercourse crossings, 39 of which have indicated fish presence. There are 14 large crossings as follows:

- Gosnell Creek (569.71)
- Unnamed Tributary to Gosnell Creek (562.89)
- Morice River (Side Channel) (557.35)
- Morice River (557.18)
- Cedric Creek (544.81)
- Lamprey Creek (537.59)
- Unnamed Tributary to Morice River (532.61)
- Owen Creek (520.63)
- Parrott Creek (508.77)
- Allin Creek (471.68)
- Unnamed Tributary (Tatsutnai Creek) (419.55)
- Tchesinkut Creek (KP 409.70, KP 412.42, and KP 449.44)

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 – the proposed Project may affect Nee-Tahi-Buhn Band members' fishing in some areas, particularly during construction, such that the proposed Project is expected to have a minor impact on Nee-Tahi-Buhn Band's asserted Aboriginal right to fish.

Trapping

Nee-Tahi-Buhn Band raised the following key concerns about the potential effects on trap lines and its asserted Aboriginal right to trap:

- Disturbances or contaminations to soil and grasslands that would impact fur bearing animals that are trapped;
- Potential effects on trap lines, including:
 - Impacts to tradition practices; and
 - Consultation and notification required for trappers and trap line holders; and
- Identified potential land use conflicts between Nee-Tahi-Buhn Band trapping values and activities and construction that would impact beaver, fox, fisher, lynx, marten, muskrat, rabbit, squirrel, weasel, wolf, coyote, otter, cougar, bobcat and wolverine.

Species traditionally trapped by Nee-Tahi-Buhn Band include, rabbit, coyote, beaver, fox, fisher, lynx, marten, squirrel, weasel, wolf, otter, cougar, bobcat and wolverine. Fisher and marten were assessed as key wildlife indicators. Nee-Tahi-Buhn Band did not identify any specific trapping areas that could be impacted by the proposed Project.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.4 of this report. Access for Aboriginal groups to the proposed Project area to trap may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons; however, engagement of Nee-Tahi-Buhn Band during construction planning may help to mitigate these effects through the development of specific measures. Access may be restricted to a lesser extent over the medium term during operation of the pipeline.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project may affect Nee-Tahi-Buhn Band members' trapping in some areas, particularly during construction, such that the proposed Project is expected to have negligible impacts on Nee-Tahi-Buhn Band's asserted Aboriginal right to trap.

Impacts to culturally important sites

Nee-Tahi-Buhn Band raised concerns about the potential impacts on cultural and archaeological sites, trails and travelways, including:

- Potential disturbance of Archaeological sites, including:
 - Archaeological work required to identify and preserve artifacts; and
 - Potential adverse effects on culture camps and cultural sites;
- Potential adverse effects on Culturally Modified Trees;
- Effects on Tchesinkut Creek Crossing; and
- Continued access to trails that cross the ROW.

In response to concerns raised by the Nee-Tahi-Buhn Band about the Tchesinkut Creek Crossing, the Proponent proposed an alternative corridor in the June 9, 2014 Application Addendum that would avoid multiple crossings of Tchesinkut Creek. The proposed alternative corridor is also adjacent to the proposed Pacific Trail Pipeline route that could allow for sharing of disturbed area and potentially reduce the overall footprint. Site-specific mitigation would be informed by the detailed description of each watercourse crossing provided by the Fish and Fish Habitat Technical Data Report and the mitigation measures described in section 7 of the Application and section 8.4 of the Environmental Management Plan.

In consideration of the Proponent’s proposed mitigations and proposed conditions of any EAC issued, EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – the proposed Project is expected to result in negligible impacts on Nee-Tahi-Buhn Band’s culturally important sites, trails and travelways.

Other matters of concern to Nee-Tahi-Buhn

Issues Raised	EAO/Proponent response
Terrain, pipeline safety and integrity	<p>The Proponent has undertaken detailed terrain analysis, the results of which continues to inform the construction planning and detailed engineering design of the proposed Project. In addition to the current process administered by the EAO, the Proponent is required to provide detailed information regarding the design of the Project for review by the OGC.</p> <p>Section 10 of EAO’s Assessment Report considers accidents and malfunctions. Section 5.2 of EAO’s Assessment Report discusses the geophysical</p>

Issues Raised	EAO/Proponent response
	environment and issues related to construction.
Employment opportunities, training, and benefits	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements that would remain confidential. • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information to ensure that meaningful partnerships are developed for both the Project and the community. The Proponent will continue engagement with Aboriginal groups about construction planning and Project design, including the schedule of construction activities.</p>
Concern with Project timelines	Refer to Part C section 2.1 for Common Concerns raised.
Potential cumulative effects	Refer to Part C section 2.1 for Common Concerns raised.
Emergency response planning	The Proponent has provided information on emergency planning in section 25 of the Application.

7.3.3 Office of the Wet'suwet'en

Context

- The Office of the Wet'suwet'en (OW) is a non-profit society created as the central office of the Wet'suwet'en people. The OW provides service through the traditional territories, focusing on lands and resources, fisheries and wildlife, human and social services, and treaty negotiations.¹⁹
- The OW centres on a hereditary system of governance based on five clans that divide into 13 houses. Each house is led by a Hereditary Chief and is responsible for managing distinct sections of the territory and fishing sites, with additional wing-chiefs who assist with decision-making in each house territory. The OW acts as a representative of the traditional Wet'suwet'en hereditary governance system and is governed by the Wet'suwet'en Hereditary Chiefs.
- Two member Bands defer to the OW in respect of Aboriginal rights and title matters off of reserve: the Hagwilget Village Band and Moricetown Band. Although members of other bands, including Nee-Tahi-Buhn, Wet'suwet'en First Nation, Ts'il Kaz Koh First Nation and Skin Tyee First Nation, are also connected to the Wet'suwet'en hereditary system through clan and house affiliations, these groups are not formally represented by the OW in consultation with the Province.
- Hagwilget Village Council (Band No. 534) is made up of two reserves, the largest located on the Bulkley River at Hagwilget, 2 km north of New Hazelton and 8 km east of Hazelton. While located outside of Wet'suwet'en asserted traditional territory, this reserve is known to be a shared reserve with Wet'suwet'en and Gitksan members. As of August 2014, the total population was 768, with 229 living on reserve and 539 living off reserve. Hagwilget Village Band is administered under the Indian Act electoral system and is governed by a Chief and three Council members.
- Moricetown Band (Band No. 530), also known as Kya Wiget, is the largest of the Wet'suwet'en communities. The Band is located about half way between Smithers and Hazelton, and is made up of seven reserves located on about 1,427 ha of land. As of September 2013, the total population was 1,984, with 709 members living on reserve and 1,275 members living off reserve.

¹⁹ Office of the Wet'suwet'en (2013a)

- Moricetown Band is administered under the Indian Act electoral system and is governed by a Chief and 12 Council members.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project would consist of approximately 180 km of pipeline passing through OW's asserted traditional territory, with two compressor stations on or in proximity to areas with strong *prima facie* Wet'suwet'en claim to Aboriginal title (Goosly Falls, KP 492.4, and Titanium Peak, KP 573.4). Preliminary construction camp locations include five potential camps within OW asserted territory, the precise locations of which were not made available to EAO at the time of writing (Pioneer #5, Main#8 or Jellett, Main #8 alternate, Main #9, Main #9A, and Pioneer #2).
- Given the historic connections of the OW to the Wet'suwet'en, the analysis above informs EAO's understanding of Wet'suwet'en's Aboriginal Interests regarding the historic and current social organization and governance of the Wet'suwet'en.
- EAO described its initial assessment of strength of claim and the scope of the duty to consult in a letter sent to OW dated January 10, 2014. OW responded on January 24, 2014. Upon review, EAO clarified to the OW that the purpose of the Province's analysis was not to provide a definitive determination of Wet'suwet'en's Aboriginal rights and title. It was simply intended to inform the level of consultation required for the proposed Project.

Summary of Consultation

OW was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. OW was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to OW during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. The Proponent provided initial capacity funding for OW to engage in discussions regarding the proposed Project under a Communication and Engagement Agreement dated May 2013. Further capacity funding was provided under a Project Assessment Agreement between OW and Coastal GasLink in March 2014.

OW did not submit written comments regarding the AIR, Application content, Aboriginal Consultation Plan or Aboriginal Consultation Reports 1 and 2, but did submit comments on the draft Section 11 Order and on the Proponent's third and final Aboriginal Consultation Report. OW was involved in the EA through active participation in Advisory Working Group meetings on March 4-5, 2013, April 11, 2013, May 20-22, 2014, and May 27-28, 2014 and through participation in the Natural Gas Pipeline Workshops on May 29-30, 2014. OW also met with EAO on April 12, 2013 and May 8, 2014 to discuss consultation and accommodation, cumulative effects and potential effects of the proposed Project.

OW provided EAO with comments on the EA for the proposed Project on September 5, 2014. EAO has addressed their comments in this draft of the Assessment Report. On September 24, 2014, OW provided comments to the EAO, in addition to supplemental documents, "The Morice Fish and Aquatic Habitat Review" and a "Wet'suwet'en Title and Rights Report, for EAO's consideration. On October 3, 2014, OW provided EAO with its separate submission to Ministers, in addition to the previously mentioned supplemental materials, which EAO has included in its referral package for Ministers.

OW chose not to participate in socio-economic or biophysical studies, or to provide TEK or TLU information, indicating that it will instead submit a Rights and Title report. EAO has not received a copy of this report. OW recommended that the Proponent review publically available Wet'suwet'en affidavits and transcripts from the *Delgamuukw v. BC* court case, which contain information on Wet'suwet'en traditional uses, traditional knowledge, and stories.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with OW 21 times (during 2012-2014) to discuss various aspects of the proposed Project. OW hosted a meeting between senior Coastal GasLink representatives and the Wet'suwet'en Hereditary Chiefs. Issues raised by OW, and the Proponent's responses, are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with OW as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

During the pre-application stage of the EA, the blockade at the Morice River bridge was identified as an issue that constrained the Proponent's ability to conduct ground surveys and studies within OW's asserted traditional territory. The EAO agreed that this represented a valid rationale for inaccessibility to the area and supported the use of technical boundaries, which define an area within which other means of data collection and analysis would be used during the EA in place of ground surveys and studies. In

the Pre-Application stage of the EA, the EAO directed the Proponent to use all available information, as well as desktop analysis, to conduct the effects assessment prior to making an application. The EAO has determined that in addition to the available information, the Proponent must take a conservative approach to avoid, minimize or mitigate for all valued components in the technical boundary area that may be affected by the proposed Project. The Proponent has also been directed by the EAO to assume that a species is present, and to propose mitigation accordingly.

The EAO has proposed a condition with regards to the Morice River Technical Boundary Area that would require the Proponent to provide Technical Data Reports based on field data collected in the Area and a report that either verifies that the effects assessment conclusions reached in the Application are consistent with the information in the Technical Data Report, or updates those effects assessments based on the new information. The Technical Data Reports must be shared with regulatory agencies and Aboriginal Groups that assert territory within the Area.

OW requested various Project baseline data related to vegetation and wildlife, which was provided to them by the Proponent during Application Review.

OW was actively involved in the EA for the Pacific Trails Pipeline (PTP), formerly KSL Looping Project, which follows a similar route to the proposed CGL project. The issues raised by OW during the PTP EA process and more recently in relation to compliance and enforcement for the PTP project, as well as some of the materials prepared for the PTP EA such as a Wet'suwet'en Use Study, are also relevant to the CGL project EA. Where key concerns relevant to the PTP project were not raised during the CGL EA, they are listed in the appropriate section with PTP noted in parentheses.

The OW submits in its final documents provided to EAO that, in accordance with Wet'suwet'en law, EAO must recommend against approval of the proposed Project as it stands. The OW state that major components of proposed Projects within the mid-Morice watershed are in deep conflict with core Wet'suwet'en laws and values. EAO acknowledges that the OW recommends against approval of the proposed Project.

Potential impacts of the proposed Project to Office of the Wet'suwet'en's Aboriginal Interests

Below, EAO outlines issues identified during the EA, provides additional background information specific to Wet'suwet'en Aboriginal Interests, and lays out its considerations and conclusions on the seriousness of impacts to the Wet'suwet'en Aboriginal Interests.

Although these Aboriginal Interests are described in separate sections, EAO acknowledges their interconnectedness and that factors affecting one type of Aboriginal Interest may also affect another.

Aboriginal title

Based on the discussion of the possible effects of the proposed Project to asserted Aboriginal title, EAO's opinion is that the proposed pipeline Project would have low to moderate impacts on Wet'suwet'en's asserted Aboriginal title to the project area. EAO has addressed these potential impacts to Wet'suwet'en asserted Aboriginal title by ensuring that OW and other Wet'suwet'en groups are meaningfully consulted and accommodated around the potential effects of this proposed Project. The Province and the Proponent have approached OW and other Wet'suwet'en groups to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2. To this end, economic benefits of the project are being discussed, including those arising on potential Aboriginal title lands.

The OW's view is that they have never relinquished or surrendered Wet'suwet'en title and rights to the lands and resources within Wet'suwet'en Territory, and continue to occupy and use the lands and resources and to exercise existing title and rights within the territory. The OW's views any impact to their identity, governance, traditional practices of hunting and gathering and passing on of traditional knowledge to future generations to be an impact to Wet'suwet'en title.

The OW states that damage to territorial resources is counterproductive to the social, cultural, economic and physical well-being of each and every Wet'suwet'en member, and is viewed as an infringement to Wet'suwet'en title, rights and culture

Hunting

Key issues:

OW's key concerns regarding wildlife, wildlife habitat, and the asserted right to hunt included:

- Concerns about data collection, models, and methods, including the need to assess population density rather than simply habitat suitability and capability and selection of key indicator species.
- The importance of the Burnie River Protected Area to moose (calving area).
- The effect of project-related noise on wildlife nursery areas.
- The effects of hydrostatic testing on aquatic and wetland species, including beaver.

- General concerns about impacts to wildlife resources, including abundance, and implications for Aboriginal rights. Species of concern include caribou, other ungulates, bear, birds, bear, beaver and wolverine.
- Feasibility and effectiveness of protection measures for grizzly bear and caribou, including potential effects of air traffic and predation. Field studies should reflect extent of territory, and natural variation in territory. More than one field season is needed. Concern regarding interactions between caribou and wolf populations and air traffic disturbance.
- Concerns regarding the feasibility and effectiveness of proposed protection measures for particularly caribou and grizzly bear.
- Concerns for the ability of wildlife to cross the pipeline.
- Risk of contamination of fish and country foods; sampling and monitoring is required (PTP).
- Increased access could impact traditional activities, particularly in the area from Gosnell to Clore Rivers. Also, wildlife mortality could increase as a result of increased new access.
- Alteration or loss of riparian habitat.
- Loss or contamination of mineral licks during pipeline construction.
- Potential for construction activities to limit use of game trails, restricting wildlife movement.
- Loss or contamination of wildlife and their habitat would impact the ability to carry out traditional activities; compensation plans are needed (PTP).
- Cumulative impacts of the project with other activities (PTP).

OW members actively hunt moose and other species, and expect to continue to do so in future. Species hunted by OW members in the past as part of their seasonal round include groundhog, hoary marmot, mountain goat, caribou, beaver, snowshoe hare, black bear, grizzly bear and deer (Ministry of Attorney General 2011). Detailed information on current use, such as locations of hunting sites and frequency of use, not been made available to EAO except for two documented hunting locations.

Two OW hunting areas are identified in the Application (Section 23, Table 23-45):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
57 km north of KP 473	Matzehtzel Mountain
50 km north of KP 476	Nez Lake

Since both sites are 50 km or more from the pipeline centre line, direct project impacts to these sites are not anticipated.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report.

Within OW traditional territory, the proposed Project would cross the Telkwa caribou range. As discussed in section 5.5 of the Assessment Report, the Telkwa herd is considered threatened by the federal government and is blue-listed provincially, with a current population estimated at only 19 animals. For conservation reasons, there is currently no hunting season for the Telkwa caribou herd.

The proposed route intersects approximately 6 ha of mountain goat Ungulate Winter Range, all within the Morice LRMP, making up about 1.7% of the total UWR within the Morice LRMP. Mountain goat UWR makes up only 1 % of the Morice and Kalum LMRP areas (and is not found in other LRMP areas crossed by the proposed Project).

EAO has proposed conditions requiring mitigation and monitoring of the Hart and Telkwa caribou herds and grizzly bear in proximity of the proposed Project for the life of the proposed Project, as well as financial compensatory offset measures to assist with the management of caribou within the proposed Project area. EAO acknowledges OW's concern regarding the feasibility and effectiveness of the proposed mitigation measures for wildlife.

OW members' access to the proposed Project area to hunt may be affected in the short term, for a limited area and time during the construction phase, when access may be restricted for safety reasons. EAO has proposed a condition requiring the Proponent to avoid prohibiting access for Aboriginal Groups, during operation, to carry out traditional use activities.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land – as discussed in section 6.2.1 – and the distance between the proposed Project route and hunting areas identified by OW, the proposed Project is expected to have moderate impacts on OW's members asserted Aboriginal right to hunt.

Trapping

OW raised the following concerns related to potential impacts of the proposed Project on trapping:

- General concerns about impacts to wildlife resources, including abundance, and implications for Aboriginal rights. Species of concern include caribou, other ungulates, bear, birds, bear, beaver, wolverine;

- Potential loss of beaver dam/lodge;
- Potential adverse effects of construction on small furbearers;
- The effects of hydrostatic testing on aquatic and wetland species, including beaver;
- Field studies should reflect extent of territory, and natural variation in territory. More than one field season is needed;
- Concern with how wildlife will cross the pipeline;
- Risk of contamination of fish and country foods – sampling and monitoring is required (PTP);
- Increased access could impact traditional activities, particularly in the area from Gosnell to Clore Rivers. Also, wildlife mortality could increase as a result of increased new access;
- Alteration or loss of riparian habitat;
- Potential adverse effects of construction on trap lines;
- Loss or contamination of wildlife and their habitat would impact the ability to carry out traditional activities – compensation plans are needed (PTP); and
- Cumulative impacts of the project with other activities (PTP).

OW did not identify any specific trapping areas that could be impacted by the proposed Project. EAO has not been provided with information indicating trap lines held by OW members. Additional detailed information on current use has not been made available to EAO.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report.

The proposed Project may have an effect on OW's ability to access the Project area to exercise the right to trap, as it may require the short or long-term relocation of portions of trap lines, which may require cutting new trails as well as moving traps. Trap line territories are delineated across OW's asserted traditional territory, which may limit the ability of OW members to trap, at least for commercial purposes, outside their established trap line territories. However, the proposed pipeline corridor is narrow enough that the disruption to each trap line should not prevent a trap line holder from trapping in other parts of that trap line territory, and should therefore have a relatively small effect on overall access to trapping. Mitigation measures have been designed to reduce the disruption of trapping activities.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project may affect OW members' ability to trap in some areas, particularly during the construction phase, such that the proposed

Project is expected to result in minor impacts on OW members' asserted Aboriginal right to trap.

Fishing

OW raised the following key concerns related to potential effects to fish and fish habitat, surface water and groundwater and its asserted Aboriginal right to fish:

- General potential adverse effects on watercourses; impacts to fish, fish habitat (including spawning and off-channel habitats), fisheries, riparian areas; and water quality, including impacts to soils (erosion);
- Downstream effects on fish habitat from work in non-fish-bearing streams (PTP);
- Effects of hydrostatic testing on aquatic life, wetlands, and wetland organisms including zooplankton/micro-organisms that provide an important food source;
- Management and mitigation for Acid Rock Drainage (ARD), including during pipeline abandonment. Key potential ARD areas of concern to the OW include the compressor station near Goosly lake, as well as the Equity mine site and the southeast side of Owen lake;
- Clore River area, where groundwater regeneration was noted as important to support an isolated population of trout;
- Gosnell watershed, where it was noted by the OW that salmon spawning and rearing habitat is currently impacted by logging;
- Concern regarding the characterization of potential impacts to salmon, and potential impacts to cultural uses of salmon (see section 5.7 of this report for EAO's assessment on the proposed Project's potential impacts to salmon);
- Field studies should reflect extent of territory, and natural variation in territory. More than one field season is needed;
- Impacts to water and fish habitat in the Morice Watershed Management Area (PTP);
- Slope stability throughout OW territory and particularly in the Morice Watershed Management Area and in any steeper terrain and n for additional terrain stability assessments prior to work commencing (PTP);
- Pacific lamprey is a species of concern;
- Impacts on Skeena/Fraser watersheds;
- General impacts on fish/lakes/rivers. Impacts to fish result in impacts to Aboriginal rights, title, culture, and wealth;
- Loss or contamination of fish and their habitat would impact the ability to carry out traditional activities; compensation plans are needed (PTP);
- Water quality monitoring is required before, during, and after construction. Pipeline development will preclude development of true reference water quality standards (PTP);

- Seasonal windows proposed for construction will not avoid impacts to fish during one of their developmental stages (PTP);
- Risk of contamination of fish-bearing streams, fish and country foods – sampling and monitoring is required (PTP);
- Impacts to prime fishing locations. Increased access could impact traditional activities, particularly in the area from Gosnell to Clore Rivers;
- Concern over crossing methods for Gosnell, Morice, and Clore rivers (PTP); and
- Cumulative impacts of the proposed Project with other activities (PTP).
- Concerns regarding effects of increased road densities and potential effects to fish and fish habitat, including in the Bi Wini, Lhudis Bin, Talbits Kwah and the southernmost part of the Ts'in K'oz'ay house territories (which would be traversed by the proposed Project) and Houston Tommy Creek and Owen Creek where road density is between 0.4 to <math><1.2\text{ km/km}^2</math>, and Lamprey Creek where road density is $\geq 1.2\text{ km/km}^2$;
- Concerns regarding development within riparian zones, including in the Bi Wini and Lhudis Bin house territories (which would be traversed by the proposed Project), and McBride Creek and Lamprey Creek where percent of riparian disturbance is over 15%, and in Talbits Kwah, and the southernmost part of the Ts'in K'oz'ay house territories (which would be traversed by the proposed Project), and Houston Tommy Creek and Owen Creek where percent of riparian disturbance is between 5 and 15%; Concern regarding diminishing salmon abundance since the 1950s;

In 2007, the BC and the Wet'suwet'en established the Morice River Water Management Area (Morice WMA) as a component of the Morice Lands and Resource Management Plan (Morice LRMP). The Wet'suwet'en view the Morice WMA as created to secure the integrity of the Wet'suwet'en lands and water resources and, in Wet'suwet'en's view, represents a significant compromise by the Wet'suwet'en whose interests extend throughout the entire Morice watershed.

The Morice LRMP's desired outcome is to ensure the habitat and water quality supporting salmon and other fish is not negatively impacted. Goals for the Morice WMA include:

- Water quality and quantity suitable to sustain the health and well-being of the Wet'suwet'en (the intent being the protection of water quality, hydrologic integrity and salmon habitat);
- Water quality that supports aquatic life at reference state;
- Sustainable water use practices; and
- Integrated land and water resource planning that utilizes the Wet'suwet'en Territorial Stewardship Plan.

Due to the current decline of the Morice-Nanika sockeye due to high exploitation rates and low-productivity issues in Morice Lake has deeply impacted the Wet'suwet'en and their culture. The Wet'suwet'en have a moratorium on their food, societal and ceremonial fishing of this stock. The Wet'suwet'en view any alteration or destruction to the fish and fish habitat as an infringement of Wet'suwet'en title and integrally associated traditional governance.

The Wet'suwet'en believe that there is a connection between their ancestors and the salmon that ensure community well-being and health.

Wet'suwet'en rely heavily on salmon-bearing watersheds. The Endako and Nadina Rivers are important salmon- harvesting locations, and the Bulkey drainage also supplies important fishing resources. Moricetown is a primary fishing location.

Although the Application did not provide specific information on stream crossings in OW territory, the proposed Project corridor would traverse approximately 274 watercourse crossings within WFN's asserted traditional territory, which largely overlaps with OW asserted traditional territory along the pipeline route. 46 of these streams have indicated fish presence. There are 20 large crossings within WFN's asserted traditional territory as follows:

- Tchesinkut Creek (KP 449.44)
- Allin Creek (KP 471.68)
- Unnamed Tributary to Buck Creek (KP 480.34)
- Parrott Creek (KP 508.77)
- Owen Creek (KP 520.63)
- Unnamed Tributary to Morice River (KP 532.61)
- Lamprey Creek (KP 537.59)
- Cedric Creek (KP 544.81)
- Gosnell Creek (KP 569.71)
- Unnamed Tributary to Gosnell Creek (KP 562.89, 573.91, and 576.43)
- Morice River Side Channel (KP 557.35)
- Morice River (KP 557.18)
- Unnamed Tributary to Burnie River (KP 591.31 and 591.35)
- Clore River (KP 594.35)
- Unnamed Tributary to Clore River (KP 596.58, 598.12, and 600.94)

The following fishing areas were identified by Office of the Wet'suwet'en representatives in the Application (Section 23, Table 23-45):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
10 km north of KP 425	Endako River outlet
15 km north of KP 468	Maxan Lake outlet
2.8 km north of KP 468	Bulkley Lake outlet
115 km north of KP 468	Hagwilget Canyon
23 km north of KP 515	Upper Morice River
Crosses at KP 521.5	Nadina River , specific reach not identified
94 km north of KP 554	Bulkley Falls at Moricetown Canyon
94 km north of KP 554	Moricetown Canyon
3 km northeast of KP 558	Thautil and Morice River confluence
9 km south of KP 562	Morice Lake outlet
12 km south of KP 564	Nanika River
7 km southeast of KP 605	Gosnell waterway

OW identified 12 fishing sites near the proposed pipeline route (p. 23-320 of the Application). Of these sites, only one is directly on the route, on the Nadina River. The next closest site is 3 km northeast of KP 558. Specific information on frequency and timing of OW fishing was not made available to EAO.

OW has specifically identified concerns regarding the Clore River, Gosnell Creek, and Morice River. The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method to avoid and minimize potential impact to fish and fish habitat. Open cut trench method would be used only for non-fish bearing watercourse crossings, or where the channel is dry or frozen to the bottom.

OW identified Pacific Lamprey as an important food fish for the Wet'suwet'en who harvest them in the Bulkley mainstem, primarily at Hagwilget and Moricetown canyons with dipnets, and also on a variety of tributaries where traps are primarily used. Lamprey fisheries on Morice tributaries were consulted at Owen, Lamprey, Houston, Tommy, and Gosnell creeks, as well as the Thautil River. Wet'suwet'en typically smoke dry, then fully dry, freeze, can, salt, or pickle the Lamprey. The Wet'suwet'en note a decline in numbers and diminished returns, which has resulted in an increase in fishing effort and impacted sustenance regimes.

Resident fish that are predominant in Wet'suwet'en diets include lake trout, rainbow trout, Dolly Varden, bull trout, kokanee, and whitefish. Lake trout have been recorded in Atna Lake, McBride Lake, Morice Lake, Nanika Lake, and Owen Lake. Rainbow trout is

a mainstay of Wet'suwet'en fish catch, with an isolated Clore River rainbow trout being of particular concern.

Bull trout are common in the Morice watershed and provide winter-long fresh fish catches to the Wet'suwet'en. Bull trout in groundwater recharge areas in the Clore River watershed are of particular concern. Wet'suwet'en have noted decreased bull trout population abundance in the western territories of the Morice drainage have become better accessible via roads.

Kokanee are an important fish resource to the Wet'suwet'en at upper and lower Burnie Lakes, Shea Lake, and Morice Lake. Wet'suwet'en primarily used traps to catch kokanee; however, current harvest is typically by lake trolling.

Whitefish are distributed in streams and lakes in the territory, and are an important food to the Wet'suwet'en. Whitefish were and are harvested in the Owen, Lamprey, Thautil, Gosnell, McBride, Nanika, and Atna systems.

The Proponent's aquatics field program noted locations of groundwater upwelling and bank seepage, particularly during the winter field program, when upwellings can be identified by lack of ice cover and warmer water temperatures, as a measure to identify important spawning habitat. This fieldwork helped inform the Proponent's mitigations for Aquatic values in the Application.

No additional mitigation was identified or required for these species or for other Clore River populations, beyond mitigations proposed for fish species generally.

OW representatives also highlighted concerns regarding the impacts of hydrostatic testing, ARD, and potential natural gas release below ice on aquatic values and wetlands. The risk of producing ARD would be greatest during pipeline construction and could result from activities associated with grading, trenching or tunneling. Much of the mitigation for ARD would also occur at the construction stage of the Project, after field studies identify potential ARD sites, and would be avoided. If avoidance is not possible, mitigation would proceed based on an Acid Rock Construction Response Plan (ARCRP) – which would be required by EAO as a condition. With appropriate measures applied to fully mitigate any potential adverse effects, EAO does not expect any residual adverse effects from ARD to occur.

All hydrostatic testing activities would be conducted in accordance with the *Oil and Gas Activities Act*, Oil and Gas Waste Regulations under the *Environmental Management Act* and the *Water Act*. Hydrostatic testing would be planned to occur during summer or

fall when water supply is high, and when warming of water is not necessary. The Proponent confirmed that there would be no additives put into the water, and that the pipe is internally coated and therefore very clean. Testing would be done on the water before placing in pipe and also before releasing. According to the *Water Act*, section 8 (1) Approval requirements, if water withdrawal is proposed, the maximum quantity of water to be used cannot exceed 10% of the stream flow at the time of water extraction.

EAO has proposed a condition requiring the Proponent to provide information on offsets on aquatic and/or riparian values to Aboriginal Groups, when requested, as well as a condition that would require the development and implementation of a Water Quality Monitoring Plan that would include onsite environmental water quality monitoring.

The proposed Project would likely have a temporary effect on OW's ability to access one or two key fishing sites during project construction. Most of the fishing locations documented in the Application are not directly on the Project route and thus not expected to be affected by the proposed Project given existing mitigations to prevent downstream effects. Mitigation measures, including certificate conditions requiring further consultation with OW prior to construction, have been designed to address access management and minimize any impacts to OW members' access to fishing sites.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – the proposed Project is expected to have minor impacts on OW member's asserted Aboriginal right to fish.

Gathering

OW identified the following concerns related to plant communities and its asserted Aboriginal right to gather:

- General potential adverse effects on vegetation and plant communities, including old forest;
- Potential impacts to whitebark pine (and the associated Clark's nutcracker) and post construction reclamation and monitoring; OW suggests mitigations for whitebark pine that include longer term monitoring, transplanting, and compensation;
- Burnie River protected area has a high concentration of berries harvested for traditional foods;
- Introduction or spread of invasive or non-native species;

- Concerns over TEM survey intensity and whether local biologists were used;
- Field studies should reflect extent of territory, and natural variation in territory. More than one field season is needed;
- Impacts to traditional medicines and berries;
- Potential loss of wetland habitat, function, and water quality;
- Alteration of loss of riparian habitat;
- Risk of loss or contamination of plant communities, which would impact ability to carry out traditional activities (PTP);
- Potential use of pesticides or herbicides (PTP);
- Increased access could impact traditional activities, particularly in the area from Gosnell to Clore Rivers;
- Loss or contamination of plant communities would impact the ability to carry out traditional activities; compensation plans are needed (PTP);
- Cumulative impacts of the project with other activities (PTP); and
- Impacts to Aboriginal rights and title.

Two gathering areas were identified by Office of the Wet’suwet’en representatives in the Application (Section 23, Table 23-45) and during Working Group meetings:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
8 km south of KP 525	Nadina Mountain area
Bernie River Provincial Park	** identified during working group meetings

Given the distance from the proposed route, neither of these areas are expected to be affected by pipeline construction. OW members make use of the Project area to gather. Specific information on frequency and timing of these current uses was not provided to EAO. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in Part C section 6.2.4 of this report.

Wet’suwet’en people relied largely on abundant harvests of berries, particularly black huckleberries, for sustenance and trade. Blueberries, cranberries, saskatoons, and soapberries were also very important to the Wet’suwet’en. The Wet’suwet’en would historically use fire to manage the landscape, including the maintenance of seral habitat, which would encourage the establishment of berry plants. This practice changed with the Forest Service and an increase in non-Aboriginal settlers in the area.

The proposed crossing of Gosnell Creek in the Morice Region could result in potential adverse effects on wetlands in the Morice District. To mitigate proposed project effects

to wetlands, EAO has proposed a condition that requires the Proponent to develop and implement a Wetlands Management Plan that contains:

- Pre-construction surveys for wetlands to collect site-specific information on wetland location, type and function;
- Site-specific mitigation and monitoring; and
- A compensation plan to meet a “no net loss” target for wetland structure and function.

EAO is also proposing a specific condition for whitebark pine.

The proposed Project is not expected to limit OW members’ ability to access identified gathering sites, as the zone of project impacts to wetlands and vegetation is relatively narrow, and none of the gathering locations documented in the Application are directly on the Project route. However, the Project may increase access to some sites for OW members as well as other gatherers. The Project may also disrupt the existence of or access to gathering sites used by OW members but not identified in the Application.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to vegetation, current and traditional land use – as discussed in section 6.2.4 of this report – and the relative distance between the area of the proposed Project and gathering locations identified by OW, the proposed Project is expected to have minor impacts on OW member’s asserted Aboriginal right gather.

Culturally important sites, trails and travelways

OW identified concerns regarding potential adverse effects to areas of cultural significance, including:

- Concern about project presence and creation of new access in Morice River watershed, particularly pristine areas near Gosnell Creek. The 2 km application corridor near Morice River crossing includes locations with high OW historical values. Increased access could impact traditional activities;
- Potential for impacts to archaeological sites;
- Concern regarding removal of artifacts found in the traditional territory. OW requested that artifacts collected during the archaeology assessment in OW traditional territory be deposited at the Fraser Fort George Museum;
- Wet’suwet’en traditional use information is not sufficiently used in the Application (PTP);
- Cumulative impacts of the project with other activities (PTP); and

- Impacts to Aboriginal rights and title.

The Application listed the following habitation sites and sacred areas for the Office of the Wet'suwet'en in the vicinity of the project (Section 23, Table 23-45):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Habitation Sites	
Crosses at KP 522	Owen Creek, specific location not identified
Crosses at KP 558	Morice River, specific location not identified
63 m north of KP 561	East of Aldrich Lake, along the Copper River
60 km north of KP 573	West of Serb Creek
Sacred Areas	
63 km north of KP 561	East of Aldrich Lake, along the Copper River
60 km north of KP 573	West of Serb Creek

Two of the four habitation sites are located directly in the proposed project corridor: Owen Creek and Morice River. The two listed sacred areas are at the same location as two habitation sites. The latter two habitation sites are not expected to be affected by Project construction or operations based on their distance from the project corridor.

EAO's review of ethnohistoric information identified historic home sites within two kilometres of the proposed pipeline at Sam Goosly Lake and the Morice River (N. Bank of Morice River between Owen Creek and Lamprey Creek). EAO also identified historic home sites greater than 2 km from the pipeline corridor, at Tchesinkut Lake, South Parrott/Trout Lake, the North end of Parrott Lake, Owen Lake and Creek, the mouth of Gosnell Creek and the outlet of Morice Lake.

The Wet'suwet'en Use Study produced for the PTP project identifies a number of cultural heritage sites within 2.5 kilometres of the proposed pipeline alignment, particularly along the Morice River valley area, as well as a number of Wet'suwet'en trails crossing the pipeline corridor. The cultural heritage sites were mainly noted as sites used for hunting, trapping or fishing, some with associated cabins.

Project construction could adversely affect the culturally important sites and trails within the project corridor. The requirements of the *Heritage Conservation Act* must be met prior to and during construction. Further consultation with OW should enable the Proponent to avoid the identified culturally important sites and trails during construction.

In May 2014, OW expressed concerns about the proposed route around the upper Morice watershed (which includes multiple values, including cultural sites). EAO understands that OW and the Proponent have engaged in a number of conversations to understand and address those concerns.

In consideration of the Proponent’s proposed mitigations and proposed conditions of any EAC issued, EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report –the proposed Project is expected to result in minor impacts on OW’s culturally important sites, trails and travelways.

Other matters of concern to the Office of the Wet’suwet’en

During the EA process, OW raised a number of other concerns not directly linked to Aboriginal rights and title. These are summarized in the following table, along with a brief response from EAO.

Issues Raised	EAO/Proponent Response
<p>Concern about timing of development of management plans; desire to review draft plans as part of application review process. Concerned about ability to provide input on conditions to EA certificate. Questions about reclamation plan.</p>	<p>These matters were discussed in working group meetings, and responses to OW’s questions regarding the process and timing of inputs were provided.</p> <p>A proposed condition would require the Holder to engage with relevant regulatory authorities, Aboriginal Groups, and landowners in the development of management plans. The plans would be implemented and would continue to be updated during construction based on site-specific conditions.</p> <p>An additional proposed condition would require the Proponent to continue to implement the EAO-approved Aboriginal Consultation Plan for all phases of the Project, which includes continued information sharing and discussion of issues about site-specific mitigation and the development of specific environmental management plans listed in section 25 and Appendix 2A of the Application, as well as any compensation plans developed to meet regulatory requirements.</p>

Issues Raised	EAO/Proponent Response
	OW was provided opportunity to comment on the draft Table of Conditions and draft referral materials on June 30, 2014 and again on September 12.
<p>Improper consideration of cumulative effects and assessment.</p> <p>Concerns regarding the total human development footprint within the Morice Watershed (at 16.60% in 2013), including in the Bi Wini, Lhudis Bin, and Talbits Kwah house territories (which would be traversed by the proposed Project), which have a total human development footprint of over 22%.</p>	<p>Refer to Common Concerns in Part C section 2.1.</p> <p>EAO considered the cumulative effects of past, present, and reasonably foreseeable projects in its assessment of whether the proposed Project would have significant adverse effects, not just the project contribution.</p>
Cumulative effects of air quality and noise impacts of other facilities	These effects were considered in the EAO's Assessment Report, in section 5.1.1 (Acoustics) and section 5.2 (air quality).
The number of other resource development projects in the territory stresses capacity to engage; capacity funding is required to support engagement that involves clan members in discussions, assessment, and decision-making	Refer to Common Concerns in Part C in section 2.1.
Monitoring of activities and of right-of-way for years after construction; OW must be involved in all monitoring (PTP)	EAO is proposing a condition that would require the Proponent to continue to implement the EAO-approved Aboriginal Consultation Plan for all phases of the Project, which includes continued information sharing and discussion of issues about site-specific mitigation and the development of specific environmental management plans, as well as any compensation plans developed to meet regulatory requirements.
Environmental protection plans, including emergency response plans, are needed (PTP)	A number of environmental management plans are required as a certificate condition.
Economic benefits; kind and duration of jobs; contracting opportunities; training;	For Aboriginal groups, the proposed Project would have the potential to provide important economic

Issues Raised	EAO/Proponent Response
employment for future generations	<p>opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements that would remain confidential. • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent must continue engagement with Aboriginal groups about construction planning and Project design, including the schedule of construction activities</p> <p>The Proponent has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information to ensure that meaningful partnerships are developed for both the Project and the community. Objectives and measurable outcomes will be developed alongside the training/education partner and will be part of the final partnership plans.</p>
Recognition of authority of Wet'suwet'en Hereditary Chiefs and honouring of hereditary system, recognition of Aboriginal rights, current infringement on Constitutional right to food, social & ceremonial fisheries.	EAO has engaged in consultation with the OW on behalf of the Wet'suwet'en Hereditary Chiefs in respect of the potential impacts of the Project on Aboriginal rights and title claims of the Wet'suwet'en Hereditary Chiefs.
Wet'suwet'en are not fully informed; no consent from 6 chiefs	The EAO has provided information and engaged with representatives of the OW on behalf of the Wet'suwet'en Hereditary Chiefs.

Issues Raised	EAO/Proponent Response
Safety, accidents and malfunctions	EAO has assessed the potential effects of the proposed Project on the geophysical environment, including terrain integrity, and the potential risks of accidents and malfunctions in sections 5.2 and 10 of part B of this report, respectively. EAO is of the opinion that safety risks have been mitigated appropriately.
Hagwilget is Gitksan, and Wet'suwet'en, plus other Nations that have married into the village. Need more information meetings with EAO.	The EAO has offered, and will continue to offer, the opportunity to meet with Hagwilget First Nation to discuss the proposed Project.
Concerns regarding data used in the Proponent's assessment and requests for data to be provided to the OW.	<p>In addition to the information provided to the OW in the application, technical memos, and addendums, the Proponent provided the following raw data to the OW for their consideration during the EA:</p> <ul style="list-style-type: none"> • Spatial files of the BEI and TEM model output for each key indicator at Base Case, Project Case, and Future Case (June 6, 2014) • The data on the Stream Crossing Site Record Cards previously uploaded in an Excel table (May 2, 2014) • 2013 Wildlife Field Data for the following survey programs (May 2, 2014) <ul style="list-style-type: none"> ○ Acoustic recorders ○ Breeding bird surveys ○ Pond-dwelling amphibian surveys ○ Raptor and swan nest surveys ○ Remote cameras ○ Waterfowl breeding site surveys ○ Waterfowl staging site surveys ○ Wildlife habitat field ratings (based on wildlife habitat assessments) ○ Incidental wildlife observations collected during other field surveys • Updated excel versions of the tables from the Fish and Fish Habitat Technical Data Report (April 24, 2014) • Stream Crossing Data Sheets for watercourse crossings with the OW territory (April 24 and 28, 2014)

Issues Raised	EAO/Proponent Response
	<ul style="list-style-type: none"> An excel table containing the raw data from the vegetation plots surveyed in OW territory during 2013 (April 24, 2014)
<p>Concern regarding EAO's compliance program and PTP.</p>	<p>EAO's compliance program is discussed in section 2.2.3 of Part B of this report.</p> <p>EAO's Compliance and Enforcement (C&E) department works closely with the OGC in compliance oversight of projects falling within both agencies mandates. For PTP, EAO, OGC and FLNR have conducted and continue to conduct field inspections. EAO C&E is nearing completion of an administrative inspection of all pre-construction EA requirements for the Pacific Trails Pipeline.</p>
<p>Feasibility and effectiveness of protection measures for grizzly bear and caribou, including potential effects of air traffic and predation.</p>	<p>EAO has considered the potential effects of the proposed Project on grizzly bear and caribou.</p> <p>EAO has developed conditions requiring mitigation and monitoring of those species for the life of the proposed Project, as well as financial compensatory offset measures to assist with the management of caribou within the proposed Project area.</p> <p>EAO has proposed a condition restricting fixed wing aircraft and helicopter flights by the Proponent over ungulate winter ranges during critical timing windows.</p> <p>EAO has developed a condition that would require measures be included in the Access Control Management Plan that would provide information and rationale on what types of access would be required, and what access control management measures would be required.</p>
<p>Concern regarding the level of detail in the EA versus the level of detail required to build the proposed Project</p>	<p>Provincial regulation of major projects occurs in stages – the Province is committed to consulting potentially affected Aboriginal Groups at each stage. EAO is of the view that it can make a conclusion about the seriousness of impact of a project even where additional detail is forthcoming</p>

Issues Raised	EAO/Proponent Response
	<p>at subsequent stages. During the EA, EAO requested that the Proponent assess the potential effects of the proposed Project on VCs in the area of the proposed Project footprint, the local study area, and the regional study area. If an EA Certificate is granted, the OGC will be responsible for permitting the proposed Project during the detailed design stage of the proposed Project.</p> <p>EAO has included a condition that would require the Proponent to continue to engage with Aboriginal Groups regarding issues and site-specific mitigation post-EA. This could include discussions on the state of the land base, including any concerns regarding use of the proposed Project area.</p>
<p>Concern about the safety of the pipeline in challenging terrain, and concern regarding the geotechnical assessment.</p> <p>Concern regarding the potential effects of mountain pine beetle and climate change to potential geotechnical effects.</p>	<p>EAO assessed the potential effects of the proposed Project on the geophysical environment, including terrain integrity, and the potential risks of accidents or malfunctions and potential effects of the environment, including climate change, on the proposed Project, in Part B sections 5.2.2 and 10 of this report, respectively.</p> <p>If an EA Certificate is issued for the proposed Project, additional geotechnical work would be required when the Proponent finalizes their route alignment. This additional geotechnical work would be assessed during the permitting stage of the proposed Project.</p> <p>EAO has included a condition to limit the potential spread of mountain pine beetle and other forest pests, as a result of the proposed Project.</p>
<p>OW offered several suggestions regarding the EA process, including:</p> <ul style="list-style-type: none"> • Increasing ease of participation for Wet'suwet'en members, including considerations for the type of information provided; • Increased reliance on government 	<p>EAO attended a number of meetings with different OW representatives during the EA, and remains open to increasing ease of participation for Aboriginal Groups, including community meetings. EAO agrees that it is important to provide appropriate level of information, and strives to do so when concerns are raised during the EA.</p>

Issues Raised	EAO/Proponent Response
<p>agencies and Aboriginal Groups instead of Proponents;</p> <ul style="list-style-type: none"> • Consideration of alternatives to the proposed Project as suggested by Aboriginal Groups rather than the Proponent; • Decide how best to consider all existing, proposed, and potential projects to minimize negative effects; • Request confidentiality agreements with the proponent in order to consider proprietary information during the EA; and • Reduce the reliance on industry self-regulation, monitoring, and self-reporting on compliance, and incorporate Aboriginal Groups' recommendations and suggestions with determinations as to how they are utilized or not. 	<p>EAO provided numerous opportunities for Aboriginal Groups and government agencies to comment on material during the EA, and welcomed increased participation.</p> <p>EAO notes the OW's comments regarding Project alternatives. During the EA, EAO provided opportunity to comment on the Proponent's assessment.</p> <p>EAO considers past, present, and reasonably foreseeable projects in the cumulative effects section, looking at the impact to VCs as a whole, not just the proposed Project's contribution.</p> <p>EAO notes the OW's comments regarding confidentiality agreements. EAO does not generally accept documents on a confidential basis, as it is usually necessary for EAO to share information with Aboriginal Groups and Working Group members in order to adhere to principles of administrative fairness. Further, EAO posts most documents related to an EA process on its electronic project information centre in order to ensure transparency and enhance public confidence in the process.</p> <p>EAO notes the OW's comments regarding reliance on industry. EAO and other permitting agencies have compliance teams that are tasked with ensuring that proponents are in compliance with EA certificates and permits. Please see EAO's response regarding compliance above.</p> <p>EAO has proposed a condition requiring the Proponent to develop a construction monitoring program for interested Aboriginal Groups.</p>

7.3.4 Skin Tyee Nation

Context

- The traditional system of governance of the Skin Tyee Nation is based on the Clan system, and there are three hereditary chiefs. Elections for Chief and Council use a custom electoral system, and the next election occurs in January 2014.
- The Skin Tyee Nation has six reserves with a total area of 396.6 ha. Skins Lake IR 16B is the most populous reserve and is located approximately 17.79 km southwest of KP 425.5. According to a socio-economic baseline study conducted with Skin Tyee Nation, as of April 2013, the total registered population was 176. Approximately 70 members live on reserve.
- A traditional seasonal round of resource activities is described in the Project Application. It highlights that hunting, fishing, trapping and gathering berries and medicines are activities carried out as families moved around the territory according to different seasons.
- Approximately 190 km of the proposed Project pipeline would pass through Skin Tyee Nation's traditional territory.

Summary of Consultation

Skin Tyee Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Skin Tyee Nation was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Skin Tyee Nation during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. Under a Letter of Agreement dated February 2013, the Proponent provided initial capacity funding for Skin Tyee Nation to engage in discussions regarding the proposed Project. A Memorandum of Understanding between Skin Tyee Nation and the Proponent, dated August 2013, provided continued capacity funding for Skin Tyee Nation.

Skin Tyee Nation was involved in the EA through active participation in Advisory Working Group meetings on March 4-5, 2013 and through participation in the Natural Gas Pipeline Workshops November 26, 2013.

Skin Tyee Nation participated in biophysical field studies and provided TEK. They also conducted a Traditional Land Use study (TLUS) and collected socio-economic baseline

data. The results of these studies were included in the Proponent's Application Aboriginal Consultation Report 3.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Skin Tyee Nation 30 times (during 2012-2014) to discuss various aspects of the proposed Project including selection of the proposed route through their asserted traditional territory, information requirements for environmental and socio-economic baseline studies, traditional land use studies and cumulative effects assessments. Issues raised by Skin Tyee Nation, and the Proponent's responses, are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Skin Tyee Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts of the proposed Project to Skin Tyee Nation's Aboriginal Interests

Aboriginal title

- Based on the discussion of the possible effects of the proposed project to asserted Aboriginal title in section 6.3.6, EAO's opinion is that the proposed pipeline Project would have low to moderate impacts on asserted Aboriginal title to the Project area.
- EAO has addressed these potential impacts to Wet'suwet'en asserted Aboriginal title by ensuring that Skin Tyee Nation and other Wet'suwet'en groups are meaningfully consulted and accommodated around the potential effects of this proposed Project.
- Furthermore, the Province and the Proponent have approached Skin Tyee Nation and other Wet'suwet'en groups potentially affected by this and other LNG-related projects, to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2. To this end, economic benefits of the project are being discussed, including those arising on potential Aboriginal title lands, and Skin Tyee Nation has a role in considering the proposed use for those lands.

Hunting

Skin Tyee Nation raised key concerns regarding wildlife, wildlife habitat and its asserted Aboriginal right to hunt, including:

- Potential effects on wildlife species, including:
 - Lynx, marten, wolverine, caribou herds, moose, birds, rabbit, beaver, wolf, bear, porcupine, and birds;
 - Declining populations, including for porcupine; and
 - Increased predator access to ungulate populations due to logging;

- Potential effects on wildlife habitat, including:
 - Calving areas (particularly for moose and caribou), dens, bird and eagle nests, beaver dams and lodges;
 - buffering of bear dens during construction;
 - Displacement due to construction activities;
 - Loss of habitat for birds as a result of stumpage removal from the proposed Project Footprint;
 - Reduction in the variety of wildlife feed;
 - Degraded water quality in fresh water creeks, wetlands, and bogs due to construction related effluent discharges and pipeline crossings, resulting in contamination of water and feed sources for terrestrial and aquatic wildlife;
 - Potential for construction activities to limit use of game trails, restricting wildlife movement;
 - Use of habitat by fur bearing animals (lynx, marten, rabbit, beavers),
 - Destruction of fresh water creeks, bogs and wetlands and subsequent beaver habitat due to permanent and/or temporary infrastructure construction;
 - Loss of foraging habitat for terrestrial animals, specifically ungulates and bears; and
 - Disturbances to migration patterns;
- Contamination of land, air or waters during construction and operation of a pipeline, including effects of a spill on wildlife and the environment;
- Potential adverse effects of construction activity and noise, especially during hunting season, on local terrestrial animal and bird populations;
- Increased human traffic adversely affecting local terrestrial animal and bird habitat, and aquatic life in rivers, lakes and creeks;
- Access restrictions to traditional hunting areas due to the pipeline ROW; and
- Skin Tyee Nation indicated in their TLUS that Tchesinkut Lake is a significant area for hunting moose, and that the Francois Lake area is important for hunting moose, duck and grouse. The Morice River area is also significant for hunting moose, deer, caribou, grizzly bear and black bear.

Traditionally, the Skin Tyee Nation hunted moose and deer, as well as smaller animals such as rabbits, and sometimes also caribou.

One hunting area was identified by Skin Tyee Nation in the Application (Section 23, Table 23-55):

Relative to the Proposed Project	Description
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Relative to the Proposed Project	Description
Hunting	
Crosses at KP 557	Morice River and tributaries, specific location unknown

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, EAO’s analysis of potential residual and cumulative effects to wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 of this report – and the distance between the proposed Project route and hunting locations identified by Skin Tyee Nation, the proposed Project is expected to have moderate impacts on Skin Tyee Nation’s asserted Aboriginal right to hunt.

Gathering

Concerns raised by the Skin Tyee Nation regarding gathering included:

- Access management along cleared right-of-way, including:
 - Increased access to important plant harvesting sites and pristine areas; and
 - Increased access for predators leading to increased pressure on wildlife and fish resources
- Access restrictions to traditional gathering areas due to the pipeline right-of-way;
- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants, including potential effect on medicinal plants and berries, mushrooms, medicinal plant sites, medicinal, food and traditional use plants, berry picking site and culturally important plants, including due to site clearing;
- Potential for impacts to sensitive areas or areas that are susceptible to physical damage, such as sites where berries and medicinal plants are gathered;
- Contamination of plants and loss of vegetation;
- Contamination of land, air or waters during construction and operation of a pipeline, including effects of a spill on wildlife and the environment;
- Potential impact to wetlands, including impacts on undisturbed vegetation;
- Introduction and spread of invasive plant species; including impacts of invasive vegetation species;
- Damage to rare and endangered plant species due to pipeline construction and development activities;
- Alteration of soil structure and quality, including removal of fertile topsoil due to clearing;
- Damage to riparian vegetation; and

- Increased soil erosion in sloped areas due to stripping vegetation.

Plant gathering areas identified in the Application (Section 23, Table 23-55) for assessment of potential effects to current and traditional land use include:

Relative to the Proposed Project	Description
Plant Gathering	
15 km north of KP 467	Maxan Lake
KP 545 to KP 555	Morice River south side to west of Cedric Creek

Skin Tyee Nation identified an additional gathering place crossing the proposed project at KP 557 and described as Morice River and tributaries. The specific location of this additional gathering place was not made known to EAO.

Skin Tyee Nation indicated in their TLUS that the Francois Lake area is important for berry picking and medicinal plant gathering. The Morice River area is also significant for berry picking and gathering food plants, and collecting plant materials for manufacture.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. The proposed Project would likely have a temporary effect on Skin Tyee Nation’s ability to access one or two gathering areas during project construction. The Project may also disrupt the existence of or access to gathering sites used by Skin Tyee Nation members but not identified in the Application.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on vegetation, current and traditional land use related to gathering – as discussed in section 6.2.4 of this report – the proposed Project is expected to have minor impacts on Skin Tyee Nation’s asserted Aboriginal right to gather.

Fishing

Skin Tyee Nation raised the following key concerns related to potential effects to fish and fish habitat:

- Potential effects on fish and fish habitat as well as related fishing areas, including:
 - Disruption of fish habitat and fish spawning locations;
 - Increased sediment in watercourses on fish spawning areas;
 - Effect of erosion from construction on fish bearing streams;

- Contamination in water due to construction or due to possibility of hydrocarbon and/or chemical spills and leaks from construction equipment or pipeline breaks and malfunctions contaminating freshwater environments;
- Contamination of fresh water bodies;
- Increased human traffic; and
- Destruction of fresh water creeks, bogs and wetlands and subsequent fresh water fish and aquatic species habitat due to permanent and/or temporary infrastructure construction;
- Damage to fish stocks and spawning areas from sediment, turbidity and increased water temperatures;
- Potential effects on water quality related to construction including equipment maintenance and watercourse crossings; and
- Potential disruption of navigability.

Salmon was traditionally fished by Skin Tyee Nation, especially from the Nechako watershed and kept (dried) for the winter. Binta Lake and Stellaquo (Stellako) River were also traditionally used for fishing. The Endako River was also a popular fishing location.

Skin Tyee Nation indicated in their TLUS that Fraser Lake, located in the easternmost section of the proposed Project, is an important fishing lake for salmon, sturgeon, whitefish and trout, between the 345b and 370 kilometre markers on the southern branch of the proposed route. Tchesinkut Lake and the Morice River area are significant areas for fishing, including trout and salmon.

Fishing areas identified in the Application (Section 23, Tables 23-55 and 23-57) for assessment of potential effects to Skin Tyee Nation current and traditional land use and included the following sites:

Relative to the Proposed Project	Description
Fishing	
30 km south of KP 446	Ootsa Lake to Morice River corridor
14 km south of KP 451	Skins Lake
25 km south of KP 452	Takysie Lake
9 km south of KP 460	Noralee area - Van Lear Creek and François Lake
1 km north of KP 487	Goosly Lake
28 km south of KP 489	Ootsa Lake near Lund Lake
Crosses at KP 557	Morice River and tributaries, specific reach unknown

Relative to the Proposed Project	Description
Crosses at KP 544.5	Cedric Creek, specific reach unknown
3.5 km south of KP 360	Nechako River and watershed
23.9 km south of KP 433	Uncha Lake
24.3 km south of KP 422	Binta Lake
4 km southeast of KP 389	Stellaquo (Stellako) River
10 km south of KP 446	Endako River

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report. The proposed Project corridor would traverse approximately 190 km of Skin Tyee Nation’s asserted traditional territory, with approximately 4 watercourse crossings, 1 of which have indicated fish presence. There are no large crossings.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – the proposed Project is expected to have minor impacts on Skin Tyee Nation’s asserted Aboriginal right to fish.

Trapping

Skin Tyee Nation raised concerns about the potential for impacts to trapping including:

- Loss of habitat for small fur-bearing animals as a result of stumpage removal from the proposed Project Footprint;
- Access restrictions to traditional trapping areas due to the pipeline right-of-way; and
- Skin Tyee Nation indicated in their TLUS that Tchesinkut Lake, Francois Lake and the Morice River areas are significant for trapping.

One trap line within Skin Tyee Nation territory in proximity to the proposed Project Area was identified in the Application (Section 23, Table 23-55):

Relative to the Proposed Project	Description
Trapping	
8 km south of KP 389	Ootsa and François lake

Species traditionally trapped by Skin Tyee Nation include beaver, mink, martin and bear. Skin Tyee Nation raised concerns about potential impacts to trap lines and the need for the Proponent to consult with trap line owners.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.4 of this report. In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, EAO’s analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to trapping – as discussed in section 6.2.3 of this report – and the distance between the area of the proposed Project and trapping locations identified by Skin Tyee Nation, the proposed Project is expected to have minor impacts on Skin Tyee Nation’s asserted Aboriginal right to trap.

Culturally important sites, trails and travelways

Skin Tyee raised concerns about the potential for impacts to cultural and archaeological sites and trails, including:

- Damages to trails and non-consumptive resource sites;
- Damage to transportation corridors including overland trails, and water routes including rivers, creeks and lakes;
- Damage to campsites, habitation areas, and cabins;
- Desecration of unmarked gravesites and other spiritual sites;
- Removal of place names from the Skin Tyee Nation traditional landscape resulting from the modification and/or destruction of said places;
- Access restrictions to traditional use sites and resource harvesting areas due to the pipeline right-of-way; and
- Lack of access to camping sites. Four camping areas were identified in the Skin Tyee Nation TLUS that fall within the proposed Project Footprint.

Culturally important trails and travelways, habitation sites, gathering places and sacred areas identified in the Application (Section 23, Tables 23-55 and 23-57) associated with Skin Tyee Nation’s traditional land use included:

Relative to the Proposed Project	Description
Trails and Travelways	
15 km north of KP 467	Rose Lake to Maxan Lake
23 km north of KP 487	China Nose mountain
1 km north of KP 487	François Lake to Goosly Lake

Relative to the Proposed Project	Description
20 km south of KP 497	François Lake to Houston Lake
From 3 km south of KP 506	Parrott Lakes to Morice River bend
7 km south of KP 545	Between Morice Lake and Morice River and McBride Lake to Collins Lake
14 km south of KP 451	Skins Lake to Grassy Plains
Habitation Sites	
15 km north of KP 467	Maxan Lake
3 km south of KP 506	Parrott Lake
8 km south of KP 515	Owen Lake
Crosses the proposed Project at KP 557	Morice River and tributaries, specific location unknown
38.5 km south of KP 457	Skins Lake
5.4 km southeast of KP 385	Stellaquo (Stellako) Village
Gathering Places	
Crosses at KP 557	Morice River and tributaries, specific location unknown
Sacred Areas	
41 km south of KP 454	Skin Lake Mountain
20 km south of KP 497	Tatla West IR

Two culturally important sites were identified as crossing the proposed Project route. Several other trails, habitation sites and sacred areas were identified in the Application as being 1 to 41 km away from the proposed route. Access to culturally important sites may be temporarily disrupted during construction or maintenance activities.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to heritage resources and traditional land use – as discussed in section 6.2.5 of this report – the proposed Project is expected to result in minor to moderate impacts to Skin Tyee Nation's use of culturally important sites, trails and travelways.

Other matters of concern to Skin Tyee Nation

Issues Raised	EAO/Proponent response
Terrain, pipeline safety and integrity	<p>The Proponent has undertaken detailed terrain analysis, the results of which continues to inform the construction planning and detailed engineering design of the proposed Project. In addition to the current process administered by the EAO, the Proponent is required to provide detailed information regarding the design of the Project for review by the Oil and Gas Commission.</p> <p>Refer to Part B section 10 this report for EAO's assessment and consideration of accidents and malfunctions.</p>
Employment opportunities, training, and benefits	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements that would remain confidential. • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information to ensure that meaningful partnerships are developed for both the Project and the community.</p> <p>Objectives and measurable outcomes will be developed alongside the training/education partner and will be part of the final partnership plans.</p> <p>The Proponent must continue engagement with Aboriginal groups about construction planning and Project design, including the schedule of construction activities.</p>
Concern with Project timelines	Refer to Part C section 2.1 for Common Concerns raised.

Issues Raised	EAO/Proponent response
Potential cumulative effects	<p>Aboriginal Groups have expressed concerns about the inadequacy of cumulative effects assessment of past, present and reasonably foreseeable industry in their traditional territory. Specifically, many Aboriginal Groups sought a cumulative effects assessment on their territory, relative to their Aboriginal Interests. Throughout the review, EAO set out to address concerns regarding cumulative effects within the context of the legislative authority of EAO and relevant guidance.</p> <p>EAO considers the potential cumulative impacts of a proposed Project on Aboriginal Interests. EAO draws on relevant information provided by the Proponent regarding cumulative effects assessment of VCs, as well the potential impacts of a proposed Project on Aboriginal Interests.</p> <p>Cumulative effects are examined by EAO in for each valued component section of the Assessment Report.</p> <p>Refer to Part C section 2.1 for Common Concerns raised.</p>

7.3.5 Ts'il Kaz Koh First Nation (Burns Lake Band)

Context

- Ts'il Kaz Koh First Nation has four reserves with a total area of 184.6 ha. In May 2013, the Ts'il Kaz Koh First Nation had a registered population of 129 with an on-reserve population of 44.
- Elections occur every two years for Chief and Council and use a custom electoral system.
- Hunting, fishing, trapping and plant gathering are important to Ts'il Kaz Koh First Nation members and their culture and these activities continue to be essential aspects of members' lives.
- Many people rely on food hunted, fished and gathered. Country food contributes to the continuation of cultural practices and contributes economically to households and the community. Food sharing is important and continues to be practiced through everyday family life and through potlatches.

- The proposed Project corridor would traverse approximately 51 km of Ts'il Kaz Koh First Nation asserted traditional territory.

Summary of Consultation

Ts'il Kaz Koh First Nation (Burns Lake Band) was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Ts'il Kaz Koh First Nation was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Ts'il Kaz Koh First Nation during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. Under a Letter of Agreement dated February 2013, the Proponent provided initial capacity funding for Ts'il Kaz Koh First Nation to engage in discussions regarding the proposed Project. A Memorandum of Understanding between Ts'il Kaz Koh First Nation and the Proponent, dated May 2013, provided continued capacity funding for Ts'il Kaz Koh First Nation.

Ts'il Kaz Koh First Nation provided a letter to EAO and the Proponent (May 14, 2014) noting its concern that Ts'il Kaz Koh First Nation had not reviewed or verified the traditional land use (TLU) information collected by the Proponent's consultants, and that this information has been incorporated into the Application without consent from the Band. EAO acknowledges these concerns. Ts'il Kaz Koh First Nation sent a letter to EAO with comments on the Application during Application Review and met with EAO by phone on October 6, 2014 to discuss outstanding concerns related to synchronous permitting; a request for Aboriginal monitoring opportunities; a request that pesticides not be used within their traditional territory; concern about the lack of cumulative effects assessment conducted for their territory; location of all new access roads and hydrostatic test sites not assessed during EA; and comments on EAO's proposed conditions.. Ts'il Kaz Koh First Nation was involved in the EA through active participation in Advisory Working Group meetings on March 4-5, 2013, May 20-22, 2014, and May 27-28, 2014.

Ts'il Kaz Koh First Nation participated in biophysical field studies and provided TEK and the results of these studies were included in the Proponent's Aboriginal Consultation Report 3. The Proponent offered Ts'il Kaz Koh First Nation the opportunity to conduct a TLUS and that information was used to inform the Application, although Ts'il Kaz Koh First Nation expressed concern with the methods and approach used by the

Proponent's consultants in collecting this information, including insufficient interviewees and the absence of informed consent. Additional TLU work is currently underway by Ts'il Kaz Koh First Nation and the Proponent, and will inform the development of site-specific mitigation, construction planning, and detailed engineering design. An interim TLU report was provided to the Proponent on August 7, 2014 and to EAO on October 4, 2014.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Ts'il Kaz Koh First Nation 30 times (during 2012-2014) to discuss Project related issues and concerns, including contracting/employment opportunities, proposed Project benefits, the route selection within their asserted traditional territory, and proposed Project features, such as access roads, compressor stations and camp sites. Issues raised by Ts'il Kaz Koh First Nation and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Ts'il Kaz Koh First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3. *Potential impacts of the proposed Project to Ts'il Kaz Koh First Nation's Aboriginal Interests*

Based on the discussion of the possible effects of the proposed project to asserted Aboriginal title in section 6.3.6 of this report, EAO's opinion is that the proposed Project would have low to moderate impacts on Wet'suwet'en's asserted Aboriginal title to the project area.

EAO has addressed these potential impacts to Wet'suwet'en asserted Aboriginal title by ensuring that Ts'il Kaz Koh First Nation and other Wet'suwet'en groups are meaningfully consulted and accommodated around the potential effects of this proposed Project. The Province and the Proponent have approached Ts'il Kaz Koh First Nation and other Wet'suwet'en groups to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2. To this end, economic benefits of the project are being discussed, including those arising on potential Aboriginal title lands.

Hunting

Ts'il Kaz Koh First Nation raised key concerns regarding wildlife, wildlife habitat and its asserted Aboriginal right to hunt, including:

- Potential effects on wildlife species, including caribou, moose, beaver, bears, wolverine;

- Concerns about the declining moose population and potential effects on moose hunting, calving, and breeding areas, moose movement and habitat, and salt licks such as those in Priestley and Tibbetts Lake areas;
- A desire for specific mitigation for moose at proposed highway crossings in their territory;
- Potential effects on wildlife from increased access and an increased line-of-sight for hunters (including illegal hunters) and predators;
- Potential increase of vehicular collisions with wildlife where the pipeline corridor intersects with Highway 16;
- Potential effects on vegetation important to wildlife including removal of plants such as berries;
- Concerns about the high number of vehicular collisions with wildlife where the proposed route would intersect Highway 16, based on experiences with Pacific Northern Gas Pipeline;
- Cumulative effects on wildlife and wildlife habitat from multiple projects in the region; and
- Potential effects on wildlife habitat, including nests, rearing areas, dens, mineral licks, calving area, beaver dens/lodges, game trails, migration routes, and wildlife trees.

Ts'il Kaz Koh First Nation conducted a Traditional Knowledge and Land Use study from April to July 2014 which identified 22 hunting sites of importance that overlap or are near the proposed Project, including a historic cabin, and moose hunting locations. Exact locations in relation to the proposed Project corridor are not provided. The TLUS also identified that areas that overlapped the proposed Project included the presence of moose migration and critical habitat, such as salt licks and calving areas; the presence and abundance of deer, moose, sheep, and fox; that hunting took place for moose, rabbit, black bear, and grouse; and the recent movement of elk into the area.

Key hunting areas identified by Ts'il Kaz Koh First Nation in Section 23 (Tables 23-14 and 23-16) of the Application. Ts'il Kaz Koh First Nation objected to those sites being listed in the Application, and requested that those sites not be included in this Report. The specific locations have been removed as a result of this request.

The Application identified that the proposed Project corridor is 6.6 km away from the nearest hunting area identified by Ts'il Kaz Koh First Nation in their traditional territory. Other Ts'il Kaz Koh First Nation hunting areas range from 8 to 338 km away from the proposed Project corridor. EAO further considered the information provided in the TLUS in relation to hunting areas.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report. Access for Aboriginal groups to the proposed Project area to hunt may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons. Access may be restricted to a lesser extent over the medium term during operation of the pipeline.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to hunting – as discussed in section 6.2.1 of this report – the proposed Project may affect Ts'il Kaz Koh First Nation's hunting activities in some locations, particularly during the construction phase, such that the proposed Project is expected to have a minor impact on Ts'il Kaz Koh First Nation's asserted Aboriginal right to hunt.

Trapping

Ts'il Kaz Koh First Nation raised concerns about the potential effects on trap lines and traditional trapping practices and potential effects on fur-bearing animals (such as lynx, marten, coyotes and rabbit) from habitat loss and disturbance during construction.

Ts'il Kaz Koh First Nation conducted a Traditional Knowledge and Land Use study from April to July 2014 which identified two trapping sites of importance that overlap or are near the proposed Project. The TLUS also identified that trapping for beaver, muskrat, otter, marten, lynx, coyotes, and wolves take place between October and May. Eight trap lines within Ts'il Kaz Koh First Nation territory in proximity to the proposed Project Area were identified in the Application. Ts'il Kaz Koh First Nation objected to those sites being listed in the Application, and requested that those sites not be included in this Report. The specific locations have been removed as a result of this request.

The Application identified that the proposed Project corridor is 8.2 km away from the nearest trapping area identified by Ts'il Kaz Koh First Nation in their traditional territory. EAO further considered the information provided in the TLUS in relation to trapping areas.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report. Access to the proposed Project area to trap may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons.

Access may be restricted to a lesser extent over the medium term during operation of the pipeline.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to trapping – as discussed in section 6.2.3 of this report – and the distance between the area of the proposed Project and trapping locations identified by Ts'il Kaz Koh First Nation, the proposed Project is expected to have negligible impacts on Ts'il Kaz Koh First Nation's asserted Aboriginal right to trap.

Gathering

Ts'il Kaz Koh First Nation raised concerns regarding vegetation and its asserted Aboriginal right to gather, including:

- Potential effects on wetlands;
- Potential effects on mature old-growth forest and undisturbed vegetation;
- Potential effects on traditionally harvested vegetation, including ceremonial, medicinal, and food-source plants including soapberries, raspberries, strawberries, juniper, Devil's club and balsam;
- Potential effects to traditional areas for gathering medicinal plants and berries (Labrador tea);
- Pesticide/herbicide use and potential effects on undisturbed vegetation;
- Concerns related to community food security and the potential reduction of important berry picking areas;
- Cumulative effects of an overall reduction in available berry picking areas due to the effects of clear cutting from forest industry; Reclamation of affected wetlands post-construction; and
- Cumulative effects from multiple projects in the region, particularly from past and current forestry activities and the desire for replanting of traditional plant species important to them.

Ts'il Kaz Koh First Nation conducted a Traditional Knowledge and Land Use study from April to July 2014 which identified 11 plant gathering sites of importance that overlap or are near the proposed Project, including harvest sites for soapberries, raspberries, strawberries, juniper, Devil's club, and balsam.

Plant gathering areas were identified in the Application. Ts'il Kaz Koh First Nation objected to those sites being listed in the Application, and requested that those sites not

be included in this Report. The specific locations have been removed as a result of this request.

The Application identified that the proposed Project location is 5.5 km away from the nearest gathering area identified by Ts'il Kaz Koh First Nation in their traditional territory. EAO further considered the information provided in the TLUS in relation to gathering areas.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to vegetation, and current and traditional land use – as discussed in section 6.2.4 of this report – the proposed Project is expected to result in negligible impacts on Ts'il Kaz Koh First Nation's asserted Aboriginal right to gather.

Fishing

Ts'il Kaz Koh First Nation raised key concerns regarding fish, fish habitat and its asserted Aboriginal right to fish, including:

- Potential impacts on fish from disruption of fish habitat in fish-bearing streams from watercourse crossings during construction;
- Potential effects on fish populations;
- Potential effects on fish, stemming from poor water quality and contamination during construction (including equipment maintenance and watercourse crossings); and
- Potential effects on water quality and fish from accidents and malfunctions, including spills and leaks.

Ts'il Kaz Koh First Nation conducted a Traditional Knowledge and Land Use study from April to July 2014 which identified two fishing sites of importance that overlap or are near the proposed Project. Fishing areas were identified in the Application. Ts'il Kaz Koh First Nation objected to those sites being listed in the Application, and requested that those sites not be included in this Report. The specific locations have been removed as a result of this request.

The Application identified 14 Ts'il Kaz Koh First Nation fishing sites in their traditional territory, ranging from 8 to 236 km away from the proposed Project corridor. EAO further considered the information provided in the TLUS in relation to fishing areas.

Access for Aboriginal groups to the proposed Project area to fish may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons.

The proposed Project corridor would traverse approximately 50.4 km of Ts'il Kaz Koh's asserted traditional territory, with approximately 72 watercourse crossings, 13 of which have indicated fish presence. There would be three large crossings along Tchesinkut Creek (KP 409.70, KP 412.42, and KP 449.44).

The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method to avoid and minimize potential impact to fish and fish habitat. Open cut trench method would be used only for non-fish bearing watercourse crossings, or where the channel is dry or frozen to the bottom.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – the proposed Project is expected to have minor impacts on Ts'il Kaz Koh First Nation's asserted Aboriginal right to fish.

Culturally important sites, trails and travelways

Ts'il Kaz Koh First Nation raised key concerns related to potential effects to culturally important sites, trails including:

- Partial or full deconstruction of cabins, particularly the cabins which remain at Sheraton (near Babine Forest Products).

Ts'il Kaz Koh First Nation raised concerns about the confidentiality of TLU and TK information and that it had been included in the Application without being reviewed or verified by Ts'il Kaz Koh First Nation. Ts'il Kaz Koh First Nation conducted a Traditional Knowledge and Land Use study from April to July 2014 which identified eight habitat features, two cabins (of particular importance are cabins that remain at Sheraton), and one trail of importance that overlap or are near the proposed Project. The TLUS also identified the presence of one of the largest trees in Ts'il Kaz Koh First Nation's territory.

The Application identified habitation sites, sacred sites, group gathering sites and trails and travelways. Ts'il Kaz Koh First Nation objected to those sites being listed in the Application, and requested that those sites not be included in this Report. The specific locations have been removed as a result of this request.

Other culturally important areas identified by the Ts'il Kaz Koh First Nation in their TUS included:

- Community water spring
- One of the largest trees in Ts'il Kaz Koh territory

Specific information on the location of these sites was not made available to EAO.

In consideration of the information presented in the TLUS, the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – the proposed Project is expected to result in minor impacts on Ts'il Kaz Koh First Nation's culturally important sites, trails and travelways.

Other issues raised

During the EA process, Ts'il Kaz Koh First Nation raised a number of other concerns. These are summarized in the following table, along with a brief response from EAO and/or the Proponent. Detailed comments raised by Ts'il Kaz Koh First Nation and the Proponent's response to each comment are provided in the Tracking Table (Appendix 2).

Issues Raised	EAO/Proponent Response
Concerns regarding the proposed Project timelines Limited capacity to engage because of the number of proposed projects in the region	Refer to Part C section 2.1 for Common Concerns raised.
Information on Acid Rock Drainage (ARD) potential	<p>The Proponent carried out a preliminary evaluation of ARD potential along the proposed route using available geological information and surficial geology mapping. To verify this preliminary evaluation and reduce uncertainty, EAO is aware that the Proponent sampled 50 sites for ARD potential in 2013, and a further 40 sites are planned for sampling during 2014, generally located between approximately KP 75 and KP 150, and generally west of KP 550.</p> <p>EAO is satisfied in the level of detail provided during the EA and acknowledges that more detailed data is being collected to continue informing the construction planning and detailed engineering design. EAO has proposed a condition</p>

Issues Raised	EAO/Proponent Response
	requiring the development of an Acid Rock Drainage Construction Response Plan.
Concern about potentially increased noise from road traffic attributable to Project construction	The Proponent has acknowledged the potential for increased road traffic on existing roads, and is implementing mitigation to address its potential contribution to road noise through the Traffic Control Management Plan. A proposed condition would require the Holder to engage with relevant regulatory authorities and Aboriginal Groups in the development of Management Plans. The plans would be implemented and would continue to be updated during construction based on site-specific conditions.
Concern that specific information on camps and ancillary sites was not included in EA	Refer to Part C section 2.1 for Common Concerns raised.
Concern about moose populations and a desire for monitoring to occur post-construction to ensure there are no impacts or indirect impacts	EAO is proposing a condition that would require the development of a Wildlife and Wildlife Habitat Management Plan, which would also include moose. The Plan would include wildlife mitigations and be cross referenced and consistent with the Human/Wildlife Conflict Plan, the Traffic Control Management Plan and the Access Control Management Plan.

7.3.6 Wet'suwet'en First Nation

Context

- Wet'suwet'en First Nation has 11 reserves. Duncan Lake IR 2, Palling IR 1 and Tatla West IR 11 are currently occupied. Palling IR 1 is the main residential reserve and the administrative centre. It is 170 km from Terrace and 21.74 km north of KP 444. The registered population of Wet'suwet'en First Nation is 240, with 88 community members living on

reserve (83 members on Palling IR 1, four on Duncan Lake IR 2, and one on Tatla West IR 11).

- At this time, the hereditary system works in concert with the elected system. The elected Chief is responsible for Band matters and the Hereditary Chief is responsible for everything else. The Wet'suwet'en First Nation Chief and Council operate on a three-year custom election system. The last election occurred in June 2013.
- The proposed Project would consist of approximately 180 km of pipeline passing through Wet'suwet'en First Nation's asserted traditional territory, with two compressor stations on or in proximity to areas with strong prima facie Wet'suwet'en claim to Aboriginal title lands (Goosly Falls, KP 492.4, and Titanium Peak, KP 573.4). Preliminary construction camp locations include five potential camps within Wet'suwet'en First Nation asserted territory, and were provided in Part C of this Report, although the precise locations of which were not made available to EAO at the time of writing (Pioneer #5, Main #8, Main #8 alternate, Main #9, Main #9A, and Pioneer #2).

Summary of consultation

Wet'suwet'en First Nation (WFN) was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. WFN was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to WFN during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. The Proponent provided initial capacity funding for WFN to engage in discussions regarding the proposed Project, pursuant to a Letter of Agreement dated September 2012. A Capacity Funding Agreement between WFN and the Proponent, dated April 2013, provided continued capacity funding for WFN.

EAO described its initial assessment of strength of claim and the scope of the duty to consult in a letter sent to WFN January 28, 2014. On January 30, 2014, and February 25, 2014, WFN responded to EAO's initial strength of claim assessment, requesting more detailed information on EAO's analysis, including copies of references cited. EAO provided this information March 11, 2014.

WFN was involved in the EA through active participation in Advisory Working Group meetings on May 20-22, 2014, and May 27-28, 2014 and through participation in the Natural Gas Pipeline Workshop on November 26, 2013.

On June 6, 2014, EAO met with WFN to discuss cumulative effects, and EA timelines, including submission of TLUS during the EA. On September 5, 2014 EAO met with Wet'suwet'en First Nation to discuss their comments on the first draft of the referral package, as well as their outstanding concerns regarding the proposed Project. EAO has also met with Wet'suwet'en First Nation on September 16, 2014 to discuss WFN's concerns with EAO's proposed conditions.

WFN participated in the development of two traditional land use studies. The first study,²⁰ which focused on traditional uses in the 2 km wide Project corridor, was submitted to the Proponent in final form in December of 2013. A draft version of the 2013 study which had not yet received final community approval was available to the Proponent when the Application was drafted, but was not used to inform the Application. The final version of the 2013 field study was submitted to EAO in July 2014.

The second TLUS,²¹ which considered broader traditional uses that could be affected by the proposed Project, as well as cumulative effects that also considered historic events and effects of broader resource development on WFN culture and traditional uses, was submitted to the Proponent and EAO on July 2014 in a draft form, pending final community review. EAO made use of the draft second study and information from the final study in characterizing key WFN issues in the below section.

WFN provided the Proponent with a socio-economic final report²² on July 31, 2013, which was used to inform the development of the Application. This report was provided to EAO on July 2014. WFN members participated in biophysical field studies and thus

²⁰ Traditions Consulting Services, Inc. December 20, 2013. Wet'suwet'en First Nation Traditional Use and Occupancy Site Study 2013 Final Report. Submitted to Wet'suwet'en First Nation Decker Lake, B.C. And Coastal GasLink Pipeline Project TransCanada Pipelines Limited.

²¹ Traditions Consulting Services, Inc. July 14th, 2014. "Looking Ahead, Walking in the Footsteps of Our Ancestors" Wet'suwet'en First Nation Traditional Territory and Knowledge Study 2014 Final Report. Submitted to Wet'suwet'en First Nation Decker Lake, B.C. And Coastal GasLink Pipeline Project TransCanada Pipelines Limited.

²² Traditions Consulting Services Inc. 31 July 2013. Wet'suwet'en First Nation Preliminary Socio-Economic Baseline Report. Submitted to TransCanada Ltd. and Coastal GasLink Pipeline Inc. by Wet'suwet'en First Nation Chief and Council
31 July

provided TEK informally, but WFN felt that this TEK was not collected in a manner that supported its use in the Application.

WFN requested various Project baseline data related to vegetation and wildlife, which was provided to them by the Proponent during Application Review.

WFN provided EAO with their technical review comments on the draft Aboriginal Group Consultation Report dated August 29, 2014. EAO has addressed their comments in the final Assessment Report to the extent possible.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with WFN 42 times (during 2012-2014) to discuss Project related issues and concerns, Issues raised by WFN and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with WFN as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts of the proposed Project on Wet'suwet'en First Nation's Aboriginal Interests

Aboriginal title

Based on the discussion of the possible effects of the proposed project to asserted Aboriginal title in section 6.3.6 of this report, EAO's opinion is that the proposed pipeline Project would have low to moderate impacts on Wet'suwet'en's asserted Aboriginal title within the proposed Project area.

EAO has addressed these potential impacts to Wet'suwet'en asserted title by ensuring that Wet'suwet'en First Nation and other Wet'suwet'en groups are meaningfully consulted and accommodated around the potential effects of this proposed Project. The Province and the Proponent have approached Wet'suwet'en First Nation and other Wet'suwet'en groups to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2. To this end, economic benefits of the proposed Project are being discussed, including those arising on potential Aboriginal title lands.

Hunting

WFN identified the following concerns related to potential impacts of the proposed Project on wildlife, wildlife habitat, and its asserted Aboriginal right to hunt:

- Access created by pipeline right-of-way and roads for hunters and non-human predators, including longer sight-lines, with adverse effects to moose and deer;

- Increased access for people and traffic (ATVs, snowmobiles) into areas that couldn't previously be accessed. Further activity and development will also follow. This is especially an issue in the western part of WFN territory, which is one of the last undeveloped areas;
- Potential impact to wetlands, including loss of wetland habitat, function, and water quality; effects on undisturbed vegetation; effects of climate change; and effects to wildlife and vegetation during construction
- Effects to habitat for moose and other wildlife (e.g. drying out swamps) and sensory disturbance to wildlife, which might drive wildlife away permanently;
- Alteration or loss of riparian habitat;
- Potential adverse effects to ungulates:
 - effects to caribou, on moose breeding and calving areas, and on moose licks;
 - the area north of Owen Lake is a caribou migration corridor and should be protected; and
 - impact on mountain goats and deer.
- Potential loss of beaver habitat, effects on beaver dams and lodges;
- Potential adverse effects on bear, bear habitat and dens;
- Potential adverse effects on wildlife species including lynx, marten, rabbit, wolf, porcupine, wolverine, beaver;
- Disturbance of bird habitat (including eagle), nests, and nesting grounds during construction;
- Potential for construction activities to limit use of game trails, restricting wildlife movement;
- Wildlife baseline data and interpretation and classification of project effects are not partitioned into a regional breakdown meaningful to WFN. Consideration across the entire corridor only may mask serious effects at smaller 'sub-regional' scales;
- Cumulative effects of all forms of development, including logging and hunting, have had an adverse impact on wildlife habitat and populations and on the right to hunt (e.g. moose are becoming harder to find, and hunters must travel further to find them); and
- No consideration has been given to alternative routes to the pristine wilderness area of the upper Clore River watershed.
- Concern that long term effects of the proposed Project would include further damage to the lands, waters and resources in Wet'suwet'en traditional territory, which, with previous and existing impacts from earlier developments would result in a diminishment and adverse effects on Wet'suwet'en First Nation's ability to hunt.

The Application (Section 23, Table 23-64) reports one WFN hunting site, located 25 km away from the proposed Project:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
25 km north of KP 489	China Nose

The Wet'suwet'en First Nation Traditional Use and Occupancy Site study (Traditions Consulting Services, 2013), which documented traditional use and occupancy sites only within the 2 km corridor surrounding the proposed pipeline centreline, identified that 77 traditional use and occupancy sites are intersected by the proposed pipeline corridor. These sites were not discussed in the Application. The report identifies that 34 are hunting or affiliated sites, five are “dwellings” (campsites or hunting bases), and another 13 are travel/trails sites. EAO has not been provided with information about the significance of these sites to WFN, or about WFN hunting sites in surrounding areas outside the pipeline corridor. For the hunting sites, the applicable species mentioned elsewhere in the report are bear, grizzly bear, beaver, deer, duck, moose, marten, fisher, lynx, squirrel and muskrat. Other sources note that in the past, Wet'suwet'en people also hunted hoary marmot, woodland caribou, mountain goat, snowshoe hare, grouse and waterfowl (Traditions Consulting Services 2013, p.11, Ministry of Attorney General 2011).

Based on the information available to EAO, it is clear that WFN members currently hunt moose, deer, grizzly bear, beaver and other species, have done so in the past, and expect to continue to do so in future. Out of concern for the conservation status of several species, WFN hunters currently do not hunt elk, caribou or mountain goat, and grizzly bear hunting occurs only through limited entry tags (Traditions Consulting Services, 2014, p.33).

Within WFN traditional territory, the proposed Project would cross the Telkwa caribou range. As discussed in section 5.5 of the Assessment Report, the Telkwa herd is considered threatened by the federal government and is blue-listed provincially, with a current population estimated at only 19 animals. For conservation reasons, there is currently no hunting season for the Telkwa caribou herd.

The proposed route intersects approximately 6 ha of mountain goat UWR, all within the Morice LRMP and asserted WFN territory, making up about 1.7% of the total UWR within the Morice LRMP. Mountain goat UWR makes up only 1 % of the Morice and Kalum LMRP areas (and is not found in other LRMP areas crossed by the proposed Project).

WFN access to the proposed Project area to hunt may be affected in the short term, for a limited area and time during the construction phase, when access may be restricted

for safety reasons and to a lesser extent over the medium term during the operation of the pipeline.

WFN members identified the Clore River watershed as an important wilderness area for multiple values. Currently there is no change in route being planned in order to avoid this area.

In consideration of the information presented in the TUOS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 – and the distance between the proposed Project route and hunting areas identified by WFN, the proposed Project may affect WFN member's hunting in some areas, particularly during the construction phase, such that the proposed Project is expected to have moderate impacts on WFN's asserted Aboriginal right to hunt.

Trapping

WFN identified the following concerns related to potential impacts of the proposed project on wildlife, wildlife habitat, and its asserted Aboriginal right to trap:

- Alteration or loss of riparian habitat;
- Potential loss of beaver habitat, effects on beaver dams and lodges;
- Potential adverse effects on bear, bear habitat and dens;
- Potential adverse effects on wildlife species including lynx, marten, rabbit, wolf, porcupine, wolverine and beaver;
- Potential effects on trap lines;
- Trapping and trap lines are an important means of beaver control for fisheries and salmon runs in Owen Creek, Trout Lakes, Parrott Lakes, Nadina River;
- Trap line owner consultation and compensation;
- Potential impact to wetlands, including loss of wetland habitat, function, and water quality; effects on undisturbed vegetation; effects of climate change; and effects to wildlife and vegetation during construction; and
- Concern that long term effects of the proposed Project would include further damage to the lands, waters and resources in Wet'suwet'en traditional territory, which, with previous and existing impacts from earlier developments would result in a diminishment and adverse effects on Wet'suwet'en First Nation's ability to trap.

The Application reports four trapping sites close to the project corridor (Section 23, Table 23-64):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
28.6 km north of KP 479	Day Lake
25 km north of KP 489	China Nose
10.2 km north of KP 532	Houston Tommy Creek
194 km north of KP 662	Swan Lake

Wet'suwet'en First Nation traditionally trapped beaver, muskrat, marten, fisher, lynx, and squirrel in the vicinity of the proposed Project. Marten and fisher were considered as indicators in the Application. Wet'suwet'en First Nation trapping areas identified in the application range from 10.2 km to 28.6 km away from the proposed Project route. These trapping sites were not discussed in the Application.

Wet'suwet'en First Nation members historically trapped for sustenance and as a source of livelihood, and hope to trap for livelihood again in the future. The proposed pipeline route overlaps at the bottom of a registered trap line held by a Wet'suwet'en First Nation members, Trap line TR0609T001.

According to the Wet'suwet'en First Nation Traditional Territory and Knowledge Study report (Traditions Consulting Services, 2014), trapping was an important source of livelihood for WFN members historically, and continues to be important, despite a legal framework for ownership that is often in opposition to traditional Wet'suwet'en system of House territory ownership and resource management. The proposed Project would overlap seven Wet'suwet'en First Nation trapping sites. These sites were not discussed in the Application.

As the proposed Project would have low magnitude effect on small furbearers, EAO concluded that the proposed Project would not have a significant adverse effect on furbearers, taking into account the proposed mitigation measures (detailed in section 5.5 of the application) and expected EAC conditions.

The proposed Project may have an effect on WFN's ability to access the Project area to exercise its asserted Aboriginal right to trap, as it may require the short or long-term relocation of portions of trap lines, which may require cutting new trails as well as moving traps. Trap line territories are delineated across WFN's asserted territory, which may limit the ability of WFN members to trap, at least for commercial purposes, outside their established trap line territories. However, the proposed pipeline corridor is narrow enough that the disruption to each trap line should not prevent a trap line holder from trapping in other parts of that trap line territory, and should therefore have a relatively

small effect on overall access to trapping, although Wet'suwet'en First Nation refutes this. Mitigation measures have been designed to reduce the disruption of subsistence trapping activities.

WFN members identified the Clore River watershed as an important wilderness area for multiple values. Currently there is no change in route being planned in order to avoid this area.

In consideration of the information presented in the TUOS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project is expected to result in moderate impacts on Wet'suwet'en First Nation's asserted Aboriginal right to trap.

Fishing

WFN identified the following concerns related to fish, fish habitat, and its asserted Aboriginal right to fish:

- Ground disturbance and contamination from spills, and their impacts on WFN use of fisheries;
- Potential effects on water quality related to construction including equipment maintenance and watercourse crossings, including:
 - impacts to the water tables; and
 - impacts of increased turbidity on and fish habitat;
- Potential adverse effects on springs;
- Concern about reduction of traditional fishing areas and fish stocks to date, e.g. sockeye in Lamprey and Owen Creek. Cumulative effects of all forms of development are having an adverse impact on fish populations, and the CGL pipeline would add to these negative impacts;
- Alteration or loss of riparian habitat;
- Potential impact to wetlands, including loss of wetland habitat, function, and water quality; effects on undisturbed vegetation; effects of climate change; and effects to wildlife and vegetation during construction;
- Potential effects on fish and fish habitat as well as related fishing areas, including:
 - effects to sturgeon habitat on the Nechako River;
 - concern regarding salmon crossings;
 - silt from upstream construction contaminating fishing and fish spawning areas;
 - effects of erosion on fish bearing streams; and
 - effects of construction on fish habitats and populations.

- Access management for fishing sites. Access control management plan (and other parts of Environmental Management Plan) does not include measures designed to specifically mitigate impacts to fisheries, fish, fish habitat, or WFN fishing;
- Potential disruption of navigability;
- Biodegradable hydraulic fuel should be required for uses near waterways;
- Offsetting /compensation for instream or riparian habitat should be included in the application/ available during the 180 day review period; and
- Post-construction monitoring should include monitoring of stream crossing construction activities at all high valued watercourses for at least 5 years.

The Application listed the following WFN fishing sites (Section 23, Table 23-64):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
1.8 km south of KP 251	Poplar lake
1.1 km north of KP 461	Maxan Creek
32.5 km north of KP 482	Elwin Lake
11.5 km south of KP 515	Owen Lake
Crosses at KP 522	Owen Creek, specific reach unknown
3 km northwest of KP 522	Morice River and Owen Creek juncture
10.2 km north of KP 532	Houston Tommy Creek
Crosses at KP 558	Morice River, specific reach unknown

The Wet'suwet'en First Nation Traditional Use and Occupancy Site study (Traditions Consulting Services, 2013) identified three fishing sites that overlap the 2-km corridor surrounding the proposed pipeline route centreline. These sites were not discussed in the Application. Specific information related to the sites, such as the type and frequency of use at specific sites, was not made available to EAO at the time of writing.

Historically, the Wet'suwet'en Aboriginal groups' seasonal round in summertime centred around the salmon fishery, when people gathered at the key salmon fishery at Moricetown and other key salmon fishing sites (Traditions Consulting Services, 2013). Dispersed fisheries in the home territories were important at other times of the year (Traditions Consulting Services, 2013). Specific information on frequency and timing of current WFN fishing was not made available to EAO, but it is clear that WFN members currently fish and expect to do so in future.

The proposed Project corridor would traverse approximately 274 watercourse crossings within WFN's asserted traditional territory, 46 of which have indicated fish presence. There are 20 large crossings within WFN's asserted traditional territory as follows:

- Tchesinkut Creek (KP 449.44)
- Allin Creek (KP 471.68)
- Unnamed Tributary to Buck Creek (KP 480.34)
- Parrott Creek (KP 508.77)
- Owen Creek (KP 520.63)
- Unnamed Tributary to Morice River (KP 532.61)
- Lamprey Creek (KP 537.59)
- Cedric Creek (KP 544.81)
- Gosnell Creek (KP 569.71)
- Unnamed Tributary to Gosnell Creek (KP 562.89, 573.91, and 576.43)
- Morice River Side Channel (KP 557.35)
- Morice River (KP 557.18)
- Unnamed Tributary to Burnie River (KP 591.31 and 591.35)
- Clore River (KP 594.35)
- Unnamed Tributary to Clore River (KP 596.58, 598.12, and 600.94)

The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method to avoid and minimize potential impact to fish and fish habitat. Open cut trench method would be used only for non-fish bearing watercourse crossings, or where the channel is dry or frozen to the bottom.

In addition, WFN proposed a number certificate conditions designed to further mitigate impacts to fisheries by making more explicit the Proponent's commitments to describe specific plans for construction and reclamation at watercourse crossings and for habitat compensation and offsetting, and to consult with WFN on these plans. In discussion with WFN about these recommendations, EAO is proposing conditions that would require the Proponent to prepare and submit up to date summary information on fish habitat, including aquatic and riparian habitats within WFN traditional territory. Another proposed condition would require the Proponent to prepare and submit construction-level designs, including revisions, for all watercourse crossings within WFN traditional territory. The Proponent would also be required to provide plans for offsets on aquatic and riparian values, for information sharing.

WFN members identified the Clore River watershed as an important wilderness area for multiple values. Currently there is no change in route being planned in order to avoid this area.

The proposed Project would likely have a temporary effect on WFN's ability to access some key fishing sites during project construction, unless future consultation on construction specifics enables avoidance of key sites. Two of the fishing locations documented in the Application are directly on the Project route, with two more located within two kilometres of the project centreline. Three fishing locations that were documented more recently (Traditions Consulting Services 2013) are within the two km wide Project corridor. These sites may be affected by the proposed Project during and shortly after construction. However, mitigation measures, including certificate conditions requiring further consultation with WFN prior to construction, have been designed to address access management and minimize any impacts to WFN access to fishing sites.

In consideration of the information presented in the TUOS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing— as discussed in section 6.2.2 of this report – the proposed Project is expected to result in minor impacts on Wet'suwet'en First Nation's asserted Aboriginal right to fish.

Gathering

WFN identified the following concerns related to vegetation, wetlands, and gathering:

- Alteration or loss of vegetation / habitat, including riparian habitat;
- Potential effects on mature growth forest, avoid old forest, protect mature trees;
- Potential effects on traditionally harvested vegetation including ceremonial, medicinal and food source plants, including:
 - impacts from increased access; and
 - pesticides/herbicide applications;
- Potential impact to wetlands, including loss of wetland habitat, function, and water quality; effects on undisturbed vegetation; effects of climate change; and effects to wildlife and vegetation during construction;
- Introduction and spread of invasive plant species;
- Increased access for people and traffic into areas that couldn't previously be accessed; and
- Concern that long term effects of the proposed Project would include further damage to the lands, waters and resources in Wet'suwet'en traditional territory, which, with previous and existing impacts from earlier developments would result in a diminishment and adverse effects on Wet'suwet'en First Nation's gathering ability.

The Application identified several gathering sites (Section 23, Table 23-64):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
15 km north of KP 468	Maxan Lake
25 km north of KP 489	China Nose
11.5 km south of KP 515	Owen Lake
9.1 km north of KP 517	Mount Morice
9 km south of KP 562	Morice Lake

The Wet'suwet'en First Nation Traditional Use and Occupancy Site study (Traditions Consulting Services, 2013) identified five berry/plant gathering sites, five dwellings (campsites or hunting bases), and 13 travel/trails sites that overlap the 2 km corridor surrounding the proposed pipeline route centreline. These sites were not discussed in the Application.

However, it is clear that WFN members gather within the project area, and that harvesting and gathering of a number of species, including huckleberries, blueberries, soapberries, cranberries, Saskatoon berries, fern roots, wild rice, and cambium from pine, spruce and hemlock was an important component of the Wet'suwet'en seasonal round historically (Traditions Consulting Services, 2013, p.11).

WFN members identified the Clore River watershed as an important wilderness area for multiple values. EAO understands that WFN and the Proponent have engaged in a number of conversations to understand and address those concerns.

The proposed Project is expected to have a minor impact on WFN's ability to access identified gathering sites, as the zone of project impacts to wetlands and vegetation is relatively narrow, and it is unclear whether the final Project route would cross WFN gathering sites identified in the Wet'suwet'en First Nation Traditional Use and Occupancy Site study (Traditions Consulting Services 2013). Impacts may be mitigated through detailed route planning at the permitting stage. The Project may increase access to some sites for WFN members as well as other users.

In consideration of the information presented in the TUOS, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects to vegetation, current and traditional land use – as discussed in section 6.2.4 of this report – the proposed Project is expected to result in minor impacts on Wet'suwet'en First Nation's asserted Aboriginal right to gather.

Culturally important sites, trails and travelways

WFN identified the following concerns related to culturally important sites, trails, and travelways:

- Potential adverse effects on Culturally Modified Trees;
- Potential damage to cabins; and
- Potential damage to trails.

WFN members identified the importance of cabins used by WFN ancestors for hunting and trapping, and the importance of trails as major travel routes, and of trail blazing for communication between trappers. WFN members expressed concern that many Wet'suwet'en cabins have already been burned or torn down, and many trails have been damaged or destroyed by logging and the construction of roads.

The Application listed the following trails and travelways, habitation sites, gathering sites and sacred areas (Section 23, Table 23-64):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trails and Travelways	
Crosses at KP 462	West side of Maxan Creek to François Lake, specific location unknown
Habitation Sites	
500 m south of KP 515	Cabin at Owen Lake
3 km northwest of KP 522	Cabin sites (2) at Morice River and Owen Creek juncture
3.4 km north of KP 545	Cabin at Chisholm Lake
194 km north of KP 662	Cabin at Swan Lake
Gathering Sites	
11.5 km south of KP 515	Owen Lake
Sacred Areas	
328 km southeast of KP 664.8	Cemetery at Pack Lake

Wet'suwet'en First Nation Traditional Use and Occupancy Site study (Traditions Consulting Services 2013) identified 13 trails and travelways intersected by the 2 km corridor surrounding the proposed pipeline route centreline. It also identified 19 named places, eight archaeological/traditional history sites, five dwellings and 1 lithics site. Identified sites included burial sites, ceremonial/sacred sites and traditional history sites, among other activities. These sites were not discussed in the Application. Specific information related to the sites, such as frequency of use and exact type of site, was not made available to EAO at the time of writing.

EAO's analysis of ethnohistoric information identified historic home sites within two kilometres of the proposed pipeline at Sam Goosly Lake and the Morice River (N. Bank

of Morice River between Owen Creek and Lamprey Creek). EAO also identified historic home sites with at greater than 2 km from the pipeline corridor, at Tchesinkut Lake, South Parrott/Trout Lake, the North end of Parrott Lake, Owen Lake and Creek, the mouth of Gosnell Creek and the outlet of Morice Lake.

Project construction could adversely affect the culturally important sites and trails within the Project corridor. EAO assessed the magnitude of effects to heritage sites as low to medium, and that any effects on heritage resources would be permanent and irreversible. Such effects are at least partly mitigated by the requirements of the Heritage Conservation Act, which must be met prior to construction, as well as by additional certificate conditions. Further consultation during detailed construction planning and permitting with Wet’suwet’en First Nation may enable the Proponent to avoid the identified sites during construction.

Wet’suwet’en First Nation contacted EAO on September 30, 2014 to advise EAO that Wet’suwet’en First Nation is completing a non-invasive archeological survey in an area including the proposed Project corridor focussed east of the Morice River.

Wet’suwet’en First Nation noted concern for the potential impacts to archaeological sites in relation to the proposed Project in their territory. Wet’suwet’en First Nation acknowledged that the archaeological survey work could not inform the EA report, and that such work once completed is intended to be shared with the Proponent to inform future considerations of routing and during potential Project permitting.

In consideration of the information presented in the TUOS, the Proponent’s proposed mitigations and proposed conditions of any EAC issued, EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report –the proposed Project may result in minor impacts on Wet’suwet’en First Nation’s culturally important sites, trails and travelways.

Other matters of concern to Wet’suwet’en First Nation

Issues Raised	EAO/Proponent response
Application and Aboriginal Consultation Report do not accurately capture WFN issues and nature of information provided in consultation and WFN was not involved in identifying potential adverse effects to WFN or potential mitigations	<p>EAO believes these concerns have been addressed in the third and final Aboriginal Consultation Report and clarified through discussions between EAO and WFN.</p> <p>EAO uses the information in the Proponent’s consultation reports and information derived from direct consultation between EAO and Aboriginal Groups, as well as any TLUS information provided</p>

Issues Raised	EAO/Proponent response
	<p>to the Proponent or EAO, to determine the nature of the Aboriginal Interests that may be impacted, the seriousness of the potential impacts to Aboriginal Interests, and to inform EAO in reaching conclusions on whether the Crown’s duty to consult and accommodate Aboriginal Groups has been met. EAO has provided a draft Aboriginal Group Consultation Report (Part C of the Assessment Report) to Aboriginal Groups for review and comment. EAO welcomes feedback on this report in order to better understand the seriousness of potential impacts.</p> <p>EAO notes that WFN provided comments during the Application Review period, and also actively participated at technical WG meetings in May and June, 2014.</p>
<p>Key baseline information is missing from the application, including WFN TUOS study, verified TEK, some field studies, and more extensive socio-economic analysis</p>	<p>EAO acknowledges this concern. For the purposes of determining the appropriateness of the information in the Application, EAO was satisfied that the Proponent’s Application contained the information as set out in the Application Information Requirements (AIR). The Proponent committed to develop and update – and EAO has set out a proposed condition to require the Proponent to do so – the Environmental Management Plans presented in the Application to reflect a number of comments made by Aboriginal Groups. Any additional TLU information provided by Aboriginal Groups would also help inform the development of plans and any additional site-specific mitigation required.</p>
<p>Decommissioning and abandonment not consistently considered in the application</p>	<p>This omission is acceptable to EAO because (1) the long expected time horizon for the project means that assessment of potential impacts of decommissioning and abandonment would rely on highly uncertain predictions of future social and economic conditions, rendering such assessment of limited usefulness; and (2) BC’s oil and gas regulatory regime includes robust requirements for</p>

Issues Raised	EAO/Proponent response
	oil and gas project decommissioning.
<p>WFN has not had discussions with Proponent on selection of route through their territory. The Proponent did not consider some key routing options, e.g. to avoid the Clore River watershed. Wet'suwet'en First Nation indicated an interest in viewing the Proponent's comparative review of routes with regard to the Clore River option</p>	<p>EAO is aware that conversations between the Proponent and WFN have taken place.</p>
<p>Project timelines are too fast</p>	<p>Refer to Part C section 2.1 for Common Concerns raised.</p>
<p>WFN needs to be involved in setting prescriptions for vegetation management, and monitoring the success of the outcomes in WFN traditional territory.</p>	<p>A proposed condition would require the Proponent to engage with Aboriginal Groups in the development of management plans. The plans would be implemented and would continue to be updated during construction based on site-specific conditions.</p>
<p>Safety of pipeline:</p> <ul style="list-style-type: none"> • construction in step hillside terrain • potential for avalanche and debris from blasting • safety of exposed pipelines, • potential earthquakes and mudslides • potential ruptures / leaks 	<p>Refer to Part B section 10 of this report for EAO's assessment of accidents and malfunctions.</p> <p>The Proponent has undertaken detailed terrain analysis, the results of which continues to inform the construction planning and detailed engineering design of the proposed Project. In addition to the current process administered by the EAO, the Proponent is required to provide detailed information regarding the design of the Project for review by the OGC.</p>
<p>Health issues: risk of communicable diseases from a construction camp spreading to surrounding communities, and especially to Elders. Health risks of alcohol and drug consumption of the temporary workforce, including the local workforce.</p>	<p>EAO acknowledges this concern. EAO is proposing an EA condition that would require the Proponent to develop a Social and Economic Effects Management Plan (SEEMP).</p> <p>An additional proposed condition would require the Proponent to continue to implement the EAO-approved Aboriginal Consultation Plan for all phases of the Project.</p>

Issues Raised	EAO/Proponent response
<p>Long term benefits from project; employment opportunities and barriers to employment; training opportunities; contracting opportunities; timber harvesting rights</p>	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements that would remain confidential. • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent must continue engagement with Aboriginal groups about construction planning and Project design, including the schedule of construction activities</p> <p>The Proponent has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information to ensure that meaningful partnerships are developed for both the Project and the community. Objectives and measurable outcomes will be developed alongside the training/education partner and will be part of the final partnership plans.</p>
<p>Wet'suwet'en First Nation would like to be consulted on procedures used in vegetation management to ensure it is done in a manner that avoids or mitigates impacts (e.g. clearing outside of breeding bird windows, and no use of chemical herbicides).</p> <p>Wet'suwet'en would also like the proposed Project footprint managed to improve</p>	<p>The federal and provincial regulatory regime identifies breeding windows for birds, sets breeding windows and enforces adherence to those windows according to their mandate.</p> <p>EAO has proposed a condition requiring the Proponent to use alternative methods of vegetation control in asserted territories of Aboriginal Groups that have requested pesticides and herbicides not be used.</p>

Issues Raised	EAO/Proponent response
habitat quality for focal resources (e.g. managing deciduous shrubs for such considerations as moose browse and berry production.)	Unless in an area with invasive species (which would be removed) or where there exist erosion concern, the Proponent would allow the ROW to revegetate naturally.
Concern regarding the regulatory regime (DFO or OGC) for offsetting measures for riparian areas.	Proposed mitigation for potential residual effects to fish habitat includes developing an offsetting plan (e.g., habitat compensation), if and as required by DFO for Fisheries Act Authorizations, to offset unavoidable serious harm to fish. Offsetting plans are intended to ensure the ongoing productivity of fish species important to commercial, recreational and Aboriginal fisheries.
Request for the Proponent to indicate their alternate crossing methods, and consult with Wet'suwet'en First Nation on their alternate watercourse crossing methods if the primary watercourse crossing method is not used.	EAO is discussing consultation regarding alternate crossing methods with the Proponent and Wet'suwet'en First Nation
Wet'suwet'en First Nation elders and resource users have expressed concern that long-term effects of the proposed Project would include further damage to the lands, waters and resources in their territory, as well as cumulative effects previous and existing effects from other developments would result in a cumulative effect to Wet'suwet'en First Nation's title.	<p>The EAO has engaged in consultation with Wet'suwet'en First Nation with regard to the potential impacts of the proposed Project on Aboriginal rights and title claims of the Wet'suwet'en Hereditary Chiefs.</p> <p>EAO considered the cumulative effects of past, present, and reasonably foreseeable projects in our assessment of whether the proposed Project would have significant adverse effects, not just the project contribution. (Refer to Part C section 2.1 for Common Concerns raised)</p>

7.4 Tsimshian

In consideration of the historic and current context of the Tsimshian Aboriginal Groups provided in section 3.4 of this report and information gathered throughout the consultation process, the following sections are intended to set out, in relation to each Tsimshian Aboriginal Group:

- A summary of concerns related to that Aboriginal Group's Aboriginal Interests; and

- EAO's evaluation of potential effects of the proposed Project to that Aboriginal Group's Aboriginal Interests

7.4.1 Gitga'at First Nation

Context

- Gitga'at First Nation is a Southern Tsimshian group formerly based at Kitkiata Inlet on Douglas Channel and now located at Hartley Bay. Gitga'at First Nation has 15 registered reserves, settlements or villages with a total area of 641.7 ha. Gitga'at First Nation has a registered population of 736, with 588 members living off-reserve.
- The Gitga'at First Nation traditionally relied on a number of land-based and marine resources, including seaweed and plants; fish, octopus, and shellfish; birds; and mammals. Salmon, halibut, and cedar are particularly central to Gitga'at culture and way of life.
- Gitga'at First Nation is governed by a Village Council with one Chief and four Councillors, under a custom electoral system.

Aboriginal Interests, EAO's strength of claim assessment and depth of consultation

- The proposed Project is not expected to cross Gitga'at First Nation's asserted traditional territory. The closest point would be near Kitimat, approximately 13 km east of Gitga'at First Nation's asserted boundary.
- EAO's consideration of the potential impacts of the proposed Project on specifically Gitga'at First Nation's Aboriginal Interests is discussed below. Given the nature and location of the proposed Project relative to Gitga'at First Nation's asserted traditional territory, EAO has determined that the duty to consult Gitga'at First Nation lies at the low end of the *Haida* spectrum. Gitga'at First Nation has been listed on Schedule C of the Section 11 Order for the proposed Project.
- Gitga'at First Nation disagreed with EAO's initial assessments of strength of claim, potential impacts, and the duty to consult. However, Gitga'at did not provide specific information to EAO that would contribute to a change to these assessments.

Potential impacts of the proposed Project on Gitga'at First Nation's Aboriginal Interests

The Gitga'at First Nation asserted traditional territory lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use

VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSA are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into Gitga'at First Nation territory.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Gitga'at First Nation's asserted traditional territory, EAO concludes that the proposed Project is expected to result in negligible impacts on Gitga'at First Nation's gathering, fishing or trapping, and culturally important sites.

Other matters of concern to Gitga'at First Nation

EAO did not receive any comments from Gitga'at First Nation with respect to the proposed Project.

7.4.2 Kitselas First Nation

Context

- Kitselas First Nation is located at the upper end of Kitselas Canyon on the Skeena River at Kitselas, just east of Terrace. Kitselas First Nation has 10 registered reserves, settlements or villages with an area of 1,885.2 ha. Kitselas First Nation has a registered population of 602, with 283 members living on reserve and 319 members living off reserve.
- Kitselas First Nation is governed by the Kitselas Band Council, made up of one Chief and five Councillors, under the *Indian Act* electoral system.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project is expected to cross 11 km of Kitselas First Nation traditional territory, east of Kitimat. Kitselas First Nation is listed in Schedule B of the Section 11 Order.
- Ethnographers described Kitselas traditional territory as centred on the Kitselas Canyon and noted that, at the time of contact, some Kitselas people may have taken a coastal route to get to and from the annual eulachon fishery on the Nass River. There is no indication that the CGL overlaps with what was considered the traditional territory of Kitselas Nation at the time of contact.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in*, which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation as at 1846. Based on the information reviewed and test for title as set out in *Tsilhqot'in*, EAO continues to be of the view that there is no information indicating sufficient or exclusive occupation that supports a *prima facie* claim of Aboriginal title by Kitselas First Nation within or near those portions of the proposed Project areas that overlap with the asserted traditional territory of the Kitselas First Nation.
- EAO's consideration of the potential impacts of the proposed Project on specifically Kitselas First Nation's Aboriginal Interests is discussed below. EAO has determined that the duty to consult Kitselas First Nation lies at the low end of the *Haida* spectrum.

Summary of consultation

Kitselas First Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application, and the Application. Kitselas First Nation was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Kitselas First Nation during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. Under a Letter of Agreement dated December 2012, the Proponent provided initial capacity funding for Kitselas First Nation to engage in discussions regarding the proposed Project. A MOU between Kitselas First Nation and the Proponent, dated November 2013, provided continued capacity funding for Kitselas First Nation.

Kitselas First Nation provided did not provide comments to EAO on the EA. Kitselas First Nation participated in working groups meetings May 27-28, 2014 and participated in the Natural Gas Pipeline Workshops November 28, 2013, and May 29-30, 2014.

Kitselas First Nation also participated in biophysical field studies and a Traditional Land Use study facilitated by the Proponent's consultants. They provided TEK and collected socio-economic baseline data. The results of these studies were included in the Proponent's Application Aboriginal Consultation Report #3.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Kitselas First Nation 37 times (during 2012-2014) to discuss ongoing Project information and updates; contracting and employment opportunities; Project benefits; distribution and review of a draft ancillary site map outlining the proposed features, such as access roads, compressor stations, and camp sites; and the selection of the proposed route through their traditional territory. Issues raised by Kitselas First Nation and the Proponent's responses are provided in the Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Kitselas First Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts of the proposed Project on Kitselas First Nation's Aboriginal Interests

Hunting

Kitselas members hunt ungulates in the Upper Kitimat and its tributaries. Hunting for mountain goat is limited to certain areas. Bears are harvested in the spring months and then in September to November. Game birds are usually harvested from September to the end of November. Upland birds are usually taken along road rights of way and migratory bird harvesting occurs in the same areas frequented by water animals.

Kitselas First Nation raised key concerns regarding wildlife, wildlife habitat and hunting including:

- Potential effects on wildlife species including caribou, moose, beaver, bears, wolves, wolverine and other small furbearing animals, including:
 - Loss of beaver habitat; requests relocation of beaver populations affected by construction;
 - Concerned about impacts to traditionally hunted animals, especially grizzly bears and mountain goats, impact to black bears; and
 - Potential adverse effects to ungulates, including protection of potential calving area;
- Potential effects of increased access on wildlife species, including:
 - Increased access to wilderness areas, which increases the likelihood of trophy hunting and destructive quad traffic;
 - Overall concerns regarding access along the right-of-way;
 - Potential effects on soil and wildlife habitat during construction; and
 - Potential spilling or leakage of fuels.

- Potential effects on on hunting areas and wildlife habitat including nests, dens, mineral licks, calving areas, beaver dams and lodges, game trails, wildlife trees, and migration routes as well as related hunting areas, including:
 - Effects on hunting grounds during construction, including increased hunting access during construction;
 - Potential for construction activities to limit use of game trails, restricting wildlife movement;
 - Effects on bird habitat, including disturbance of nest and nesting grounds; and
 - Requested avoidance of nesting / rearing areas or creation / relocation of additional suitable habitat (e.g. nest boxes);
- Avoid active wildlife trees where practical; and
- Loss or contamination of mineral lick during pipeline construction.

Hunting areas identified in the Application (Section 23, Table 23-24) for assessment of potential effects to current and traditional land use include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
2 km west of KP 592	Clore River valley
85 km northwest of KP 650	Upper Kitsumkalum River
34 km northwest of KP 651	Lakelse River
42 km northwest of KP 651	Skeena substation
9.7 km north of KP 659	Upper Kitimat River, from Weedeene River to headwaters, specific location unknown
20 km north of KP 654	Upper Kitimat and tributaries
13 km northwest of KP 665	Little Weedeene Valley
29 km northwest from KP 665.5	Big Weedeene Valley
91 km north of KP 664.8	Cedar River, near Hellsgate Slough

One of nine key hunting areas identified by Kitselas First Nation in their traditional territory is located 2 km away from the proposed Project route, with the remaining 8 located between 9.7 and 91 km away from the proposed Project.

Access for Kitselas First Nation’s to the proposed Project area to hunt may be affected in the short term, for a limited area and time during the construction phase, where access may be restricted for safety reasons. The distribution of wildlife in the area of the corridor may change during and after construction. The pipeline corridor will be revegetated after construction, but a corridor would be maintained with low early seral

stage vegetation cover during operations. Full natural revegetation would occur after decommissioning.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to hunting – as discussed in section 6.2.1 of this report – the proposed Project is expected to have negligible impacts on Kitselas First Nation’s asserted Aboriginal right to hunt.

Gathering

Traditionally, Kitselas First Nation harvested plants and fruits, game, and an assortment of other forest and river products. Today, gathering of forest plants and berries normally runs from June to October in the Upper Kitimat River and tributary valleys, in lower elevations adjacent to wetted areas.

Concerns raised by Kitselas First Nation regarding gathering included:

- Potential effects on existing traditionally harvested vegetation including ceremonial, medicinal and food source plants, including loss of traditionally harvested native and medicinal plants and berries during construction;
- Potential loss of wetland habitat, function and water quality also affecting wildlife and vegetation during construction of the proposed Project;
- Introduction or spread of invasive plant species; and
- Potential adverse effects on harvested plants.

Plant gathering areas identified in the Application (Section 23, Table 23-24) for assessment of potential effects to current and traditional land use include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Plant Gathering	
58 km north of KP 650	Kitselas Canyon
42 km northwest of KP 651	Skeena substation
9.7 km north of KP 659	Upper Kitimat River, from Weedene River to headwaters, specific location unknown
20 km north of KP 654	Upper Kitimat and tributaries
50 km north of KP 659.5	Skeena River and area
46 km north of KP 666	North of Lakelse River
72 km northwest of KP 666.3	Skeena Estuary
120 km west of the proposed route	North Coast west to Prince Rupert. Specific location unknown

The proposed Project location is between 9.7 and 120 km away from key plant gathering areas identified by Kitselas First Nation in their traditional territory.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects to vegetation, and current and traditional land use – as discussed in section 6.2.4 of this report – and the distance between the identified gathering locations and the proposed Project area, the proposed Project is expected to have negligible impacts on Kitselas First Nation’s asserted Aboriginal right to gather.

Fishing

Kitselas First Nation raised the following key concerns related to potential effects to fish and fish habitat:

- Potential effects on water quality related to construction including equipment maintenance and watercourse crossings, including
 - Potential erosion / disturbance of riparian areas; and
 - Alteration or loss of riparian habitat;
- Potential effects on fish and fish habitat, including impacts to traditional fishing practices, including:
 - Effects on fish habitat and livelihood of community members, impact to food fishery, fish stocks and fish sustainability;
 - Work camp occupants will fish;
 - Reducing fish population; and
 - Increased boat and tanker traffic in areas where Kitselas assert fishing rights, population;
- Potential disruption of navigability; and
- The implementation of Horizontal Directional Drilling and potential for release of drilling mud and resulting adverse effects on salmon in Kitselas Traditional Territory

Fishing areas identified in the Application (Section 23, Table 23-24) for assessment of potential effects to Kitselas current and traditional land use and included the following sites in proximity to the proposed pipeline route include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
2 km west of KP 592	Clare River valley

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
9.7 km north of KP 659	Upper Kitimat River, from Weedene River to headwaters, specific reach unknown.
50 km north of KP 659.5	Skeena River
27 km southeast of KP 663	Kildala River

One of four key fishing areas identified by Kitselas First Nation in their traditional territory is located 2 km away from the proposed Project route, with the remaining 3 located between 9.7 and 50 km away from the proposed Project.

The proposed Project corridor would traverse approximately 10 km of Kitselas First Nation asserted traditional territory, with approximately 32 watercourse crossings, 3 of which have indicated fish presence. None of the crossings are classified as large. The majority of fish-bearing watercourse crossings would be constructed using an isolated trench method to avoid and minimize potential impact to fish and fish habitat. Open cut trench method would be used only for non-fish bearing watercourse crossings, or where the channel is dry or frozen to the bottom.

In consideration of the Proponent’s proposed mitigation measures (detailed in section 5.3.1 of the assessment report) and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – and the distance between the identified fishing locations and the proposed Project area, the proposed Project is expected to have negligible impacts on Kitselas First Nation’s asserted Aboriginal right to fish.

Trapping

Trapping of fur-bearing animals provides a source of food and forms part of the Kitselas First Nation’s economy. Several Kitselas members actively trap and the Kitimat River and its tributaries is the main harvest area, with four distinct trapping areas in the upper Kitimat area. There are trap line cabins in the valleys of Chist Creek, Bolton Creek, North Kitimat River and upper Kitimat River. Most of the harvest for fur-bearing animals takes place within 50 m of roads, in treed areas bordering rivers and streams.

Kitselas First Nation raised concerns about the potential adverse effects of construction on trap lines.

The following trapping locations within Kitselas First Nation territory in proximity to the proposed Project Area were identified in the Application (Section 23, Table 23-24) for assessment of traditional land:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trapping	
42 km northwest of KP 651	Skeena substation
25 km north of KP 636	Chist Creek Valley
19 km north of KP 638	North Kitimat River
15 km north of KP 646	Bolton Creek

The proposed Project location is 15 km away from the nearest trapping area identified by Kitselas First Nation in their traditional territory.

In consideration of the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – and the relative distance between the area of the proposed Project and trapping locations identified by Kitselas First Nation, the proposed Project is expected to have negligible impacts on Kitselas First Nation's asserted Aboriginal right to trap.

Culturally important sites, trails and travelways

Kitselas raised concerns about the potential effects of the proposed Project on Culturally Modified Trees.

Culturally important trails and travelways, habitation sites, and sacred areas identified in the Application (Section 23, Table 23-24) associated with Kitselas traditional land use include:

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trails and Travelways	
40 km northwest of KP 592	Lower Copper (Historical grease trail Kitimat-Lakelse-Thornhill-Copper)
34 km northwest of KP 651	Lakelse River (Historical grease trail Kitimat-Lakelse-Thornhill-Copper)
50 km north of KP 659.5	Skeena River and area (Historical grease trail Kitimat-Lakelse-Thornhill-Copper)
13 km northwest of KP 665	Little Wedeene Valley (Historical grease trail Kitimat-Lakelse-Thornhill-Copper)
29 km northwest from KP 665.5	Big Wedeene Valley (Historical grease trail Kitimat-Lakelse-Thornhill-Copper)

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
38 km south of KP 666	Hot Springs (Weewanie) (Historical grease trail Kitimat-Lakelse-Thornhill-Copper)
Habitation Sites	
19 km north of KP 638	North Kitimat River
58 km north of KP 650	Kitselas Canyon (Tsunyow, Gitaus, Paul Mason Site)
47 km north of KP 664.8	Skeena River at the mouth of Lakelse River)
25 km north of KP 636	Chist Creek Valley
Sacred Areas	
50 km north of KP 659.5	Skeena River
46 km southwest of KP 666	Hawkesbury Island East

In consideration of the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to archaeology and cultural heritage interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Kitselas First Nation, the proposed Project is not expected to impact Kitselas First Nation's culturally important sites, trails and travelways.

Other issues raised

During the EA process Kitselas First Nation raised a number of other concerns. These are summarized in the following table, along with a brief response from EAO and/or the Proponent.

Issues Raised	EAO/Proponent Response
Concerns regarding the proposed Project timelines Limited capacity to engage because of the number of proposed projects in the region	EAO acknowledges this concern and has provided a response in section 2.1 of the Assessment Report's Part C.
Desire for community to be consulted regarding disposal of merchantable timber	In the Proponent's Environmental Management Plan, they commit to transport merchantable timber to interested Aboriginal Groups, as well as conversion facilities or other end users. EAO has proposed a condition requiring the development of a Timber Salvage Strategy that would include timber volume estimates, marketing commitments and plans for the timber cleared, and salvage

Issues Raised	EAO/Proponent Response
	activities for the timber volume that would not be marketed.
Loss of beaver habitat and request relocation of beaver populations affected by construction	In the event that beaver dams or lodges would be disturbed, a Wildlife Sundry Permit for beaver dam removal would be obtained by the Proponent from FLNR to remove the dam or lodge. The Proponent would also follow direction in the BC Best Management Practices for Beaver Dam Removal.
Need for training and employment opportunities	<p>For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:</p> <ul style="list-style-type: none"> • Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements that would remain confidential. • Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail. <p>The Proponent has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information to ensure that meaningful partnerships are developed for both the Project and the community. Objectives and measurable outcomes will be developed alongside the training/education partner and will be part of the final partnership plans.</p>
Concern for pipeline safety	EAO has assessed the potential effects of the proposed Project on the geophysical environment, including terrain integrity, and the potential risks of accidents and or malfunctions in Part B sections 5.2 and 10 of the assessment report, respectively.

7.4.3 Lax Kw'alaams Nation

Context

- Lax Kw'alaams Nation (commonly referred to as Lax Kw'alaams Band) is made up of people from nine (originally 10) former Coast Tsimshian tribes. By the time of contact, the nine Coast Tsimshian tribes had relocated their winter villages from the Skeena River to the Prince Rupert Harbour from the lower parts of the Skeena River, and were eventually based around the Fort Simpson Hudson's Bay Company trading post so that the Tsimshian people could take full advantage of trade opportunities with European fur traders. As the village grew and the nine tribes amalgamated, the community name became the Port Simpson Band. In 1986, the Aboriginal Group name officially changed to Lax Kw'alaams.
- Lax Kw'alaams Band consists of 78 reserves, settlement, and villages with an area of 11,898.7 ha located primarily along the Skeena River, Portland Inlet and Work Channel. Seven of the 78 reserves are shared with Metlakatla First Nation. As of September 2013, Lax Kw'alaams Band had a registered population of 3,646, with 668 of those members living on their own reserve, 68 living on other reserves, and 2,910 living off reserve. Lax Kw'alaams Band is governed under the *Indian Act* electoral system and has a Mayor, a Deputy Chief, and 11 Councillors.
- As stated in the Interim Land and Marine Resources Plan of the Allied Tsimshian Tribes of Lax Kw'alaams (Interim Land Use Plan), over 2,000 traditional sites have been identified by the Allied Tsimshian Tribes of Lax Kw'alaams. These sites include traplines, fishing areas, hunting area, forest harvesting areas, berry-picking areas, areas where medicinal plants are gathered, village sites, shell middens, burial grounds, battle areas, areas with pictographs, petroglyphs, culturally modified trees or stone fish weirs, and places with which traditional place names are associated. Many of these areas are still used for traditional purposes such as forest harvesting, fishing and hunting.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project is not expected to cross Lax Kw'alaams Nation's asserted territory. The closest point would be at the pipeline's terminus near Kitimat, about 15 km from the Big Wedeene River area. Lax Kw'alaams Nation is listed in Schedule C of the Section 11 Order.
- EAO took the initial view that the potential impacts to the Lax Kw'alaams Nation's Aboriginal Interests by the proposed Project would be negligible.
- Lax Kw'alaams wrote a letter to EAO indicating disagreement with elements of the assessment of strength of claim, but did not disagree with the overall assessment of the required depth of consultation.

- EAO has determined that the duty to consult Lax Kw'alaams Nation lies at the low end of the *Haida* spectrum.

Summary of consultation

As Lax Kw'alaams Nation is listed on Schedule C of the Section 11 Order, the Proponent and EAO notified Lax Kw'alaams Nation about key milestones of the proposed Project, offered to meet and consider information from Lax Kw'alaams Nation regarding Aboriginal Interests in the proposed Project area, providing an opportunity for Lax Kw'alaams Nation to provide their comments on a draft Assessment Report, and implementing additional measures for consultation and accommodation, where appropriate.

The pipeline is not expected to traverse the traditional territory of Lax Kw'alaams Nation. As documented in the Proponent's Application, Lax Kw'alaams Nation indicated that the proposed Project is likely outside of their asserted traditional territory, but they are interested in contracting opportunities associated with the proposed Project.

The Proponent met with Lax Kw'alaams Nation seven times and shared several key documents during the course of the EA process, including the Draft AIR, mapping files, and field program permit notifications. Lax Kw'alaams Nation did not provide TEK and did not participate in biophysical field studies, nor collected socio-economic baseline data.

Through consultation with the Proponent, the Lax Kw'alaams Nation brought forward initial concerns regarding contracting and employment opportunities. The Proponent's response to this concern included mitigation measures to:

- Provide contracting and employment opportunities to qualified local and Aboriginal businesses and individuals near the proposed Project; and
- Develop and implement a training program during the planning phase of the proposed Project, focused on developing Project-specific skills.

Potential impacts of the proposed Project to Lax Kw'alaams Nation's Aboriginal Interests

The Proponent documented in its Aboriginal Consultation Report (section 23 of its EAC Application) that, through consultations, Lax Kw'alaams Nation did not identify any Aboriginal Interests that could potentially be affected by the proposed Project. EAO did not receive information from Lax Kw'alaams Nation to indicate otherwise.

7.4.4 Metlakatla First Nation

Context

- The First Nation community of Metlakatla is located about 7 km northwest of Prince Rupert, on the Tsimshian Peninsula. The community is only accessible by sea or air.
- Metlakatla First Nation has about 3,464.4 ha of land on 16 reserves. Seven of these reserves are shared with Lax Kw'alaams Nation. As of September 2013, Metlakatla First Nation had a registered population of 860, with 85 members living on reserve and 775 members living off reserve. Nation governance consists of one Chief and six Councillors, each of whom serves three-year terms according to the *Indian Act* electoral system.
- Traditionally seasonal rounds from village to winter/spring/summer/fall fishing camps dominated Coast Tsimshian life. The harvest of salmon and eulachon were supplemented by hunting, trapping, foraging and shellfish gathering. During summer and autumn months, various plants were gathered for food, materials and medicines.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project is not expected to cross Metlakatla First Nation's asserted territory. The closest point would be at the pipeline's terminus near Kitimat, about 20 km away from the asserted territory boundary. Metlakatla First Nation is listed on Schedule C of the Section 11 Order.
- EAO is of the view that the potential impacts to Metlakatla First Nation's Aboriginal Interests by the proposed Project are negligible.
- EAO's consideration of the potential impacts of the proposed Project on specifically Metlakatla First Nation's Aboriginal Interests is discussed below. EAO determined that the required scope of duty to consult the Metlakatla First Nation lies at the low end of the *Haida* spectrum.

Summary of consultation

The Proponent met with Metlakatla First Nation five times and shared several key documents during the course of the EA process, including the project Description, field information package, Aboriginal Consultation Plan, Draft AIR, mapping files, and field program permit notifications. Metlakatla First Nation has not provided TEK, and did not participate in biophysical field studies or collection of socio-economic baseline data. Metlakatla First Nation has agreed in principle to conduct a Traditional Land Use study, however, this information was not made available or included in the Application. Metlakatla First Nation provided a final TUS report to the Proponent on September 18, 2014.

During the EA, Metlakatla First Nation provided EAO with comments on the Proponent's Application. EAO provided Metlakatla First Nation with the Proponent's responses to their comments, and shared those responses with Metlakatla First Nation. EAO offered to meet with Metlakatla First Nation to discuss their comments.

Capacity funding has not been provided to Metlakatla First Nation by the Proponent to engage in discussions regarding the Project.

Potential Impacts of the proposed Project to Metlakatla First Nation's Aboriginal Interests

Metlakatla First Nation asserted traditional territory lies outside of the LSA for the Wildlife and Wildlife Habitat VC, the Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VCs, Land and Resource Use VCs and Heritage VCs. It is also outside or on the outer edge of the RSAs for Wildlife and Wildlife Habitat VC (with the exception of the RSA for grizzly bear), Aquatic Environment VCs, Vegetation VCs, Wetlands VCs, Traditional Use of Land and Resources VC, (with the exception of the aquatics RSA) and the Land and Resource Use VC and Heritage VCs.

The LSAs are intended to capture the direct and indirect impacts from the proposed Project, while the RSA are intended to capture the area where the influence of other land uses and activities could overlap with project specific effects and result in cumulative adverse effects.

The effects of the proposed Project are expected primarily within the Project footprint and LSA; therefore, it is not expected that residual adverse effects on any of the above mentioned VCs would extend into Metlakatla First Nation territory.

Taking into consideration the potential residual adverse effect from the proposed Project, and the distance of the proposed Project to Metlakatla First Nation's asserted traditional territory, EAO concludes that the proposed Project is not expected to result in any adverse effects on Metlakatla First Nation's Aboriginal Interests. Further discussion of impacts to specific Metlakatla First Nation Aboriginal Interests is discussed below.

Hunting

Key issues raised by Metlakatla First Nation in relation to its asserted Aboriginal right to hunt include:

- Potential impacts to Limited Entry Hunting;
- Potential adverse effects on hunting resources in the area of development; and
- Cumulative effects of other projects and activities in their territory that have ongoing impacts on the land and wildlife.

Metlakatla provided a TLUS on September 15, 2014. The study identified 16 grids with a site density of 0-4 hunting sites. The species of concern were moose and grouse. The specific locations of the TLU sites were not provided, but a total of 5 hunting sites were identified.

An important hunting site for Metlakatla First Nation Traditional Land and Resource Use indicated in the Application (Section 23, Table 23-92) includes:

Approximate Distance and Direction from the Proposed Project	Activity/Description
Hunting	
40 km west of KP 664.8	Ecstall River

The proposed Project location is 40 km away from the nearest hunting area identified by Metlakatla First Nation in their traditional territory. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with hunting is provided in section 6.2.1 of this report.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to hunting – as discussed in section 6.2.1 of this report – and the relative distance between the area of the proposed Project and the hunting locations identified, the proposed Project is expected to have negligible impacts on Metlakatla First Nation’s asserted Aboriginal right to hunt.

Gathering

Metlakatla First Nation raised a concern regarding gathering (captured in the Proponent’s public comment summary dated June 4, 2014):

- Pesticide and herbicide use for purposes of riparian vegetation maintenance during the operational period.

Metlakatla First Nation’s TUS has identified 1 gathering site within the RSA where the harvesting of cambium may be impacted. A specific location was not provided. Within the RSA, 5 TLU sites were identified, where moose, deer, ducks geese, and grouse are

species of concern. se. An important gathering site for Metlakatla First Nation Traditional Land and Resource Use indicated in the Application (Section 23, Table 23-92) includes:

Approximate Distance and Direction from the Proposed Project	Activity/Description
Plant Gathering	
40 km west of KP 664.8	Ecstall River

The proposed Project location is 40 km away from the gathering site identified by Metlakatla First Nation in their traditional territory. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report.

In consideration of information presented in the TLUS, the the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on vegetation, current and traditional land use related to gathering – as discussed in section 6.2.4 of this report – and the relative distance between the area of the proposed Project and the gathering location identified by Metlakatla First Nation, the proposed Project is not expected to result in any adverse effects on Metlakatla First Nation’s asserted Aboriginal right to gather.

Fishing

Key issues raised by Metlakatla First Nation in relation to its asserted Aboriginal right to fish include:

- Potential adverse effects on water quality;
- Alteration or loss of riparian habitat;
- Potential adverse effects to fish and fish habitat, including as a result of increased back-country access from right-of-way construction; and
- Quality of experience for Metlakatla Nation members and loss of access to preferred fishing areas throughout the life of the Project.

Metlakatla’s TUS identified 11 grids with a site density of 1-4 fishing sites, where Coho salmon and Spring salmon were potentially impacted species. Three fishing sites were identified in total, but no specific locations were provided. An important fishing site for Metlakatla First Nation Traditional Land and Resource Use indicated in the Application (Section 23, Table 23-92) includes:

Approximate Distance and Direction from the Proposed Project	Activity/Description
Fishing	

Approximate Distance and Direction from the Proposed Project	Activity/Description
40 km west of KP 664.8	Ecstall River

The proposed Project location is 40 km away from the fishing site identified by Metlakatla First Nation in their traditional territory. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with fishing is provided in section 6.2.2 of this report.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on fish and fish habitat, surface water, groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – the proposed Project is expected to have negligible impacts on Metlakatla First Nation’s asserted Aboriginal right to fish.

Trapping

Metlakatla First Nation’s TUS has not identified any trapping sites along the proposed pipeline corridor. An important trapping site for Metlakatla First Nation Traditional Land and Resource Use indicated in the Application (Section 23, Table 23-92) includes:

Approximate Distance and Direction from the Proposed Project	Activity/Description
Trapping	
67 km west of KP 664.8	Big Falls Reservoir

The proposed Project location is 67 km away from the fishing site identified by Metlakatla First Nation in their traditional territory. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with trapping is provided in section 6.2.3 of this report.

In consideration of the Proponent’s proposed mitigation measures and proposed conditions of any EAC issued, and EAO’s analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use related to trapping– as discussed in section 6.2.3 of this report – and the relative distance between the area of the proposed Project and the trapping locations identified, the proposed Project is expected to have negligible impacts on Metlakatla First Nation’s asserted Aboriginal right to trap.

Culturally important sites, trails and travelways

Metlakatla First Nation raised concern with the Potential disturbance of archaeological sites.

Metlakatla First Nation’s TUS has identified one culturally important site within the RSA for the project. A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with archaeology and cultural heritage interests is provided in section 6.2.5 of this report.

In consideration of the information presented in the TLUS, the Proponent’s proposed mitigations and proposed conditions of any EAC issued, EAO’s characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Metlakatla First Nation, the proposed Project is not expected to impact Metlakatla First Nation’s culturally important sites, trails and travelways.

Other matters of concern to the Metlakatla First Nation

In addition to issues and concerns related to the Metlakatla First Nation’s Aboriginal Interests, Metlakatla representatives involved in the EA raised the following:

Issues Raised	EAO/Proponent Response
<p>Assumptions used for the cumulative effects assessment on riparian areas uses a pipeline right-of-way width of 20m, whereas the Project ROW in the Project Description is indicated to be 32 m, temporary construction clearing 60 m, and “major watercourse crossings” 100 m. This suggests conclusions are not based on appropriate assumptions and/or reasonably anticipated impacts.</p>	<p>The Proponent stated the assumption of a 20 m width of ROW for pipelines is based on the understanding that the majority of existing pipelines on the landscape have a statutory right of way approximately 18.3 m wide. For cumulative effects assessment, a conservative approach was applied, and a 100 m wide corridor was used to calculate the contribution of the Project footprint to the cumulative effects.</p>
<p>Concerns about unfeasible commitments in the Application, including:</p> <ul style="list-style-type: none"> • To “inspect all erosion and sediment control structures after precipitation events and after snowmelt” • To “monitor pumps at all times to ensure downstream flow is connected” (implies full time 	<p>The Proponent responded that Section 8 of the EMP includes mitigation to address erosion control. All temporary sediment control structures will be inspected on a regular basis and following precipitation events and snowmelt. If this inspection identified the need for repairs, the repair work would be carried out before the end of the working day. Should the potential for erosion resulting in contributing sediment to a watercourse be</p>

Issues Raised	EAO/Proponent Response
<p>observation)</p> <ul style="list-style-type: none"> Metlakatla First Nation suggest additional mitigation measures are needed in these areas. 	<p>identified during construction, the Proponent will implement the Soil Erosion Control Contingency Plan is included in Appendix C of the EMP.</p> <p>Section 8 also includes a description of measures to ensure maintenance of downstream flow at all times using an isolation method to install the pipeline. If pumps are used to maintain stream flow, back-up pumping capacity must be on-site and ready to take over immediately if operating pumps fail. Pumps would be continuously to ensure downstream flow is maintained at all times until the dam materials are removed and normal flows are re-established. Pumps would be monitored continuously including through the night to avoid equipment failure.</p>
<p>The Application indicates the Project meets the objectives of the applicable LRMPs and SRMPs, specifically protecting and avoiding infrastructure development within Red and Blue-listed plant communities. Table 8-5, however, and the overall effects assessment contradicts this claim suggesting that 15.1ha and 448.3ha of Red and Blue-listed plant communities overlap with the proposed PR. The Project does not appear to meet the avoidance objectives noted.</p>	<p>The Proponent confirms that areas of Red and Blue-listed communities were predicted through Terrestrial Ecological Mapping (TEM). Continued data collection to support construction planning and detailed engineering design, including refinement of locations of ecological communities of concern. Section 1.4 includes evaluation criteria for pipeline routing and facility siting which notes consideration of environmentally sensitive areas. Site-specific mitigation determinations will follow the mitigation hierarchy for addressing potential adverse effects (avoid, mitigate, compensate/offset).</p>
<p>Metlakatla First Nation indicates concerns about invasive plant species:</p> <ul style="list-style-type: none"> It is unclear how implementation and effectiveness of best practices to mitigate spread of invasive plants will be monitored. There is no mention of invasive plant management under key mitigation for potential effects to old 	<p>EAO has proposed a condition requiring the develop an Invasive Plant Management Plan and to use alternative methods of vegetation control in the asserted territories of Aboriginal Groups that have requested pesticides or herbicides not be used.</p>

Issues Raised	EAO/Proponent Response
<p>forests.</p> <ul style="list-style-type: none"> Duration of the threat of invasive plants should not be considered short-term, especially in portions of the project within close proximity to active ATV communities including right-of-ways. 	
<p>The Metlakatla First Nation have concerns that the pipeline development and resulting high paid employment will draw skilled and unskilled Metlakatla First Nation labour away from their community, resulting in reduced capacity to fill labour needs from within the community. Furthermore, Metlakatla First Nation is concerned its membership may not have equal access to training opportunities and/or resulting employment.</p>	<p>The Proponent stated it has committed to continuing discussions with economic development representatives from Aboriginal and local communities to communicate Project requirements, potential contract opportunities and related qualifications and to identify qualified Aboriginal and local businesses interested in provided relevant goods and services as noted in Table 12-8.</p> <p>The Proponent also said it has been actively involved in discussions with local training organizations, postsecondary institutions and Aboriginal communities over the past year to develop meaningful education and training programming, has met with Aboriginal Communities to present information related to contracting opportunities for qualified Aboriginal contractors. The Application includes data and an assessment on employment, contracting, education and training.</p>
<p>Cumulative loss of Old Growth Management Areas, as well as cumulative effects of disturbances and alteration of function. Particular concerns pertain to the North Coast Forest Management Area.</p>	<p>EAO has proposed a condition to manage for Old Growth Areas.</p>
<p>Metlakatla First Nation has concerns regarding cumulative loss of archaeological sites within and around Metlakatla First Nation territory. If a site cannot be avoided, options for other actions should be discussed with all potentially impacted Aboriginal Groups before impacting the site.</p>	<p>The Proponent provided information required for the purposes of assessment as detailed in the AIR and, in compliance with the Heritage Conservation Act, would submit an Archaeological Impact Assessment to the appropriate regulatory authorities in early 2015.</p>

Issues Raised	EAO/Proponent Response
	<p>Site specific mitigation will be determined prior to construction in consultation with the appropriate regulatory authorities.</p> <p>Archaeological sites will be avoided to the extent practical. In cases where avoidance is not practical, mitigation may include removal of certain resources in advance of construction under the direction of a qualified specialist.</p> <p>Sampling and recovery strategies will be determined with the qualified specialist prior to construction.</p>
<p>An Access Management Plan should be developed and provided for review.</p>	<p>The Proponent committed to develop its Access Control Management Plan as described in Appendix D of the EMP in consultation with the appropriate regulatory authorities. EAO has also proposed a condition requiring the development and implementation of an Access Control Management Plan, which would be developed in consultation with Aboriginal Groups.</p>
<p>The Application does not adequately incorporate Traditional Use Studies</p>	<p>The Proponent indicated it is committed to considering additional TK/TLU information provided by Aboriginal Groups to inform ongoing construction planning and detailed engineering design as appropriate. EAO has also proposed this requirement as a condition.</p>

7.5 Haisla Nation

Context

- Haisla Nation represents an Aboriginal Group of the northern-Northwest Coast cultural area living along the Douglas Channel and Kitimat Arm.
- Haisla Nation has an elected Chief and Band Council who make political decisions, and Hereditary Chiefs who are the traditional leaders with high status in the community. The current Chief and Council were elected in June 2013. The Chief is elected every four years, as are certain Councillors. Other Councillors are elected every two years.
- Haisla Nation has 19 reserves, with IR 2 Kitamaat Village being the only populated reserve. As of April 2013, the registered population was 1,754. It is estimated that about 640 members live on IR 2 Kitamaat Village.

Aboriginal Interests and EAO's strength of claim assessment and depth of consultation

- The proposed Project is expected to cross about 51 km of Haisla Nation asserted traditional territory, entering in the vicinity of Davies Creek and passing through two Haisla *wa'wais* areas, called Laxakas (Hirsch Creek) and Simgas–Zagwis.
- In some places, the proposed Project crosses through or near specific hunting or fishing sites, raising concerns about impacts to these activities. The proposed Project also crosses or runs adjacent to important fish-bearing streams (such as the Little Wedeene, the Big Wedeene, Aveling Creek and Cecil Creek). Patches of old-growth forest that are highly respected by the Haisla Nation are also identified in the vicinity of the proposed Project.
- As articulated in a letter dated January 23, 2014, EAO assessed Haisla Nation's Aboriginal rights claims, based on currently available information related to the activities, practices, traditions and customs integral to the distinctive culture of the Haisla people prior to contact with Europeans (understood to be around 1793). Based on the information reviewed, EAO assessed Haisla Nation as having a strong *prima facie* claim to Aboriginal rights to fish, hunt, gather and trap within or near those portions of the proposed Project that overlap with the asserted territory of Haisla Nation.
- On June 26, 2014, the Supreme Court of Canada released its decision in *Tsilhqot'in* which clarified the test for aboriginal title relating to the elements of sufficient and exclusive occupation at 1846. EAO has reconsidered its initial assessment of aboriginal title claims in the vicinity of the proposed Project. The following village and habitation sites located in proximity to the proposed Project were identified in the previous assessment as being subject to strong Haisla title claims:
 - Miya'nexaas just above the mouth of the Kitimat River;
 - Zagwis (Jugwees IR) at the head of Minette Bay;
 - Paxw near or overlapping the Alcan smelter;
 - C'imoc'a or Kitamaat village; and
 - Walhsto 2 km south of Kitamaat village.
- In addition to these sites, Haisla Nation has also been assessed as having a strong *prima facie* claim to aboriginal title to areas that were used regularly at 1846 to collect resources or that were used as travel corridors, between these village locations, including: along the Kitimat River downstream of the Wedeene Rivers to Kitimat River Bridge, and the lower Kitimat River estuary and Minette Bay. Haisla regular use of areas that extend upriver into tributary valleys at 1846 is less clear. There is no information indicating that there was any historic overlap with any other Aboriginal Groups in these areas.
- EAO's consideration of the potential impacts of the proposed Project on specifically Haisla Nation's Aboriginal Interests is discussed below.
- Haisla Nation is listed in Schedule B of the Section 11 Order. EAO has

determined that, given the initial assessment of strength of claims and potential for impacts from the proposed corridor route, the required scope of the duty to consult the Haisla Nation lies in the middle to deeper part of the *Haida* spectrum.

Summary of consultation

Haisla Nation was invited to review and provide comments on the draft Application Information Requirements, Section 11 Order, Aboriginal Consultation Plan and Reports, the screening of the Application and the Application. Haisla Nation was also provided with the opportunity to attend Working Group meetings and workshops and to meet with EAO staff directly.

EAO provided \$5,000 in capacity funding to Haisla Nation during the Pre-Application stage of review and \$10,000 during the Application Review phase of the EA process to assist with costs associated with participation in the EA review. Under a Letter of Agreement dated February 2013, the Proponent provided initial capacity funding for Haisla First Nation to engage in discussions regarding the proposed Project. A MOU between Haisla Nation and the Proponent, dated July 2013, provided continued capacity funding for Haisla Nation.

The Haisla Nation has been an active participant in the EA of the proposed Project. During the EA, the Haisla Nation participated in working group meetings on May 20-22, 2014 and May 27-28, 2014 and participated in the Natural Gas Pipeline Workshops on November 28, 2013. Haisla Nation also met with EAO on two occasions to discuss issues and concerns (July 3 and 16, 2014), and provided written comments to EAO on the Proponent's Application during both the Application evaluation and review periods.

Haisla Nation completed a TLU and socio-economic baseline study conducted by Dr. Jay Powell and the resulting report (dated June 1, 2013) was submitted to the Proponent and EAO.

In addition to EAO-led consultation activities throughout the EA process, the Proponent met with Haisla Nation 23 times (during 2012-2014) to discuss various Project-related subjects. The discussions have included: ongoing Project information and updates; contracting and employment opportunities; Project benefits; distribution and review of a draft ancillary site map outlining the proposed features, such as access roads, compressor stations, and camp sites; and the selection of the proposed route through their traditional territory the proposed route selection, information requirements for environmental baseline studies, and review of proposed traditional land use studies. Issues raised by Haisla Nation and the Proponent's responses are provided in the

Issues Tracking Table (Appendix 2). A summary of the Proponent's engagement activities with Haisla Nation as well as the Proponent's proposed mitigation to issues raised is provided in the Proponent's Aboriginal Consultation Report #3.

Potential impacts of the Proposed Project on the Haisla Nation's Aboriginal Interests

Aboriginal title

During the EA process, Haisla representatives identified the following issues relating to their Aboriginal title claims:

- On February 25, 2014, Haisla Nation responded to EAO's strength of claim letter in which Haisla Nation agreed with the initial assessment while noting concerns for potential Project impacts to areas with strong *prima facie* title claims.
- Haisla Nation requested further information about mitigation measures for specific sites (located 34 m north of KP 663 and 4 m north of KP 620) in the Application. EAO has asked the Proponent to inform Haisla of this site-specific information.

Further to the discussion in section 6.2.6 of this report regarding the potential impacts of the proposed Project on Aboriginal title claims, in EAO's opinion, the proposed Project would have low to moderate impacts on Haisla's asserted Aboriginal title.

EAO has engaged in meaningful consultation in order to better understand the nature and extent of the potential adverse effects to Haisla's Aboriginal Interests, including asserted Aboriginal title and addressed the concerns Haisla raised through the EA.

The Province and the Proponent have approached Haisla Nation to discuss initiatives that would provide financial, environmental and training benefits as outlined above in section 2. Economic benefits of the Project are being discussed, including benefits associated with the project Area that may affect potential title lands.

Hunting

During the EA process, Haisla Nation representatives identified the following issues and concerns related to their asserted Aboriginal right to hunt:

- Potential effects on wildlife populations, including moose, mountain goats, and bears;
- Potential effects on mature growth forest;
 - Noted that some OGMAs in the Kitimat Valley may be affected and requested to be involved in understanding effects, identifying compensation, and providing input to decision-making processes for these areas; and
 - Requested avoidance of old growth forests
- Potential impacts to wetlands;

- Potential effects on wildlife habitat, including nests, dens, mineral licks, calving areas, beaver dams and lodges, game trails, wildlife trees, and migration routes:
 - Requested avoidance of game trails and active wildlife trees; and
 - Removal of vegetation and need to compensate for loss of wildlife habitat through the life of the proposed Project;
- Potential effects on hunting areas, including through increased access during construction;
- Pipeline routing through challenging terrain:
 - Requested to be involved in planning the route to minimize potential landslides that could impact wildlife.

Hunting is an important activity for the Haisla Nation. According to their TLU report, the Haisla hunt ungulates, including moose, deer, and mountain goat, throughout the year, black bears from April to October, and ducks mainly in the fall and winter. Wolf and beaver are also occasionally hunted. A list of land mammals and birds harvested by the Haisla is included in section 23.5.1 of the Application and the timing of their harvests detailed in the TLU report. EAO is not aware of any information available about the current frequency and regularity of Haisla members' hunting activities in proximity of the proposed Project. Section 23 of the Application reports that the Haisla hunt for goats and deer in the Gardner Canal, and for moose, deer, mountain goat and black bear throughout the Kitlope Heritage Conservancy.

The Haisla Nation's TLU report notes that Haisla members hunt throughout their traditional territory, often in proximity to Kitimaat Village. The Application identified the following hunting sites (Section 23, Tables 23-19 and 23-21):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Hunting	
94 km southeast of KP 618	Kitlope Heritage Conservancy
88.8 km southeast of KP 666.3	Kowesas River
26 km south of KP 664	Coste Rocks, near the southeast corner of Coste Island (Louis Point),
14 km south of KP 664	Emsley cove
1.5 km south of KP 660	Minette Bay
Crosses at KP 656.6 and KP 651.8	Logging road, specific location unknown

Out of the 6 hunting areas identified in the Application, one Haisla Nation hunting area is identified as overlapping with the proposed Project corridor - KP 656.6 and 651.8 Logging road, specific location unknown. Other Haisla Nation hunting areas range from 1.5 to 94 km away from the proposed Project corridor.

Haisla members' access to hunting locations near the proposed Project may be temporarily disrupted during construction, when access may be restricted for safety reasons and to a lesser extent over the medium term during the operation of the pipeline. The TLU report notes that there may be some level of inconvenience and increased cost to Haisla hunters to travel further from the Kitimaat Village and Kitimat areas to hunt.

In consideration of the information presented in the TLU, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.1 of this report – the proposed Project is expected to have a minor impact on Haisla Nation's asserted Aboriginal right to hunt.

Trapping

During the EA process, Haisla Nation representatives identified the following issues and concerns related to their asserted Aboriginal right to trap:

- Potential effects on furbearer populations, including beaver and wolverine:
 - Interested in identifying and relocating potentially impacted beaver runs;
- Potential effects on mature growth forest:
 - Noted that some OGMAs in the Kitimat Valley may be affected and requested to be involved in understanding effects, identifying compensation, and providing input to decision-making processes for these areas; and
 - Requested the avoidance of old growth forests;
- Potential impacts to wetlands:
 - Requested information about avoidance and mitigation measures;
- Potential effects on wildlife habitat, including dens, beaver dams and lodges, and migration routes:
 - Removal of vegetation and need to compensate for loss of wildlife habitat through the life of the proposed Project;
- Potential effects on trap lines and traditional trapping practices; and
- Pipeline routing through challenging terrain:
 - Requested to be involved in planning the route to minimize potential landslides that could impact wildlife.

Haisla Nation members continue to trap within their asserted traditional territory. Most *wa'wais* owners have registered trap lines with the same boundaries as their stewardship areas. According to their TLU report, the Haisla harvest a variety of furbearers, including beaver, marten, fisher, land otter, mink, weasel and muskrat, from

November to January. A list of land mammals harvested by the Haisla is included in section 23.5.1 of the Application and the timing of their harvests detailed in the TLU report. EAO is not aware of any information available about the current frequency and regularity of Haisla members' trapping activities in the proximity of the proposed Project.

The Application identified the following Haisla Nation trap line areas (Section 23, Table 23-21):

Relative to the Proposed Project	Description
Trapping	
2.1 km northwest of KP 659	Simgas and Laxakas wa'wais trapline area near Hirsch Creek
869 m southeast of KP 661	Zagwis wa'wais trapline from the top of Minette Bay

Trap line areas identified by Haisla Nation in their traditional territory are 0.9 to 2.1 km away from the proposed Project corridor. The TLU did not identify any specific concerns regarding the proposed Project's impact on trapping areas, noting that there would still be "much wilderness within the trap lines' limits" (p. 40).

Section 23 of the Application notes a strong correlation between the locations of current trap lines and areas traditionally used for hunting and trapping. According to the TLU report, there are no intact trap line cabins and only one trapping trail (no longer used) in the vicinity of the proposed Project footprint.

The proposed Project may have an effect on Haisla Nation members' ability to access the Project area to trap, as it may require the short or long-term relocation of portions of trap lines, which may require cutting new trails as well as moving traps. Trap line territories are delineated across Haisla Nation's asserted traditional territory, which may limit the ability of Haisla Nation members to trap, at least for commercial purposes, outside their established trap line territories. However, the proposed pipeline corridor is narrow enough that the disruption to each trap line should not prevent a trap line holder from trapping in other parts of that trap line territory, and should therefore have a relatively small effect on overall access to trapping. Mitigation measures have been designed to reduce the disruption of trapping activities.

In consideration of the information presented in the TLU, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on wildlife, wildlife habitat, current and traditional land use – as discussed in section 6.2.3 of this report – the proposed Project is expected to have a minor impact on Haisla Nation's asserted Aboriginal right to trap.

Gathering

During the EA process, Haisla Nation representatives identified the following issues and concerns related to their asserted Aboriginal right to gather:

- Potential effects on mature growth forest:
 - Noted that some OGMAs in the Kitimat Valley may be affected and requested to be involved in understanding effects, identifying compensation, and providing input to decision-making processes for these areas; and
 - Requested avoidance of old growth forests;
- Potential effects on traditionally harvested native vegetation, including for ceremonial, medicinal, and food purposes;
- Introduction or spread of invasive plant species; and
- Question about the size of the vegetation RSA relative to air quality dispersion modelling results.

According to their TLU report, the Haisla harvest a wide variety of fruits, berries, edible roots, medicinal plants, trees and other plant materials at different times throughout the year. A list of plant species harvested by the Haisla is included in section 23.5.1 of the Application and the timing of their harvests detailed in the TLU report. EAO is not aware of any information available about the current frequency and regularity of Haisla members' gathering activities in proximity to the proposed Project.

A discussion of the potential impacts of the proposed Project on Aboriginal Interests associated with gathering is provided in section 6.2.4 of this report. In consideration of the information presented in the TLU, the Proponent's proposed mitigation measures and proposed conditions of any EA Certificate issued, and EAO's analysis of potential residual and cumulative effects to vegetation, and current and traditional land use – as discussed in section 6.2.4 of this report – the proposed Project is expected to have a negligible impact on Haisla Nation's asserted Aboriginal right to gather.

Fishing

During the EA process, Haisla Nation representatives identified the following issues and concerns related to their asserted Aboriginal right to fish:

- Potential effects on fish and fish habitat, including spawning areas, and need for compensation:
 - Water quality concerns (e.g. increased erosion and sedimentation) related to construction (e.g. watercourse crossings) and equipment maintenance;
 - Questions about effects of noise and vibration, particularly as a result of blasting, and requested adherence to least risk windows; and

- Alteration or loss of riparian habitat;
- Protection of eulachon in the Kitimat River, especially spawning areas:
 - Emphasized need for careful planning and management of the Kitimat River crossing, with input from Haisla;
 - Requested that an EAC condition be put in place to avoid construction during the eulachon spawning period in the Kitimat River; and
 - Requested that the Proponent participate in habitat enhancement for eulachon or a hatchery to increase eulachon runs;
- Potential for pollutants to be introduced into Hirsch Creek, which would then be carried into the lower Kitimat River and ultimately Kitimat Arm and Minette Bay;
- Requested further consideration of potential for acid rock drainage and metal leaching along the proposed pipeline route and that measures be built into EMP;
- Potential effects on fishing sites, including potential disruption to navigability;
- Pipeline routing through challenging terrain:
 - Requested to be involved in route planning to minimize potential landslides that could impact fish; and
- Requested to be involved in decision-making processes related to aquatic impacts, restoration, enhancement, and compensation (e.g. participation in development of fish compensation plans, review of post-construction reclamation and monitoring plans).

The Haisla fish in both freshwater and marine environments and harvest a wide variety of fish species, with eulachon and salmon understood to be amongst the most important. According to the TLU report, the Haisla fish for trout all year long, eulachon and steelhead in March-April, and various salmon from June to October. A list of fish species harvested by the Haisla is included in section 23.5.1 of the Application and the timing of each fishery detailed in the TLU report. EAO is not aware of any information available about the current frequency and regularity of Haisla members' fishing activities, although the TLU report does note that "most adult Haisla men fish at some point during the year" (p. 35).

The Haisla are known to fish at many different locations within their traditional territory, with the Kitimat River being of particular importance. The Application identified the following fishing sites (Section 23, Tables 23-19 and 23-21):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Fishing	
28.4 km south of KP 653	Kildala River
88.8 km southeast of KP 666.3	Kowesas River

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
1.9 km south of KP 664	Kitimat Arm
57.9 km southwest of KP 664	Douglas Channel
52 km southwest of KP 664	Verney Pass
88.6 km south of KP 611	Gardner Canal
90 km south of KP 612	Kitlope River
57.1 km southwest of KP 664	Fishtrap Bay
53.1 km southwest of KP 664	Danube Bay
Crosses at KP 664.7 however specific reach/location unknown	Kitimat River and drainage basin
26 km southeast of KP 664.8	Kildala River
35.3 km south of KP 613	Kemano River
19.8 km north of KP	Highway 37 bridge over Kitimat River** [Note that the TLU report identified this site as being of particular importance, as it is only open for food, social, and ceremonial fisheries and not to recreational users.]
2.1 km northwest of KP 659	Hirsch Creek

The proposed Project would cross two watersheds or *wa'wais* within the Haisla Nation's asserted traditional territory – the *Simgas & Zagwis wa'wais* located in the lower courses, estuary, and mouth of the Kitimat River and Minette Bay and *Laxakas* located at Hirsch Creek. The Application reports that the proposed Project would cross approximately 146 watercourses – 53 of these fish-bearing – within the Kitimat River basin. This would include crossings on the Kitimat River and Hirsch Creek, both important fishing areas for the Haisla. According to the TLU report, the Kitimat River has traditionally been an important location for Haisla fishermen to fish for eulachon. However, development in the area over the last 50 years has led to concerns about pollution and Haisla fishermen have, as a result, shifted their focus to other eulachon runs.

According to the TLU report, the proposed Project would intersect two of the Haisla Nation territory's 52 watersheds. Haisla Nation members' use of key fishing sites close to the proposed Project footprint, including in the Kitimat River, may be temporarily disrupted during the construction of watercourse crossings and occasionally during operations and decommissioning. The Haisla are known to use many other fishing sites, a greater distance from the proposed Project footprint, to fish for culturally important species such as eulachon.

In consideration of the information presented in the TLU, the Proponent's proposed mitigation measures and proposed conditions of any EAC issued, and EAO's analysis of potential residual and cumulative effects on fish and fish habitat, surface water,

groundwater and traditional land use activities related to fishing – as discussed in section 6.2.2 of this report – and the relative distance between the area of the currently proposed Project route and fishing locations identified by Haisla Nation, the proposed Project is expected to have minor impacts on Haisla Nation’s asserted Aboriginal right to fish.

Culturally important sites, trails and travelways

During the EA process, Haisla Nation representatives identified the following issues and concerns related to their culturally important sites:

- Potential effects on mature growth forest:
 - Requested avoidance of cedar trees considered sacred;
- Potential adverse effects on CMTs;
- Requested that any archaeological sites uncovered be carefully managed;
- Requested that a contingency plan for heritage resources be built into the EMP; and
- Requested to be involved in ongoing heritage-related field programs.

The Application identified the following trails and travelways, habitation sites, gathering places and sacred areas as being of particular cultural significance to the Haisla (Section 23, Tables 23-19 and 23-21):

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
Trails and Travelways	
52.5 km north of KP 613	Treasure historical grease trail, specific location unknown.
49.2 km north of KP 650	Copper Lower historical grease trail, specific location unknown.
37.8 km southeast of KP 666.3	Weewanie Hot Springs historical grease trail, specific location unknown.
7.8 km north of KP 661	Little Wedeene historical grease trail, specific location unknown.
41.4 km north of KP 666	Lakelse River historical grease trail, specific location unknown.
124 km northwest of KP 666.3	Skeena River Kalum historical grease trail, specific location unknown.
Habitation Sites	
63 km south of KP 621	North side of Kemano Bay
88.8 km southeast of KP 666.3	Kowesas River
6.2 km southwest of KP 666.3	No additional details provided
124 km northwest of KP 666.3	Skeena River Kalum
Gathering Places	
63 km south of KP 621	Barrie north (North side of Kemano Bay)
41.4 km north of KP 666	Lakelse River

Approximate Distance and Direction from the Proposed Project	Activity/Site Description
16.1 km northwest of KP 666.3	Bish Lake/Bish Creek area
Sacred Areas	
63.7 km south of KP 625	Kemano River
30.4 km southwest of KP 666.3	Hawkesbury Island East
39.5 km southeast of KP 666.3	Weewanie (Hot Springs)
124 km northwest of KP 666.3	Skeena River Kalum
2.6 km northwest of KP 213	Kerry Lake
170 km southeast of KP 257	Twin Sisters Mountain

The proposed Project location is 2.6 kilometres away from the nearest sacred area, and between 6.2 and 170 km away from culturally important sites identified by Haisla Nation in their asserted traditional territory. The TLU report did not identify any other specific ritual or burial sites within the proposed Project footprint. EAO is not aware of any information about the frequency or timing of Haisla members' current use of these sites in proximity of the proposed Project.

The Proponent's assessment of the effects of the proposed Project on heritage resources, including archaeological sites, is detailed in section 18 of the Application and EAO's analysis and conclusions described in section 8 of the assessment report. Several relevant indicators were used in the assessment, including transportation features (e.g. canoe skids, trails), habitation features (e.g. plank houses), CMTs, and others. The heritage resources LSA reflected the footprint of the proposed Project, including the land area that would be directly disturbed during construction and clean-up activities. This overlapped approximately 51 km of the Haisla Nation's asserted traditional territory. The heritage resources RSA included all Borden blocks, measuring 16 km x 16 km, crossed by the proposed Project.

The TLU report states that the Haisla view all areas within their territory, not just the sacred sites noted above, as being spiritual. The Proponent amended the proposed pipeline route to avoid specific culturally sensitive areas, as requested by the Haisla Nation and reflected in the "July Addendum to the Application for an Environmental Assessment Certificate" submitted by Coastal GasLink on July 16, 2014. The culturally important sites identified above are all located outside the heritage resources LSA.

In consideration of the information presented in the TLU, the Proponent's proposed mitigations and proposed conditions of any EAC issued, EAO's characterization of potential effects to Archaeology and Cultural Heritage Interests – as discussed in section 6.2.5 of this report – and the relative distance between the area of the proposed Project and culturally important sites, trails and travelways locations identified by Haisla

Nation, the proposed Project is expected to result in minor impacts on Haisla Nation's culturally important sites, trails and travelways.

Other matters of concern to the Haisla Nation

In addition to issues and concerns related to the Haisla Nation's Aboriginal Interests, Haisla representatives involved in the EA raised the following:

Issues Raised	EAO/Proponent Response
<p>Concerns about pipeline routing and request for clarity on why the route differs from other proposed Projects in the area</p>	<p>The Proponent's response to this concern is outlined in their Aboriginal Consultation Report, dated July 9, 2014.</p> <p>The Proponent has made changes to the proposed pipeline route as a result of Haisla's concerns about potential effects to specific culturally sensitive areas (included in the Proponent's July 2014 Addendum (Kitimat Valley Corridor Widening 2).</p> <p>EAO provided other pipeline teams in the office with information about this area for consideration in other EAs.</p> <p>During the EA, the Proponent provided a corridor for their pipeline based on the information available at the EA stage. If the proposed Project received an EA certificate, the Proponent would determine their final pipeline route during the detailed design stage which occurs during permitting.</p>
<p>Desire for long-term benefits over the life of the proposed Project, including:</p> <ul style="list-style-type: none"> • Training and employment opportunities, particularly for unemployed members • Contracting opportunities 	<p>The Proponent's response to this concern is outlined in their third Aboriginal Consultation Report, dated July 9, 2014.</p> <p>The Proponent has committed to ongoing discussion with Aboriginal Groups about Project-specific issues and about training and employment opportunities, and the Province is pursuing skills development and training opportunities with potentially impacted Aboriginal Groups, including Haisla.</p>
<p>Concern about the safety of the pipeline in</p>	<p>EAO has assessed the potential effects of the</p>

Issues Raised	EAO/Proponent Response
<p>challenging terrain, such as through the Kitimat Valley and along the Kitimat River. This includes the potential risk for avalanches, debris from blasting, and potential for spills (e.g., oil, solvent, other chemicals) during construction. Despite proposed mitigation measures, this risk will continue to exist.</p>	<p>proposed Project on the geophysical environment, including terrain integrity, and the potential risks of accidents or malfunctions in sections 5.2.2 and 10 of the assessment report, respectively.</p> <p>EAO acknowledges the Haisla Nation's ongoing concerns and position on this issue.</p>
<p>Request to be involved in development of Table of Conditions and EMP, to ensure site-specific impacts are addressed.</p>	<p>EAO circulated draft EAC conditions to the Haisla Nation on June 30, 2014 for review and comment.</p> <p>A proposed condition would require the Proponent to engage with relevant regulatory authorities, Aboriginal Groups, and landowners in the development of management plans. The plans will be implemented, and will continue to be updated during construction based on site-specific conditions.</p> <p>An additional proposed condition would require the Proponent to continue to implement the EAO-approved Aboriginal Consultation Plan for all phases of the Project, which includes continued information sharing and discussion of issues about site-specific mitigation and the development of specific environmental management plans listed in commitment 1, as well as any compensation plans developed to meet regulatory requirements.</p> <p>The Proponent would be required to continue engagement with Aboriginal Groups about construction planning and proposed Project design, including the schedule of construction activities.</p>
<p>Interest in being involved in future permitting processes and understanding the role of the EA in that context:</p>	<p>EAO will be working with the OGC to ensure continuity of consultation activities and a well-informed transition from the EA to permitting,</p>

Issues Raised	EAO/Proponent Response
<ul style="list-style-type: none"> ○ Need clarity from the OGC on how waste rock sites would be assessed and mitigation measures developed during permitting ○ Want to see continuity of consultation efforts and sharing of information between EAO and OGC 	<p>consistent with EAO and OGC's 2013 Memorandum of Understanding.</p> <p>The OGC has been involved in Project Working Group meetings, and all key correspondence from Aboriginal Groups to EAO regarding Project-related issues is communicated to the OGC.</p>
<p>Concern that the Rio Tinto Alcan (RTA) modernization project is not being assessed through the EA process and that any resulting increases in SO₂ or other adverse effects must be accounted for.</p> <p>Request that LNG Canada and other future projects be addressed in the assessment of atmospheric effects for the proposed Project.</p>	<p>The Proponent considered past, existing, and reasonably foreseeable projects in their assessment of cumulative effects for relevant VCs in the Application.</p> <p>The Province commissioned an independent assessment of the Kitimat Airshed in October 2013 to help inform regulatory and policy development for future industrial activity in the Kitimat area²³. The Kitimat Airshed Assessment looked at the cumulative effects of industrial air emissions, primarily sulphur and nitrogen oxides, and their potential impacts on both human health and the environment from the following: four proposed LNG facilities; Rio Tinto Alcan's existing smelter and planned modernization; a proposed oil refinery; BC Hydro gas turbine powered electrical generation facilities; and predicted increase to marine shipping in Douglas Channel. The Study shows that by adhering to world-leading emissions standards, nitrogen dioxide levels will be significantly reduced, allowing industrial expansion to be safely managed in the airshed.</p>
<p>Raised a question about effects of the proposed Project on the environment, including a request for clarity on how storms and extreme weather events were</p>	<p>EAO did look at the potential effects of adverse weather events on the proposed Project. Effects of the environment on the proposed Project was assessed in Part B</p>

²³ http://www.bcairquality.ca/airsheds/docs/ESSA-Kitimat-Airshed-Report_20140425.pdf

Issues Raised	EAO/Proponent Response
considered	section 10.3 of the Assessment Report, as well as a topic of discussion at EAO's working group meetings to discuss the potential effects of the proposed Project.
Lack of information of exact locations of pipeline and ancillary facilities, including access roads, makes it challenging to review effects on VCs and estimate necessary mitigation/compensation measures	Refer to section 2.1 of Part C for general concerns regarding ancillary facilities.
Concern about workforce-related pressures on housing in the area	<p>EAO has assessed the potential effects of the proposed Project on community utilities and services, including housing, in section 7 of the assessment report.</p> <p>EAO is proposing a condition that requires the Proponent to develop a Social and Economic Effects Management Plan (SEEMP). Additional detail on the Northwest Readiness Project can be found in section 6.2.5. of Part B of the Assessment Report.</p>
Concern about effects on transportation, including increased traffic	EAO has assessed the potential effects of the proposed Project on transportation infrastructure and services, including traffic, in section 7 of the assessment report.
Request that harvested timber be offered to affected Aboriginal groups	<p>The Proponent's response to this concern is outlined in section 23 of the Application (see Table 23-22).</p> <p>In the Proponent's Environmental Management Plan, they commit to transport merchantable timber to interested Aboriginal Groups, as well as conversion facilities or other end users. EAO is also proposing a condition requiring the development of a Timber Salvage Strategy.</p>
Impacts to OGMAs in the Kitimat Valley, compensation required and ability to provide input to the decision making process for these areas.	EAO has assessed the potential effects of the proposed Project on OGMA's and is proposing a condition to require the Proponent to identify replacement areas for all impacted OGMAs.

Issues Raised	EAO/Proponent Response
Potential effects on caribou	<p>EAO has assessed the potential effects of the proposed Project on wildlife and wildlife habitat, including caribou, in Part B section 5.5 of this report.</p> <p>No caribou herds that would be impacted by the project are within Haisla territory.</p> <p>EAO is proposing a condition that requires the Proponent to develop a Caribou Mitigation and Monitoring Plan.</p>
Haisla Nation has requested that the Proponent be required to take cultural awareness training while working within their traditional territory.	In consideration of this request, EAO has proposed a condition requiring the Proponent to provide Cultural Awareness Training to Project personnel.

8. Weighing Impacts on Aboriginal Interests with Other Interests

The Crown has a responsibility to weigh the potential impacts and accommodations on Aboriginal Interests with other societal interests, including the social, environmental and economic benefits of the proposed Project. This evaluation is an important component informing the Ministers' decision regarding the decision on whether to approve the proposed Project. In weighing the proposed Project benefits with the impacts on Aboriginal Interests, EAO holds the view that the following factors regarding the proposed Project are relevant to consider:

- Importance of the proposed Project to the local, regional, and Provincial economy;
- Nature of the proposed Project;
- Resources or values that may no longer be available for future generations; and
- Benefits of the proposed Project to affected Aboriginal communities.

EAO has summarized the estimated Project benefits during construction and operations in Section 2.5 of Part A of the Assessment Report.

8.1 Project Importance to the Provincial Economy

The B.C. government set its vision for an LNG industry in B.C. in September 2011 with the release of *Canada Starts Here: The BC Jobs Plan*. The government saw an opportunity for unprecedented economic growth and jobs for British Columbians and set a goal of three LNG facilities in operation by 2020.

According to the Ministry of Natural Gas Development, LNG-related projects have the potential to bring tens of billions of dollars in investment to British Columbia between 2014 and 2022. As many as 100,000 jobs to construct and operate these plants could be created, injecting more than \$1 trillion into our province. This will lead to long term jobs and contracting opportunities for Aboriginal Groups and communities.

Essential to the new LNG industry are corridors for proposed natural gas pipeline routes that provide natural gas to LNG facilities. Coastal GasLink is critical to the success of LNG Canada. Looking at overall revenue projections for the industry, it is reasonable to assume that even the first two trains of LNG Canada would produce substantial provincial tax revenue over a 30-year time horizon. The economic potential of the proposed projects is significant and could lead to large gains in provincial GDP and job growth.

8.2 Resources or Values That May No Longer Be Available for Future Generations

Traditional subsistence activities, such as hunting, fishing, gathering and trapping may be altered as a result of construction and operations activities of the proposed Project, which could manifest itself through changes to local harvesting locations, behavioural alteration or sensory disturbance of environmental resources, or through increased public access to traditional harvesting areas and increased pressure on environmental resources.

Although EAO believes there could be potential impacts to resources or values of importance to Aboriginal Groups, the majority of this disturbance and impact would be expected to be short to medium term, during and following construction, and would be reversible shortly after construction. EAO is of the view that the Proponent has made efforts to demonstrably avoid greenfield, high value areas for Aboriginal Groups, by following previously disturbed areas and by making several routing alterations in response to feedback from Aboriginal Groups.

8.3 Benefits of the Project to Affected Aboriginal Communities

For Aboriginal Groups, the proposed Project would have the potential to provide important economic opportunities, including capacity-building initiatives to support employment, contracting and business development. These initiatives include:

- Identifying economic opportunities tailored and specific to each Aboriginal Group under agreements with the Proponent that would remain confidential; and
- Developing an Aboriginal Participation Strategy that would identify and attempt to match Aboriginal Groups' contracting capacity with work packages for Aboriginal businesses and workers, and be adjusted as the proposed Project advances. The Application defines the proposed Aboriginal Participation Strategy in more detail.

The Province is also working with Aboriginal Groups potentially affected by the proposed Project to discuss to discuss initiatives that would provide financial, environmental and training benefits, as outlined in section 2.2.

The Proponent has provided and would continue to provide economic benefits and to support capacity-building opportunities specific to Aboriginal Groups prior to and during the construction phase of the Project. These opportunities include:

- Building Aboriginal business capacity through the use of directed procurement activities prior to and during the EA of the Project as well as during construction. To date these activities have included supporting the environmental and socio-economic baseline studies and engineering fieldwork. During construction the Proponent will continue to maximize Aboriginal opportunities through designated services to qualified Aboriginal businesses and individuals;
- The Proponent requests information about activities related to Aboriginal participation as part of its prime contractor procurement package. This information forms part of the overall evaluation in the selection of its prime contractor;
- Providing capacity funding to support meaningful participation in consultation activities with the Proponent and in the regulatory process;
- Providing capacity funding to optimize employment and contracting opportunities;
- Supporting workforce readiness programs with various post-secondary institutions including Aboriginal Skills and Employment Training organizations (ASET Holders) and local BC Colleges. These programs are focused on transferable skills and may include components like upgrading, life skills and safety certification;
- Supporting education legacy programs focused on long-term capacity building for Aboriginal and non-Aboriginal communities. Priorities of the programs are to enhance local education and respond to grassroots community needs. Breakfast clubs and youth resiliency programs are part of the legacy that the Proponent is exploring in collaboration with communities;
- Partnering with local non-profit organizations to enhance the quality of life in local communities. Activities include supporting emergency response organizations, environmental initiatives and Aboriginal language programs; and
- The Proponent has sought to commence negotiating Project Agreements (PAs) with Aboriginal Groups that are affected by the Project. The PA's provide for short term and long term financial benefits including consideration of education and training, contracting and employment and socio-economic partnerships.

PART D – CONCLUSIONS

Based on:

- information contained in the Application;
- the Proponent's and EAO's efforts at consultation with Aboriginal Groups, government agencies, including local governments, and the public, and its commitment to ongoing consultation;
- comments on the proposed Project made by Aboriginal Groups, and government agencies, including local governments, as members of EAO's Working Group, and the Proponent's and EAO's responses to these comments;
- comments on the proposed Project received during the public comment period, and the Proponent's responses to these comments;
- issues raised by Aboriginal Groups regarding potential impacts of the proposed Project and the Proponent's responses and best efforts to address these issues;
- the design of the proposed Project as specified in Schedule A of the EA Certificate to be implemented by the Proponent during the construction and operations of the proposed Project; and,
- mitigation measures identified as Conditions in Schedule B of the EA Certificate to be undertaken by the Proponent during the construction and operations of the proposed Project.

EAO is satisfied that:

- the EA process has adequately identified and assessed the potential adverse environmental, economic, social, heritage and health effects of the proposed Project, having regard to the conditions, the mitigation measures, and the compensation provisions set out in the Schedule to the EA certificate;
- consultation with Aboriginal Groups, government agencies, and the public has been carried out in good faith, that the process was appropriate and reasonable in the circumstances, and that efforts to consult with Aboriginal Groups will continue on an ongoing basis;
- issues identified by Aboriginal Groups, government agencies and the public, which were within the scope of the EA, were adequately and reasonably addressed by the Proponent during the review of the Application;

- practical means have been identified to prevent or reduce any potential negative environmental, social, economic, heritage or health impacts of the proposed Project such that no direct or indirect significant adverse effect is predicted or expected, with the exceptions of adverse effects to GHG emissions and caribou, which would be significant;
- the potential for adverse effects on the Aboriginal rights and Treaty 8 rights of Aboriginal Groups has been avoided, minimized or otherwise accommodated to an acceptable level; and
- the provincial Crown has fulfilled its obligations for consultation and accommodation to Aboriginal Groups relating to the issuance of an EA Certificate for the proposed Project.

The provincial Minister of Environment and the Minister of Natural Gas Development will consider this Assessment Report and other accompanying materials in making their decision on the issuance of an EA Certificate to the Proponent under the Act.

APPENDICES

APPENDIX 1 – WORKING GROUP LIST

Provincial Government

BC Oil and Gas Commission
Ministry of Agriculture and Lands
Ministry of Environment
Ministry of Environment – BC Parks
Ministry of Environment - Climate Action Secretariat
Ministry of Forest, Lands and Natural Resources Operations
Ministry of Jobs, Tourism and Skills Training
Ministry of Transport and Infrastructure
Northern Health Authority

Federal Government

Environment Canada
Department of Fisheries and Oceans Canada
Natural Resources Canada
Transport Canada

Aboriginal Groups

Carrier Sekani Tribal Council
Burns Lake Band
Dark House
Haisla Nation Council
Kitselas First Nation
Lheidli-T'enneh First Nation
Nadleh Whut'en First Nation
Nak'azdli Band
Nee-Tahi-Buhn Band
Office of the Wet'suwet'en Hereditary Chiefs
Saik'uz First Nation
Skin Tyee First Nation
Stellat'en First Nation
Wet'suwet'en First Nation

Yekooche First Nation

Treaty 8 First Nations

Blueberry River First Nations

Doig River First Nation

McLeod Lake Indian Band

Saulteau First Nations

Treaty 8 Tribal Association

West Moberly First Nations

Local Government

City of Fort St. John

City of Prince George

City of Terrace

District of Chetwynd

District of Fort St. James

District of Houston

District of Hudson's Hope

District of Kitimat

District of McKenzie

District of Tumbler Ridge

Peace River Regional District

Regional District of Bulkley Nechako

Regional District of Fraser-Fort George

Regional District of Kitimat-Stikine

Skeena-Queen Charlotte Regional District

Town of Smithers

Village of Burns Lake

Village of Fraser Lake

Village of Telkwa

APPENDIX 2 – WORKING GROUP ISSUE-RESPONSE TRACKING TABLE

http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_38021.html

APPENDIX 3 – PUBLIC COMMENT TRACKING TABLE

http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_392_38010.html

APPENDIX 4 - INFORMATION SOURCES PERTAINING TO PART C – ABORIGINAL CONSULTATION REPORT

In compiling this section of the report, EAO consulted the following sources of information:

- Treaty 8;
- Relevant case law and government policy;
- Information provided by Aboriginal Groups to EAO through personal communications, meetings, phone discussions, correspondence, and input and involvement in the EA, including comments received through EAO's Working Group discussions and document reviews;
- Information provided by Aboriginal Groups to the Proponent through personal communications, meetings, phone discussions, correspondence, and input and involvement in the EA;
- The proposed Project Application and supporting materials;
- The Proponent's Aboriginal Consultation Reports;
- Issues Tracking Tables capturing Aboriginal Interests, concerns and responses from the Proponent and EAO (a final version is appended to this report in Appendix 2. Information compiled in past EAs, as presented in documents such as Environmental Assessment Certificate Applications, Issues Tracking Tables, and Assessment Reports that have been posted to EAO's electronic Project Information Centre or confirmed with Aboriginal Groups;
- Available relevant information from within the provincial government, such as the Ministry of Aboriginal Relations and Reconciliation, the Ministry of Natural Gas Development and the OGC;
- Available relevant information from the BC Treaty Commission website, including Statement of Intent maps, status (if applicable) within the treaty negotiation process, and other information on Aboriginal communities in BC;
- Available individual websites of Aboriginal communities, tribal councils and associations; and
- Available ethnographic information from the Ministry of Justice, Aboriginal Research Division (Confidential).

Proposed Coastal GasLink Project
List of Working Group Members

Provincial Government

BC Oil and Gas Commission
Ministry of Agriculture and Lands
Ministry of Environment
Ministry of Environment – BC Parks
Ministry of Environment - Climate Action Secretariat
Ministry of Forest, Lands and Natural Resources Operations
Ministry of Jobs, Tourism and Skills Training
Ministry of Transport and Infrastructure
Northern Health Authority

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Saik'uz First Nation
Skin Tyee First Nation
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Wet'suwet'en First Nation
Yekooche First Nation

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District of Fort St. James
District of Houston
District of Hudson's Hope
District of Kitimat
District of McKenzie
District of Tumbler Ridge
Peace River Regional District
Regional District of Bulkley Nechako
Regional District of Fraser-Fort George
Regional District of Kitimat-Stikine
Skeena-Queen Charlotte Regional District
Town of Smithers
Village of Burns Lake
Village of Fraser Lake
Village of Telkwa

Coastal GasLink Project: Working Group Comment Tracking Table

EAO has reviewed and considered these comments and responses in preparing the referral package for the Minister's response.

Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2												
1	Application Section 8.2.3	Table 8-2	Vegetation	24-Mar-14	George Halliday	FLNRO		<p>The "Forest Region" section identifies the "Northern Interior Forest Region". This is an outdated term. There are now 3 Forest Regions in the North Area. They are roughly equivalent in boundaries to the 3 MOE Regions but the name of the Peace Region (MOE) is different (i.e. Northeast Region). The table should read, under "Forest Region": Northeast Region; Omineca Region; Skeena Region</p> <p>The Forest Districts designations will match the Forest Regions as identified currently in the table (i.e. the North East region matches the Peace Region and contains the Peace Forest District etc.).</p>	<p>Thank you for the information. The table below outlines the corrected information (in red) and a citation for the new information is included below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Forest Regions</th> <th style="text-align: left;">MOE Regions</th> <th style="text-align: left;">Forest Districts</th> </tr> </thead> <tbody> <tr> <td>Northeast Region (KP 0.0 to KP 138.9)</td> <td>Peace Region (KP 0.0 to KP 138.9)</td> <td>Peace Forest District (KP 0.0 to KP 138.9)</td> </tr> <tr> <td>Omineca Region (KP 138.9 to KP 400.1)</td> <td>Omineca Region (KP 138.9 to KP 400.1)</td> <td>Prince George Forest District (KP 138.9 to KP 296.7)</td> </tr> <tr> <td>Skeena Region (KP 400.1 to KP 664.8)</td> <td>Skeena Region (KP 400.1 to KP 664.8)</td> <td>Vanderhoof Forest District (KP 296.7 to KP 400.1) Nadina Forest District (KP 400.1 to KP 591.8 and KP 601.4 to KP 614.2) Kalum Forest District (KP 591.8 to KP 601.4 and KP 614.2 to KP 664.8)</td> </tr> </tbody> </table>	Forest Regions	MOE Regions	Forest Districts	Northeast Region (KP 0.0 to KP 138.9)	Peace Region (KP 0.0 to KP 138.9)	Peace Forest District (KP 0.0 to KP 138.9)	Omineca Region (KP 138.9 to KP 400.1)	Omineca Region (KP 138.9 to KP 400.1)	Prince George Forest District (KP 138.9 to KP 296.7)	Skeena Region (KP 400.1 to KP 664.8)	Skeena Region (KP 400.1 to KP 664.8)	Vanderhoof Forest District (KP 296.7 to KP 400.1) Nadina Forest District (KP 400.1 to KP 591.8 and KP 601.4 to KP 614.2) Kalum Forest District (KP 591.8 to KP 601.4 and KP 614.2 to KP 664.8)	<p>Good response. One further item that was not communicated previously is that all former Forest Districts are now called "Natural Resource Districts". Also the name of the Kalum District has changed to "Coast Mountains Natural Resource Districts". This info is not critical but adoption of this info in the Application would provide a complete and current product in this area.</p>	<p>The information provided by the reviewer has been noted. Changes to the Application at this stage of the Application Review are not anticipated.</p>
Forest Regions	MOE Regions	Forest Districts																					
Northeast Region (KP 0.0 to KP 138.9)	Peace Region (KP 0.0 to KP 138.9)	Peace Forest District (KP 0.0 to KP 138.9)																					
Omineca Region (KP 138.9 to KP 400.1)	Omineca Region (KP 138.9 to KP 400.1)	Prince George Forest District (KP 138.9 to KP 296.7)																					
Skeena Region (KP 400.1 to KP 664.8)	Skeena Region (KP 400.1 to KP 664.8)	Vanderhoof Forest District (KP 296.7 to KP 400.1) Nadina Forest District (KP 400.1 to KP 591.8 and KP 601.4 to KP 614.2) Kalum Forest District (KP 591.8 to KP 601.4 and KP 614.2 to KP 664.8)																					
2	Application Section 14.4.3	pg 14-72	Land Use	24-Mar-14	George Halliday	FLNRO		<p>The proponent intends to communicate info re Fibre Use to OGC. While OGC is the permitting agency and probably needs this info, any concerns regarding fibre use from licensees or the general public will be directed to the District Offices. It is important that the proponent also communicates merchantable and residual fibre use to the District Office.</p>	<p>Page 14-72, Lines 6-9 states, "Coastal GasLink is developing a timber plan to confirm the appropriate destination for merchantable timber. Coastal GasLink will continue to work with appropriate regulatory authorities in the development of our clearing and timber salvage planning. The efforts have involved understanding local fibre supply and appropriate facilities." Coastal GasLink also commits to continue dialogue with appropriate regulatory authorities in the development of our clearing and timber salvage planning, and the resulting merchantable and residual fibre use.</p>	<p>There is a community concern, especially in the Northwest, regarding fibre utilization along the right of way. While not a requirement, it would be helpful if the proponent informed the District Office of the portion of their timber plan that applied to that District. Related to this matter is the estimated statistics given in the first two paragraphs of page 3-107 of the Social Technical Report. It would be very helpful if the proponent explained volume numbers to be harvested by TSA and showed how they were derived. The best procedure would be to develop TSA #s by THLB and non-THLB. This would make the numbers understandable and assist Districts in addressing volume concerns directed to them.</p>	<p>Coastal GasLink submitted a technical memo to EAO on June 24 2014 with additional information about estimated volume of timber harvesting associated with the Project based on current understanding of timber harvest. Coastal Gas Link notes that this information will be updated as construction planning and detailed engineering design continue. Coastal GasLink also commits to continue dialogue with appropriate regulatory authorities and comply with all regulatory requirements in the development of clearing and timber salvage plans, and the resulting merchantable and residual fibre use.</p>												
3	Application Section 14.4.3	pg 14-76	Land Use	24-Mar-14	George Halliday	FLNRO		<p>The proponent refers to First Nation Woodland Licences (FNWLs) granting exclusive rights to harvest timber on private or reserve land. Rather FNWLs grant exclusive rights to harvest on Crown Land within the licence area (section 43.55(c) of the Forest Act). Anyone holding private land generally has exclusive rights to harvest there anyway.</p>	<p>Acknowledged</p>	<p>Thanks for the acknowledgement. There is a need to change the wording to reflect this on p. 14-76 of the application and also 3-113 of the Social Technical Report.</p>	<p>The information provided by the reviewer has been noted. Changes to the Application at this stage of the Application Review are not anticipated.</p>												
4	Application Section 14.4.5	pg 14-81	Land & Resource Use /Scenic Viewing KI	24-Mar-14	Luc Roberge	FLNRO		<p>Request for Additional Information: As previously noted in my review of the dAIR, although this section describes the interaction between the proposed pipeline and visual quality in tabular format, it would be beneficial to also include a map showing the overlaps between the two, similar to other maps presented in the Application. Such a map would make the interactions between the two much more obvious for the public/reader.</p>	<p>Coastal GasLink has provided mapping that shows the overlap between the Retention and Partial Retention VQOs in the Project corridor to the EAO to make available to the Working Group.</p>	<p>Any mitigation measures that help in re-establishing any kind of vegetation and break up the straight boundaries of the pipeline ROW clearing would be beneficial to visual quality. I am encouraged to see that the proponent is open to reviewing the Visual Landscape Design manual when planning the ROW clearing. I want to emphasize again that these design measures would not be necessary for the entire pipeline corridor but only for the areas with a Retention or Partial Retention VQO.</p>													

Coastal GasLink Project: Working Group Comment Tracking Table

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5	Application Section 14.5.1	pg 14-104	Land & Resource Use /Scenic Viewing KI	24-Mar-14	Luc Roberge	FLNRO		<p>Issue: The strategies listed in Table 14-30 to mitigate visual impact are a good start but one of the key issues with linear development is the permanent impact created by the right-of-way clearing. Re-vegetating disturbed areas with native plants and/or allowing low growing grasses and shrubs to re-populate these areas help in mitigating the contrast in texture and colour. However, the straight boundaries of the clearings between logged and unlogged areas remain. The best way to address this kind of impact is to design the clearings to avoid straight boundaries and some guidance can be found in our Visual Landscape Design Manual from p.99 to 1004. http://www.for.gov.bc.ca/hfd/pubs/Docs/Mr/Rec/Rec023-7.pdf</p> <p>I suggest design be added as a mitigation strategy for the ROW clearing, especially in areas with a Retention and Partial Retention VQO.</p>	<p>The proposed pipeline route was aligned to avoid community viewsheds and parallel existing linear disturbance, where practical. The linear nature of a pipeline project necessitates clearing that is linear in nature to allow sufficient workspace to meet worker safety requirements, while minimizing environmental effects. Coastal GasLink will review the Visual Landscape Design Manual and consider the use of design concepts, where practical.</p> <p>Table 10-6 in Section 10 (Wildlife and Wildlife Habitat) of the Application includes mitigation to encourage natural recovery and re-establishment of native vegetation species as practical.</p> <p>During operations, Coastal Gas link will maintain the RoW to facilitate the required surveillance and monitoring of the pipeline. Vegetation management programs will include managing brush over and adjacent to the pipelines, while allowing brush to re-establish along the edges of the area cleared for construction purposes. It is expected this re-growth will create a more gradual transition toward the edge of the RoW.</p>	Any mitigation measures that help in re-establishing any kind of vegetation and break up the straight boundaries of the pipeline ROW clearing would be beneficial to visual quality. I am encouraged to see that the proponent is open to reviewing the Visual Landscape Design manual when planning the ROW clearing. I want to emphasize again that these design measures would not be necessary for the entire pipeline corridor but only for the areas with a Retention or Partial Retention VQO.	
6	Application Section 14.5.3	pg 14-106	Land & Resource Use /Scenic Viewing KI	24-Mar-14	Luc Roberge	FLNRO		<p>Point of Clarification/Issue: In the previous version of the Application, there was a discrepancy between what was presented in Table 14-31 and the text that followed dealing with "Alteration of visually sensitive viewscapes". The table indicated the Duration of the Potential Residual Effects as "Short-term" while the text correctly described the duration as "Long-term". In the current version, both Table 14-31 and the text indicate the duration as "short-term", which is not consistent with how we manage visual values and with results of public perception studies done in this province. With the life of the project being 25 years or longer, the duration is more like "long-term", mostly due to the pipeline ROW clearing (thus the importance of designing the ROW to avoid straight boundaries in the most visually sensitive areas). Like clearcut openings, the achievement of VQOs has to be achieved between the time an opening is created and when mature trees have re-established themselves on the landscape, which could take an additional 20-25 years after the pipeline decommissioning. The table and text need to be adjusted accordingly.</p>	Coastal GasLink would like to clarify that the duration of the residual adverse effect, alteration of visually sensitive viewscapes, is short term, however, the text on page 14-130, lines 35-36 should state: Duration: short-term - the event leading to the alteration of viewscapes is limited to the construction of the proposed Project. This change in text does not change the conclusions of the assessment.	Satisfied with the clarification.	
7	Application Section 14.5.4	pg 14-134	Land & Resource Use /Scenic Viewing KI	24-Mar-14	Luc Roberge	FLNRO		<p>Point of Clarification/Issue: Table 14-32 and the text that follows on p.14-139 indicate that the potential residual adverse effect on viewscapes would not be significant. This may be true in general term for the entire length of the pipeline due to being mostly in non-visually sensitive areas but would not be true for the sections crossing over Retention and Partial Retention VQO areas. The table and text should reflect this.</p>	As outlined in Section 14.5.4, Page 14-131, a residual adverse effect is considered significant if it is predicted to "severely alter existing land use or activities that cannot be readily replaced elsewhere on the landscape, has short to medium reversibility, is regional, provincial or national in extent and cannot be technically or economically mitigated; or, if it is predicted to severely alter existing land use or activities that cannot be readily replaced elsewhere on the landscape, has long-term or permanent reversibility, occurs in any spatial boundary and cannot be technically or economically mitigated." The potential residual adverse effect of "alteration of visually sensitive viewscapes" was not determined to meet this definition of significance.	No further comment except to say that in those visually sensitive areas with restrictive VQOs, the visual impact is going to be significant, thus the need to implement mitigation measures to reduce this impact.	

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8	Application Section 14.5.6	pg 14-152	Land & Resource Use /Scenic Viewing K1	24-Mar-14	Luc Roberge	FLNRO		Point of Clarification/Issue: Table 14-35 and the text that follows indicate a "short-term" duration for Residual Cumulative Effects on alteration of visually sensitive views. This may be true during the construction phase and in non-visually sensitive areas but not for the resulting ROW clearing. As explained above, the cumulative residual visual effects also have to be considered long-term, thus the need to design the ROW clearing according to accepted design standards for those sections falling in VQO areas, especially Retention and Partial Retention.	The definition of duration, as stated in Table 3-5, page 3-22 is the "period of the event causing the effect". Table 3-5 defines a short-term duration effect as an "event that occurs during the construction phase or is completed within any one year during the operations phase." Table 14-35 (page 14-152) of the Application identifies that "residual cumulative effects on alteration of visually sensitive views" will be short-term in duration as the event causing the physical disturbance will occur during the construction phase. However, the reversibility of the effect will be long-term, as the effect extends throughout the operations phase.	No further comment	
9	Application Section 14.5.6	pg 14-152	Land & Resource Use /Scenic Viewing K1	24-Mar-14	Luc Roberge	FLNRO		Comments #1 above [Issue Tracking #4-8] also applies to Table 14-36 (p. 14-163): The determination of significance of the residual cumulative effect needs to take into account the long-term impact of the ROW clearing. Again, to say that it is "not significant" may be accurate for the proposed pipeline route crossing non-visually sensitive areas but would be more significant when crossing VQO areas. This needs to be recognized in the table and text.	The threshold for significance for the valued component, Current Use of Land and Resources is: A residual adverse effect is considered significant if it is predicted to: severely alter existing land use or activities that cannot be readily replaced elsewhere on the landscape; has short to medium reversibility; is regional, provincial or national in extent and cannot be technically or economically mitigated; or it is predicted to severely alter existing land use or activities that cannot be readily replaced elsewhere on the landscape, has long-term or permanent reversibility, occurs in any spatial boundary and cannot be technically or economically mitigated (as stated on page 14-162 of the Application). The residual cumulative effects on alteration of visually sensitive views is considered not significant, because it does not exceed this threshold for significance.	Based on the broad, qualitative definition of threshold for significance, I can see how the "not significant" rating was arrived at. However, the life of the project is proposed to be 30 years. The proposed route will cross highly sensitive areas with restrictive VQOs and if the proponent does not implement design strategies, the visual impact in those localized areas will be significant from the short to long-term. At the very least, this should be acknowledged on p.14-165 (line 15-21).	Coastal GasLink applied the methods for effects assessment outlined in the AIR issued by EAO in May 2013. Through the application of these methods, it was determined that there will be residual adverse effects on visually sensitive landscapes (see page 14-129 to 14-130), however the effects were determined to be not significant (see page 14-139) because they do not exceed the threshold for significance. The application also describes cumulative residual adverse effects on visually sensitive landscapes (see page 14-160 to 14-162), and with the application of the threshold of significance, this effect was determined to be not significant (page 14-165).
10	Application Section 14.5.6	pg 14-163	Land & Resource Use /Scenic Viewing K1	24-Mar-14	Luc Roberge	FLNRO		Point of Clarification: As a "Recommended Follow-up and Monitoring" item, add to Table 14-36 the following: "Monitor and assess visual changes and VQO achievement by following FLNRO's FREP Visual Quality Effectiveness Protocol (see link below). This would take care of the current bullet on having follow-up discussions with FLNRO on visual changes. http://www.for.gov.bc.ca/hfp/values/visual/Effectiveness/index.htm	Coastal GasLink will review the FREP Visual Quality Effectiveness Protocol to inform construction planning and detailed engineering design.	Satisfied with the response	

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13	Application Section 5	N/A	N/A	17-Mar-14	Marten Geertsema	FLNRO/EAO		<p>Terrain maps The terrain map (Volume 22B) is not presented in a way that allows a user to gain much insight. What is provided are surficial geology polygons, often many hundreds of hectares in size, with, I presume, the dominant surficial unit. As presented, this base layer serves very little function for routing decisions. What would be of more use is if this mapping was done to provincial RIC standards. Traditionally terrain maps in the province provide much more detail. The detail includes geomorphological processes, slope, texture, underlying materials, surface expression, and complexes of other materials. A good terrain map, with the above attributes, forms the basis for a derivative slope stability (or geohazards) map. For example a good terrain map might indicate the presence of glacial lake sediments under till – often a recipe for large landslides. The proponents map would simply indicate surface till (morainal material) - not necessarily a worrisome material. Similarly an indication of modifying processes such as slow mass movement, or gullies imparts important stability information. This is also not included. Moreover, terrain polygons, especially in mountainous terrain, should be on average about 10 ha in size. Many of the polygons on the map appear to be hundreds of hectares in size – perhaps some two orders of magnitude too large. Perhaps smaller polygons have been amalgamated for presentation purposes – nonetheless it makes a routing review difficult. The terrain map provided by the proponent, as presented, is not a useful product. To be useful, the map should include the missing items listed above and the polygons should be much smaller, especially in mountainous terrain.</p>	Coastal GasLink provided the requested mapping to FLNRO.	Response is satisfactory	
14	Application Section 5	N/A	N/A	17-Mar-14	Marten Geertsema	FLNRO/EAO		<p>Geohazard Maps Geohazard maps have not been submitted with the application. This missing map layer is essential for completing a geohazards review. If geohazards maps can be added to the application, at least in the mountains, these maps should not be restricted to a 2 km corridor, but rather to the height of land. We have documented recent landslides in BC that have travelled more than 4 km.</p>	Coastal GasLink provided the requested mapping to EAO to share with Working Group if requested.	Response is satisfactory	
	Application Section 5	N/A	N/A	17-Mar-14	Marten Geertsema	FLNRO		<p>Recommendations• Submit LiDAR (xyz), polygon shapefiles, and imagery to FLNRO for review. Without this there can be no meaningful EA review of terrain and geohazards. There are sharing protocols in place for proprietary data. • Submit a geohazards map, mindful of permafrost and recent deglaciated surfaces (among other standard stability factors). The map should go to height of land in mountainous terrain. • Resubmit the terrain map, with smaller polygons and include the terrain attributes expressed in RIC standards, and covered in this review. • Ideally some subsurface strength parameters will be provided for the marine estuarine portion to guide routing decisions. • Update sections 5 and 22 to include mountain permafrost and recently deglaciated terrain hazards.</p>		Response is satisfactory	
15	Application Section 6.4.3		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		BC's 2011 emissions were 62.2 Mt CO2 equivalent, not 59.1 Mt. Reporting this accurately effects the percent contribution of the proposed project as compared to 2011 levels, which is used throughout the report. http://env.gov.bc.ca/cas/mitigation/ghg_inventory/	At the time of the assessment and preparation of the jurisdiction profile, BC had not publicly released the 2011 provincial totals. Therefore, provincial totals (59.1Mt CO2e) cited in the National Inventory Report were used. This results in more conservative predicted percentages in the assessment because the provincial total in 2011 (59.1 Mt CO2e) is less than the provincial total in 2012 (62.2Mt CO2e).	Resolved and should be adjusted in future documentation.	
16	Application Section 6.7.2		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The amount of GHG emissions from the construction phase as well as the estimated annual emissions from pipeline operations should be reported here in Mt CO2 equivalent, not just as a percentage of provincial, national, and global levels. Should read "Estimated annual emissions from operations are 3.5 Mt of CO2e , which are 6% of BC's 2011 emissions, 0.5% of Canada's 2011 emissions and 0.012% of global emissions. Estimated emissions from the construction phase are 3.5 Mt of CO2e, but will be spread out over three to four years."	Coastal GasLink acknowledges that Section 6.7.2 of the Application could read, the estimated annual emissions from operations are 3,517kt of CO2e , which are 6% of BC's 2011 emissions, 0.5% of Canada's 2011 emissions and 0.012% of global emissions. Estimated emissions from the construction phase are 2,419 kt of CO2e, but are expected to span a three to four year construction period.	Resolved and should be adjusted in future documentation.	

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17	Application Section 6.7.2		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The statement "estimated annual construction.....GHG emissions.....will be smaller (23% of the estimated annual operations....." is incorrect. The emissions from the construction phase are equal to the annual operation emissions, but, these emissions will be spread over 3 years or more. Assuming 3 years and equal emissions per year from construction activities (no way of knowing this), is 1.2 Mt per year, or approximately 2% of BC's 2011 emissions. The whole section should be reworked to make clear that for the first 3 years of the project, it will be contributing 2% to BC's emission levels as compared to 2011 reporting, and once in operation, will contribute 6% per year.	Coastal GasLink clarifies that if GHG emissions during construction are assumed to be evenly distributed over three years of construction, and then compared to estimated GHG emissions during operations, one year of construction emissions is comparable to approximately 23% of one year of emissions during operations.	FLNRO estimates one year of construction emissions is comparable to 34% of one year of operation emissions.	The information provided by the reviewer has been noted. These emission factors will be considered in the development of the GHG Emissions Management Plan.	
18	Application Section 6.7.2		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		Emissions from land clearing represent over 90% of the construction phase emissions, or 3.3 Mt. Emissions from Net Deforestation in 2011 for BC were 3.1 Mt. Although short term, this is a significant impact in deforestation and appropriate mitigation strategies should be reported in this section. The whole section is very weak on any potential mitigation of GHG emissions. http://env.gov.bc.ca/cas/mitigation/ghg_inventory/	Coastal GasLink estimates that approximately 90% of construction GHG emissions result from land clearing. However, all land clearing and residual emissions quantified in this assessment (with the use of methods used in previously accepted regulatory applications) should not be defined as deforestation as per BC MOE and NRCan definitions, because: - the BC MoE definition for deforestation is "direct human-induced conversion of forested land to non-forested land. Harvesting, when followed by regeneration, is not deforestation". Regeneration is then further defined to be either planting, natural or advanced. (BC GHG Inventory Report 2010) - the NRCan definition for deforestation is "Deforestation is the permanent removal of forest cover from an area, and the conversion of the previously forested land to other uses. In Canada, clear-cutting and other harvesting practices are used as part of sustainable forest management to provide timber for producing paper and wood products. This is not considered deforestation however, because the area is replanted or allowed to regenerate naturally, renewing the forest cover." (https://www.nrcan.gc.ca/forests/inventory/13419) This assessment has considered a temporary clearing of a 100m RoW, however, only 10m of this RoW will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. This 10m width over the permanent RoW, as well as the land clearing required for the construction of meter and compressor stations, can be defined as deforestation based on the definitions presented above. Table 7-2 of the GHG TDR presents the data for the total emissions related to biomass open burning and land clearing residuals. Applying the definition of deforestation above, 13% of the emissions due to biomass open burning and land clearing residuals can be considered deforestation, or approximately 12% of the total construction phase emissions. Coastal GasLink will implement the following mitigation: 1) Timber will be salvaged where practical and either sold or donated. 2) Provincially accepted guidelines will be followed in the event of burning biomass to maximize the combustion efficiency. 3) Coastal GasLink has committed to maintain clean-up and reclamation	Coastal GasLink estimates that approximately 90% of construction GHG emissions result from land clearing. However, all land clearing and residual emissions quantified in this assessment (with the use of methods used in previously accepted regulatory applications) should not be defined as deforestation as per BC MOE and NRCan definitions, because: - the BC MoE definition for deforestation is "direct human-induced conversion of forested land to non-forested land. Harvesting, when followed by regeneration, is not deforestation". Regeneration is then further defined to be either planting, natural or advanced. (BC GHG Inventory Report 2010) - the NRCan definition for deforestation is "Deforestation is the permanent removal of forest cover from an area, and the conversion of the previously forested land to other uses. In Canada, clear-cutting and other harvesting practices are used as part of sustainable forest management to provide timber for producing paper and wood products. This is not considered deforestation however, because the area is replanted or allowed to regenerate naturally, renewing the forest cover." (https://www.nrcan.gc.ca/forests/inventory/13419) This assessment has considered a temporary clearing of a 100m RoW, however, only 10m of this RoW will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. This 10m width over the permanent RoW, as well as the land clearing required for the construction of meter and compressor stations, can be defined as deforestation based on the definitions presented above. Table 7-2 of the GHG TDR presents the data for the total emissions related to biomass open burning and land clearing residuals. Applying the definition of deforestation above, 13% of the emissions due to biomass open burning and land clearing residuals can be considered deforestation, or approximately 12% of the total construction phase emissions. Coastal GasLink will implement the following mitigation: 1) Timber will be salvaged where practical and either sold or donated. 2) Provincially accepted guidelines will be followed in the event of burning biomass to maximize the combustion efficiency. 3) Coastal GasLink has committed to maintain clean-up and reclamation	Assuming the area of land to be cleared referenced in Section C5 of the GHG TDR is 100% harvested, the emissions from harvesting are still 3.3 Mt of CO2e based in FLNRO calculations and data. According to the categories of magnitude of GHG emissions in Section 6.7.1, these emissions are of Medium magnitude. Regardless, project (operation) emissions are of medium magnitude and according to the CEAA policy and guidance on Incorporating Climate Change Considerations in Environmental Assessment requires a GHG Management Plan (which includes addressing GHG emissions through established jurisdictional policies or regulations, or clarify how project design takes GHG considerations into account, clarify monitoring, follow-up and adaptive management plans, link GHG management plans with parallel pollution reduction opportunities, and confirm consistency with jurisdictional requirements and initiatives).	Coastal GasLink will prepare a GHG Emissions Management Plan prior to construction of the Project.

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									<p>procedures which will be initiated immediately following construction.</p> <p>4) In agricultural soils, compaction in subsoils will be relieved and the topsoil replaced. All disturbed upland areas will be re-seeded with an appropriate seed mix and specific land reclamation measures will be applied, as appropriate.</p> <p>5) At compressor and meter stations, Coastal GasLink will consider alternatives to increase the capacity of surrounding carbon sinks.</p>		
19	Application Section 6.7.3		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		<p>Table 6-25 reports the magnitude of construction emissions as low, which according to their definitions on Page 6-43 means "no measurable change in provincial, national, and global GHG emissions". The 3.5 Mt CO₂e from the construction phase are measurable, and will contribute potentially 2% per year compared to provincial 2011 emissions during the construction phase if spread out equally. Considering 90% of the construction emissions come from deforestation, and deforestation is reported in BC's GHG Inventory, and the emissions from deforestation for the proposed project are equivalent for the total amount of Net Deforestation for the province in 2011, the project emissions from construction should be reported at least as "Medium" in magnitude, not "Low" in magnitude in Table 6-25.</p>	<p>Coastal GasLink acknowledges that provincial and national inventories include deforestation activities. In applying the definition of deforestation by BC MOE and NRCAN, approximately 12% of construction phase emissions are the result of deforestation. Therefore a comparison between construction phase deforestation emissions and 2011 provincial and national totals can be made.</p> <p>Section 6.7.1 defines the categories of magnitude for the assessment of GHG emissions. Based on the defined categories, the magnitude of GHG emissions has been re-assessed to be of medium magnitude.</p> <p>Coastal GasLink clarifies that if deforestation emissions are assumed to be evenly distributed over the 3 years of construction (291,353 tonnes CO₂e over 3 year), when compared to 2011 Provincial and National Inventories, annual deforestation emissions will increase the inventory totals by 0.16% and 0.014%, respectively. If compared to only the net deforestation totals within the 2011 Provincial and National Inventories, the Project's contribution to deforestation totals is 3.1% and 0.5%, respectively.</p>	<p>As in the above comment, emissions of Medium magnitude require the project to have a GHG management plan. Harvesting, whether deforested or left to naturally regenerate, still contributes significant GHG emissions. The FLNRO estimates of 3.3 Mt CO₂e from the area to be cleared provided by CGL was calculated based on 100% harvesting. Deforestation was used in the original comment in order to make a comparison to currently available information from the BC GHG Inventory Report. Harvesting for the project will still result in 1.1 Mt CO₂e per year which is 2% of the Province's 2011 total GHG emissions.</p>	<p>Coastal GasLink will prepare a GHG Emissions Management Plan prior to construction of the Project.</p>

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
20	Application Section 6.7.3		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		<p>The statement "Construction emissions are not included in provincial, national, or global emission inventories, so the change is not measurable. Therefore a comparison of the magnitude of construction emissions for the proposed Project could not be completed." is inaccurate. 90% of the construction emissions are from deforestation, and deforestation is reported in BC's Greenhouse Gas Inventory. http://env.gov.bc.ca/cas/mitigation/ghg_inventory/. A comparison of the magnitude of construction emissions from deforestation should therefore be compared to the provincial deforestation levels. From my calculations based on the information provided in Appendix 2F, this project will contribute 3.3 Mt of CO2 equivalent emissions from deforestation as compared to 3.1 Mt as reported in 2011 for the province's Net Deforestation. Given that the construction will likely take 3 years to complete, this is 1.1 Mt per year if spread evenly, or 37% of BC's 2011 emissions from Net Deforestation.</p>	<p>Coastal GasLink acknowledges that provincial and national inventories include deforestation activities. In applying the definition of deforestation by BC MOE and NRCan, approximately 12% of construction phase emissions are the result of deforestation. Therefore a comparison between construction phase deforestation emissions and 2011 provincial and national totals can be made.</p> <p>Section 6.7.1 defines the categories of magnitude for the assessment of GHG emissions. Based on the defined categories, the magnitude of GHG emissions has been re-assessed to be of medium magnitude.</p> <p>Coastal GasLink clarifies that if deforestation emissions are assumed to be evenly distributed over the 3 years of construction (291,353 tonnes CO2e over 3 year), when compared to 2011 Provincial and National Inventories, annual deforestation emissions will increase the inventory totals by 0.16% and 0.014%, respectively. If compared to only the net deforestation totals within the 2011 Provincial and National Inventories, the Project's contribution to deforestation totals is 3.1% and 0.5%, respectively.</p>	Same as Issue Tracking #19 comment.	Coastal GasLink will prepare a GHG Emissions Management Plan prior to construction of the Project.
21	Application Section 6.7.3		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		<p>Lost CO2 sinks from the removal of vegetation for the construction phase will persist for longer than the 30 year time frame for operations. The permanent ROW will be 32 m as stated in Section 1, with additional permanent removal of vegetation for compressor and meter stations and some access roads. If replanted in 30 years, it will take additional time for that area to regenerate to its natural state, and that time could be considerable if in areas of mature or old growth forest. Even in the removal of vegetation for the construction ROW that will be left to naturally regenerate, the process could take longer than 30 years. Mitigation options for more rapid afforestation should be discussed. According to BC's Zero Net Deforestation Act, deforestation activity must be met with appropriate afforestation activity. https://www.for.gov.bc.ca/hfp/znd/index.htm</p>	<p>Coastal GasLink considered a temporary clearing of a 100m RoW, however, only 10m of this RoW will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. This 10m width over the permanent RoW, as well as the land clearing required for the construction of meter and compressor stations, can be defined as deforestation based on the definitions presented above.</p> <p>Table 7-2 of the GHG TDR presents the data for the total emissions related to biomass open burning and land clearing residuals. Applying the definition of deforestation above, 13% of the emissions due to biomass open burning and land clearing residuals can be considered deforestation, or approximately 12% of the total construction phase emissions.</p> <p>Coastal GasLink will implement the following mitigation:</p> <ol style="list-style-type: none"> 1) Timber will be salvaged where practical and either sold or donated. 2) Provincially accepted guidelines will be followed in the event of burning biomass to maximize the combustion efficiency. 3) Coastal GasLink has committed to maintain clean-up and reclamation procedures which will be initiated immediately following construction. 4) In agricultural soils, compaction in subsoils will be relieved and the topsoil replaced. All disturbed upland areas will be re-seeded with an appropriate seed mix and specific land reclamation measures will be applied, as appropriate. 5) At compressor and meter stations, Coastal GasLink will consider alternatives to increase the capacity of surrounding carbon sinks. 	Based in the area of land to be cleared from the pipeline ROW presented in the GHG TDR, assuming only 10% of that land is deforested, and the area for the compressor and meter stations, is 933 ha. This amount of deforestation should consider matching an appropriate amount of afforestation (human-induced activities such as planting trees) in other areas, to be in accordance with the province's zero net deforestation act.	The information provided by the reviewer has been noted. These emission factors will be considered in the development of the GHG Emissions Management Plan.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
22	Application Section 6.7.4		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The statement: "Operations of the proposed Project will realize a potential annual contribution to global GHG emissions of 0.012% with the construction phase contributing far less (23% of annual emissions)" is incorrect. The construction phase will contribute the same amount of GHG emissions in 3 years as the operations phase will annually.	Coastal GasLink clarifies that if GHG emissions during construction are assumed to be evenly distributed over three years of construction, and then compared to estimated GHG emissions during operations, one year of construction emissions is comparable to approximately 23% of one year of emissions during operations.	FLNRO estimates one year of construction emissions is comparable to 34% of one year of operation emissions.	The information provided by the reviewer has been noted. These emission factors will be considered in the development of the GHG Emissions Management Plan.
23	Application Section 6.7.4		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The statement: "The confidence statements are based on the potential use of the current and best available project design information, best available GHG emission inventory information, and appropriate emission estimation methods" is incorrect. The methods used for calculating emissions from biomass opening burning during construction in Appendix 2F were not appropriate and result in underestimating construction emissions by 1.1 MtCO2e.	The methodology used estimate the emissions from biomass burning has been used and approved in past environmental assessments in the public realm. The "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was identified after biomass burning calculations were completed using previously approved methods. Therefore the "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was only used to quantify land clearing residual effects which has not typically been estimated in past environmental assessments. Although mitigation has been identified that suggest a reduction of biomass burning by salvaging timber, a conservative approach was used in the assessment by using the assumption that biomass burning calculations for this Project were not reduced. Open burning emissions were calculated based on a biomass fuel loading value from the Canadian Journal of Forest Research (Amiro et al. 2001) and emission factors from Environment Canada's National GHG Inventory. The fuel loading recognized was the maximum loading rate for all ecozones crossed by the pipeline (39t/ha for Montane Cordillera). When this fuel loading value and Environment Canada EFs are used in conjunction with the assumption that all biomass will be burned, this results in a conservative prediction when compared to past approved methods.	The opening burning emissions methodology used in previous assessments results in an underestimation of emissions as it assumes a significant amount of biomass is left on the ground. CGL will be clearing and removing most of the biomass and it is more appropriate to use the FLNRO provided emission factors from Dymond (2013). These are unique to British Columbia and will not have been used to other environmental assessments outside of the province.	
24	Application Section 6.7.4		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		Table 6-26 reports that GHG emissions from Project operations are not significant whereas Table 6-25 reports these emissions to be of long-term duration, continuous, high magnitude, and high likelihood. These statements are contradictory, and projected emissions will be significant. The statement "GHG emissions during operations are considered not significant because of the small GHG emission contributions to global emissions." is inappropriate. Would the proponent consider using the same statement in an expression of how the Project contributes to the global economy and therefore use that to state the Project's financial impact as not significant? The GHG emissions are significant on a provincial scale. Table 6-26 should be changed or deleted as it is misleading.	Significance of the potential residual adverse effects on greenhouse gas emissions from Project emissions was determined in accordance with Section 3 of the AIR. Section 4.2.3 of the AIR provides direction on the assessment of GHGs, and was assessed at the global geographic extent. Estimated Project GHG contributions were compared to total global emissions, and the 0.012% contribution was determined to be not significant. Considering that the environmental effect is not bound to provincial or national jurisdictional boundaries, comparisons to these inventories were conducted to determine if the Project would be a low, medium or high contributor (as per CEAA 2003 guidance). In the absence of any thresholds, it was determined that contributions to provincial and national inventories (6% and 0.5%, respectively) would suggest the Project is a high contributor. As a result, Coastal GasLink will prepare a detailed GHG Emissions Management Plan in consultation with the appropriate regulatory authorities.	Resolved with GHG Management Plan to come.	

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25	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		BC's 2011 emissions were misreported, and they are 62.2 MtCO ₂ e, not 59.1 MtCO ₂ e. Table 6-1 should read 62,213,000 for 2011. http://env.gov.bc.ca/cas/mitigation/ghg_inventory/	At the time of the assessment and preparation of the jurisdiction profile, BC had not publicly released the 2011 provincial totals. Therefore, provincial totals (59.1 Mt CO ₂ e) cited in the National Inventory Report were used. This results in more conservative predicted percentages in the assessment because the provincial total in 2011 (59.1 Mt CO ₂ e) is less than the provincial total in 2012 (62.2 Mt CO ₂ e).	Resolved and should be adjusted in future documentation.	
26	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		Open burning emissions were calculated based on fuel loading values from Amiro et al. 2001 are inappropriate as these methods are based on emissions from forest fires, which typically leave behind substantial biomass, and thus will result in an underestimation of emissions. Open burning emissions should be calculated by the same document used in the calculation of land clearing emissions from the Ministry of Forests, Lands, and Natural Resource Operations provided by Caren Dymond (2013), and should be recalculated. The appropriate methods were provided to the proponent's consultant (Stantec) and were communicated in a conference call March 7, 2014.	Coastal GasLink has followed a conservative approach in using methods previously applied in approved in past environmental assessments. The conservative approach includes the consistent use of the maximum fuel loading factor for all ecozones crossed by the proposed route. Biomass loading factors were not reduced to compensate for the volume of timber that may be salvaged from the RoW (i.e., not burned) and does not recognize regions where there will be less dense forest cover (i.e. river crossings, rock outcrops, and previously cleared lands). Coastal GasLink notes that the Application was deemed satisfactory in accordance with the AIR by the EAO on February 28, 2014. Coastal GasLink submitted its Application to commence the 180-day review on March 3, 2014. On March 7, 2014, CAS and FLNRO provided direction about the relationship between the previously approved methods used to assess biomass burning and emissions factors prepared by Caren Dymond (2013) (for residuals). The information contained in "Summary of Emissions for BC v2.xlsx", by Dymond (2013), was identified after the assessment for biomass burning emissions for the proposed Project was complete.	Previous calculations of GHG emissions with inappropriate methods should be corrected using FLNRO recommended methods provided to CGL Mar 7, 2014 in the upcoming GHG Management Plan. Better estimation of forested land to be cleared and the quality of that land should be provided, as well as better estimations of how much of that harvested land is planned to be salvaged into harvestable wood products or directly burned, should be provided in the GHG Management Plan. Best estimations of emissions are necessary in order to assess appropriate mitigation efforts.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.
27	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The information for Biomass Open Burning presented in Table 7-2 is underestimated as incorrect methods were used. It doesn't make any sense that the emissions from land clearing residuals would be greater than biomass burning. Recalculation using the "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations; gives a total of 1843755 tonnes of CO ₂ e from biomass burning, 3.2 times higher than originally estimated. For detailed calculation methods and criteria used please contact Vanessa Foord.	The methodology used estimate the emissions from biomass burning has been used and approved in past environmental assessments in the public realm. The "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was identified after biomass burning calculations were completed using previously approved methods. Therefore the "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was only used to quantify land clearing residual effects which has not typically been estimated in past environmental assessments. Although mitigation has been identified that suggest a reduction of biomass burning by salvaging timber, a conservative approach was used in the assessment by using the assumption that biomass burning calculations for this Project were not reduced. Open burning emissions were calculated based on a biomass fuel loading value from the Canadian Journal of Forest Research (Amiro et al. 2001) and emission factors from Environment Canada's National GHG Inventory. The fuel loading recognized was the maximum loading rate for all ecozones crossed by the pipeline (39t/ha for Montane Cordillera). When this fuel loading value and	Same as Issue Tracking #26 comment.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									Environment Canada EFs are used in conjunction with the assumption that all biomass will be burned, this results in a conservative prediction when compared to past approved methods.		
28	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The information for Land Clearing Residuals presented in Table 7-2 is miscalculated even though the correct methods were cited, Dymond 2013. Emissions factors are available per region, and using the regional values, a recalculation gives a total of 1410604 tonnes. For detailed calculation methods and criteria used please contact Vanessa Foord.	Coastal GasLink has followed a conservative approach in using methods previously applied in approved in past environmental assessments. The conservative approach includes the consistent use of the maximum fuel loading factor for all ecozones crossed by the proposed route. Biomass loading factors were not reduced to compensate for the volume of timber that may be salvaged from the RoW (i.e., not burned) and does not recognize regions where there will be less dense forest cover (i.e. river crossings, rock outcrops, and previously cleared lands). Coastal GasLink notes that the Application was deemed satisfactory in accordance with the AIR by the EAO on February 28, 2014. Coastal GasLink submitted its Application to commence the 180-day review on March 3, 2014. On March 7, 2014, CAS and FLNRO provided direction about the relationship between the previously approved methods used to assess biomass burning and emissions factors prepared by Caren Dymond (2013) (for residuals). The information contained in "Summary of Emissions for BC v2.xlsx", by Dymond (2013), was identified after the assessment for biomass burning emissions for the proposed Project was complete.	Same as Issue Tracking #26 comment.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.
29	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The total CO2e from Construction Activity presented in Table 7-2 should be corrected to read: 3512936 tonnes CO2e. The Proponent's calculations of construction emissions are underestimated by more than 1 Mt of CO2e, a significant amount. The correct amounts are 1.5 times higher. For detailed calculation methods and criteria used please contact Vanessa Foord.	The methodology used estimate the emissions from biomass burning has been used and approved in past environmental assessments in the public realm. The "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was identified after biomass burning calculations were completed using previously approved methods. Therefore the "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was only used to quantify land clearing residual effects which has not typically been estimated in past environmental assessments. Although mitigation has been identified that suggest a reduction of biomass burning by salvaging timber, a conservative approach was used in the assessment by using the assumption that biomass burning calculations for this Project were not reduced.	Same as Issue Tracking #26 comment.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									Open burning emissions were calculated based on a biomass fuel loading value from the Canadian Journal of Forest Research (Amiro et al. 2001) and emission factors from Environment Canada's National GHG Inventory. The fuel loading recognized was the maximum loading rate for all ecozones crossed by the pipeline (39t/ha for Montane Cordillera). When this fuel loading value and Environment Canada EFs are used in conjunction with the assumption that all biomass will be burned, this results in a conservative prediction when compared to past approved methods.		
30	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		The statement, "Upon decommissioning of this Project, the natural environment will be returned to its original state. Considering the limited timespan of this Project (in excess of 30 years)....the Project development was not considered to be a permanent deforestation activity" is inappropriate. It will be next to impossible to return the environment to its original state after deforestation, and will take a considerable amount of time for any reforestation that will occur after decommissioning the Project to match that land's ability to uptake carbon that once existed, especially in areas of mature or old growth forest	Coastal GasLink considered a temporary clearing of a 100m RoW, however, only 10m of this RoW will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. This 10m width over the permanent RoW, as well as the land clearing required for the construction of meter and compressor stations, can be defined as deforestation. Table 7-2 of the GHG TDR presents the data for the total emissions related to biomass open burning and land clearing residuals. Applying the definition of deforestation above, 13% of the emissions due to biomass open burning and land clearing residuals can be considered deforestation, or approximately 12% of the total construction phase emissions. Coastal GasLink will implement the following mitigation: 1) Timber will be salvaged where practical and either sold or donated. 2) Provincially accepted guidelines will be followed in the event of burning biomass to maximize the combustion efficiency. 3) Coastal GasLink has committed to maintain clean-up and reclamation procedures which will be initiated immediately following construction. 4) In agricultural soils, compaction in subsoils will be relieved and the topsoil replaced. All disturbed upland areas will be re-seeded with an appropriate seed mix and specific land reclamation measures will be applied, as appropriate. 5) At compressor and meter stations, Coastal GasLink will consider alternatives to increase the capacity of surrounding carbon sinks.	Resolved with GHG Management Plan to come.	

Coastal GasLink Project: Working Group Comment Tracking Table

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31	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		<p>Constructions emissions were miscalculated at 2,419 kt CO₂e, and should be reported as 3,513 kt CO₂e. They have been underestimated by a factor of 1.5.</p>	<p>The methodology used estimate the emissions from biomass burning has been used and approved in past environmental assessments in the public realm. The "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was identified after biomass burning calculations were completed using previously approved methods. Therefore the "Summary of Emissions for BC v2.xlsx", by Dymond (2013) Ministry of Forests, Lands, and Natural Resource Operations, was only used to quantify land clearing residual effects which has not typically been estimated in past environmental assessments. Although mitigation has been identified that suggest a reduction of biomass burning by salvaging timber, a conservative approach was used in the assessment by using the assumption that biomass burning calculations for this Project were not reduced.</p> <p>Open burning emissions were calculated based on a biomass fuel loading value from the Canadian Journal of Forest Research (Amiro et al. 2001) and emission factors from Environment Canada's National GHG Inventory. The fuel loading recognized was the maximum loading rate for all ecozones crossed by the pipeline (39t/ha for Montane Cordillera). When this fuel loading value and Environment Canada EFs are used in conjunction with the assumption that all biomass will be burned, this results in a conservative prediction when compared to past approved methods.</p>	Same as Issue Tracking #26 comment.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.
32	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		<p>The statement "Based on the 2011 provincial and national GHG baselines, the Coastal Gas Link Project will only increase the emission totals by 6% provincially and 0.5% nationally." is misleading. It should read something like: "Based on the 2011 provincial and national GHG baselines, the Coastal Gas Link Project will increase the emissions on an annual basis of 6% provincially and 0.5% nationally from operations alone."</p>	<p>Significance of the potential residual adverse effects on greenhouse gas emissions from Project emissions was determined in accordance with Section 3 of the AIR. Section 4.2.3 of the AIR provides direction on the assessment of GHGs, and was assessed at the global geographic extent. Estimated Project GHG contributions were compared to total global emissions, and the 0.012% contribution was determined to be not significant. Considering that the environmental effect is not bound to provincial or national jurisdictional boundaries, comparisons to these inventories were conducted to determine if the Project would be a low, medium or high contributor (as per CEAA 2003 guidance). In the absence of any thresholds, it was determined that contributions to provincial and national inventories (6% and 0.5%, respectively) would suggest the Project is a high contributor. As a result, Coastal GasLink will prepare a detailed GHG Emissions Management Plan in consultation with the appropriate regulatory authorities.</p>	Resolved with GHG Management Plan to come.	

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33	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		Open burning emissions were calculated based on fuel loading values from Amiro et al. 2001 are inappropriate as these methods are based on emissions from forest fires, which typically leave behind substantial biomass, and thus will result in an underestimation of emissions. Open burning emissions should be calculated by the same document used in the calculation of land clearing emissions from the Ministry of Forests, Lands, and Natural Resource Operations provided by Caren Dymond (2013), and should be recalculated. This information has been provided to the proponent's consultant (Stantec) and was communicated in a conference call March 7, 2014.	Coastal GasLink has followed a conservative approach in using methods previously applied in approved in past environmental assessments. The conservative approach includes the consistent use of the maximum fuel loading factor for all ecozones crossed by the proposed route. Biomass loading factors were not reduced to compensate for the volume of timber that may be salvaged from the RoW (i.e., not burned) and does not recognize regions where there will be less dense forest cover (i.e. river crossings, rock outcrops, and previously cleared lands). Coastal GasLink notes that the Application was deemed satisfactory in accordance with the AIR by the EAO on February 28, 2014. Coastal GasLink submitted its Application to commence the 180-day review on March 3, 2014. On March 7, 2014, CAS and FLNRO provided direction about the relationship between the previously approved methods used to assess biomass burning and emissions factors prepared by Caren Dymond (2013) (for residuals). The information contained in "Summary of Emissions for BC v2.xlsx", by Dymond (2013), was identified after the assessment for biomass burning emissions for the proposed Project was complete.	Same as Issue Tracking #26 comment.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.
34	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		Deforestation emissions for the Northeast, Omineca, and Skeena natural resource regions from the "Summary of Emissions for BC v2.xlsx", as created by Caren Dymond, 2013, Ministry of Forests, Lands, and Natural Resource Operations should be used to calculate Biomass Burning emissions for Table C-13, C-14, and C-15. Using the scenario that 25% of Harvested carbon is assumed to be stored in harvestable wood products, forest stands are of average quality, uproot and burn is used for deforestation, Section 1-2 are in the Northeast region, Sections 3-5 are in Omineca, and Sections 6-8 are in Skeena, the new Biomass Burning Emissions are 1774201 tonnes CO2e from Pipeline Construction in Table C-13 and 1356380 tonnes from Residuals. Assuming the same scenarios and Compressor stations 1-3 are in the Northeast, 4-5 are in the Omineca, and 6-8 are in the Skeena, the recalculated Biomass Burning Emissions are 61980 tonnes CO2e from Compressor station construction and 48480 tonnes Residuals in Table C-14. Assuming the same scenarios and Meter station 1 is in the Northeast, 2 is in the Omineca, and 3 is in the Skeena, the recalculated Biomass Burning Emissions are 7574 tonnes CO2e from Meter station construction and 5744 tonnes Residuals in Table C-15.	Coastal GasLink acknowledges this additional information.	Updated estimates of GHG emissions from land clearing based on these methods should be provided in the GHG Management Plan.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.

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35	Application Appendix 2F		Greenhouse Gas Emissions	1-Apr-14	Vanessa Foord	FLNRO		<p>Table C-20 underestimates GHG Emissions from Construction by using inappropriate methods. Emissions from biomass open burning total 1843755 tonnes CO₂e, and emissions from land clearing residuals are 1410604 tonnes CO₂e. This makes the total for Construction emissions, assuming the other construction activities were calculated correctly, to be 3512936 tonnes CO₂e. The Percent of Total column will need to be adjusted to reflect the new totals. Off road construction equipment now becomes 5.6%, On road construction equipment becomes 1.8%, Propane-fire heaters becomes 0.002%, Biomass open burning becomes 52.5%, and Land clearing residuals becomes 40.2%. It didn't make sense previously that biomass burning only represented 24% of construction emissions and residuals 65.3%, because the methods used were from forest fires that leave some biomass remaining, whereas biomass burning from deforestation, even with 25% of the wood salvaged, will result in higher proportion of amount burned. The majority of emissions in the construction phase should come from biomass burning, and the recalculated amounts reflect that. For detailed calculation methods and criteria used please contact Vanessa Foord.</p>	<p>Coastal GasLink has followed a conservative approach in using methods previously applied in approved in past environmental assessments. The conservative approach includes the consistent use of the maximum fuel loading factor for all ecozones crossed by the proposed route. Biomass loading factors were not reduced to compensate for the volume of timber that may be salvaged from the RoW (i.e., not burned) and does not recognize regions where there will be less dense forest cover (i.e. river crossings, rock outcrops, and previously cleared lands). Coastal GasLink notes that the Application was deemed satisfactory in accordance with the AIR by the EAO on February 28, 2014. Coastal GasLink submitted its Application to commence the 180-day review on March 3, 2014. On March 7, 2014, CAS and FLNRO provided direction about the relationship between the previously approved methods used to assess biomass burning and emissions factors prepared by Caren Dymond (2013) (for residuals). The information contained in "Summary of Emissions for BC v2.xlsx", by Dymond (2013), was identified after the assessment for biomass burning emissions for the proposed Project was complete.</p> <p>Open burning emissions were calculated based on a biomass fuel loading value from the Canadian Journal of Forest Research (Amiro et al. 2001) and emission factors from Environment Canada's National GHG Inventory. The fuel loading recognized was the maximum loading rate for all ecozones crossed by the pipeline (39t/ha for Montane Cordillera). When this fuel loading value and Environment Canada EFs are used in conjunction with the assumption that all biomass will be burned, this results in a conservative prediction when compared to past approved methods.</p> <p>The same assumptions were made for land clearing residuals to remain consistent with the approach used for biomass burning. For this reason, one conservative emission factor was consistently applied to the entire RoW. The emission factor that was applied is characteristic of residual decay when all harvested carbon is assumed instantly emitted in the Skeena Region (228 tonnes CO₂e/ha).</p>	Same as Issue Tracking #26 comment.	The information provided by the reviewer has been noted and will be considered in the development of the GHG Emissions Management Plan prior to construction of the Project.
36	Application Section 22		Sec. 22	1-Apr-14	Vanessa Foord	FLNRO		<p>Consider hiring a weather forecaster during key construction periods in sensitive areas in case of extreme weather.</p>	<p>In case of severe weather, Coastal GasLink will implement its Adverse Weather Contingency Plan (outlined in Appendix C.2 of the Environmental Management Plan). Coastal GasLink believes that the existing weather forecasting infrastructure in the area of the project will be sufficient to inform impacts of extreme weather on key construction activity. During construction, the Coastal GasLink construction management team constantly monitors local weather conditions to ensure the safety of workers and appropriate scheduling of activities.</p>	No further response required.	

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37	Application Section 6.7		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		Please add to Table 6-24 the emissions due to land clearing and biomass burning documented in the TDR and recommendations to reduce these emissions. E.g. how to maximize amount of wood used, reduce burning etc.	Coastal GasLink will lessen the potential adverse effect of emissions due to land clearing and biomass open burning by maximizing fibre utilization and reducing burning to the extent practical. Coastal GasLink will comply with requirements from the appropriate regulatory authorities for fibre utilization and burning.	No further response required.	
38	Application Section 6.7		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		Has the project proponent considered afforestation or rehabilitating mountain pine beetle killed forests to compensate for the 30+ years of losses of forest sinks? More information: http://www.for.gov.bc.ca/het/climate/carbon/	Coastal GasLink did not consider the afforestation or rehabilitation of the mountain pine beetle killed forests in the Application because the mountain pine beetle was not included in the requirements of GHG emissions assessment outlined in the AIR. Coastal GasLink will include this topic in continued discussions with the appropriate regulatory authorities.	Vanessa Foord: Perhaps for consideration in the GHG Management Plan.	
39	Application Section 6.7		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		This statement from page 6-46 and Table 6-25 is inconsistent with the TDR. "Lost sinks of CO2 sequestration will occur due to the initial clearing of shrubs and trees along the proposed Project, compressor station sites, and temporary or permanent access roads. ... The emission contribution is detectable and of expected low magnitude, and has not been quantified."	<p>The removal of a carbon sink (forested area) was not quantified for the assessment, as the cleared area will be reclaimed after decommissioning and abandonment. The assessment calculates the gross GHG emissions resulting from the Project; therefore, the net effect of removing, and then replenishing a carbon sink was not taken into account.</p> <p>Coastal GasLink considered a temporary clearing of a 100m RoW, however, only 10m of this RoW will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. This 10m width over the permanent RoW, as well as the land clearing required for the construction of meter and compressor stations, can be defined as deforestation based on the definitions presented above. Table 7-2 of the GHG TDR presents the data for the total emissions related to biomass open burning and land clearing residuals. Applying the definition of deforestation above, 13% of the emissions due to biomass open burning and land clearing residuals can be considered deforestation, or approximately 12% of the total construction phase emissions. Coastal GasLink will implement the following mitigation:</p> <ol style="list-style-type: none"> 1) Timber will be salvaged where practical and either sold or donated. 2) Provincially accepted guidelines will be followed in the event of burning biomass to maximize the combustion efficiency. 3) Coastal GasLink has committed to maintain clean-up and reclamation procedures which will be initiated immediately following construction. 4) In agricultural soils, compaction in subsoils will be relieved and the topsoil replaced. All disturbed upland areas will be re-seeded with an appropriate seed mix and specific land reclamation measures will be applied, as appropriate. 5) At compressor and meter stations, Coastal GasLink will consider alternatives to increase the capacity of surrounding carbon sinks. 	No further response required.	

Coastal GasLink Project: Working Group Comment Tracking Table

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40	Application Section 6.7		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		<p>Please add to section 6.7.3 a comparison of expected land clearing activities (area and GHG emissions) with recent deforestation as reported in the provincial GHG emissions report. Also, please include the Project's potential effects on BC's GHG targets and Zero Net Deforestation Act.</p>	<p>Coastal GasLink estimates that approximately 90% of construction GHG emissions result from land clearing. However, all land clearing and residual emissions quantified in this assessment (with the use of methods used in previously accepted regulatory applications) should not be defined as deforestation as per BC MOE and NRCan definitions, because:</p> <ul style="list-style-type: none"> - the BC MoE definition for deforestation is "direct human-induced conversion of forested land to non-forested land. Harvesting, when followed by regeneration, is not deforestation". Regeneration is then further defined to be either planting, natural or advanced. (BC GHG Inventory Report 2010) - the NRCan definition for deforestation is "Deforestation is the permanent removal of forest cover from an area, and the conversion of the previously forested land to other uses. In Canada, clear-cutting and other harvesting practices are used as part of sustainable forest management to provide timber for producing paper and wood products. This is not considered deforestation however, because the area is replanted or allowed to regenerate naturally, renewing the forest cover." (https://www.nrcan.gc.ca/forests/inventory/13419) <p>This assessment has considered a temporary clearing of a 100m RoW, however, only 10m of this RoW will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. This 10m width over the permanent RoW, as well as the land clearing required for the construction of meter and compressor stations, can be defined as deforestation based on the definitions presented above.</p> <p>Table 7-2 of the GHG TDR presents the data for the total emissions related to biomass open burning and land clearing residuals. Applying the definition of deforestation above, 13% of the emissions due to biomass open burning and land clearing residuals can be considered deforestation, or approximately 12% of the total construction phase emissions.</p> <p>Coastal GasLink will implement the following mitigation:</p> <ol style="list-style-type: none"> 1) Timber will be salvaged where practical and either sold or donated. 2) Provincially accepted guidelines will be followed in the event of burning biomass to maximize the combustion efficiency. 3) Coastal GasLink has committed to maintain clean-up and reclamation procedures which will be initiated immediately following construction. 4) In agricultural soils, compaction in subsoils will be relieved and the topsoil replaced. All disturbed upland areas will be re-seeded with an appropriate seed mix and specific land reclamation measures will be applied, as appropriate. 5) At compressor and meter stations, Coastal GasLink will consider alternatives to increase the capacity of surrounding carbon sinks. 	<p>Vanessa Foord: See Issue Tracking #21 for comment.</p>	<p>The information provided by the reviewer has been noted. These emission factors will be considered in the development of the GHG Emissions Management Plan.</p>

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41	Application Section 6.7		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		The spatial boundary is described as not applicable in numerous places in the Application. However, the spatial boundary has implicitly been defined since the GHG emissions do not include burning of the natural gas product and the land clearing activities are calculated on a per hectare basis.	Section 4.2.3 of the AIR issued by EAO in May 2013 provides direction on the assessment of GHGs, and was assessed at the global geographic extent. Estimated Project GHG contributions were compared to total global emissions. Considering that the environmental effect is not bound to provincial or national jurisdictional boundaries, comparisons to these inventories were conducted to determine if the Project would be a low, medium or high contributor (as per CEAA 2003 guidance referenced in the AIR).	No further response required.	
42	Application Appendix 2F		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		It is inappropriate to use biomass fuel loading values from Amiro et al. (2001) because they studied forest fires, which leave most of the biomass behind as dead trees. Burning as part of land clearing activities typically consume a much higher proportion of biomass.	Coastal GasLink has followed a conservative approach in using methods previously applied in approved in past environmental assessments. The conservative approach includes the consistent use of the maximum fuel loading factor for all ecozones crossed by the proposed route. Biomass loading factors were not reduced to compensate for the volume of timber that may be salvaged from the RoW (i.e., not burned) and does not recognize regions where there will be less dense forest cover (i.e. river crossings, rock outcrops, and previously cleared lands). Coastal GasLink notes that the Application was deemed satisfactory in accordance with the AIR by the EAO on February 28, 2014. Coastal GasLink submitted its Application to commence the 180-day review on March 3, 2014. On March 7, 2014, CAS and FLNRO provided direction about the relationship between the previously approved methods used to assess biomass burning and emissions factors prepared by Caren Dymond (2013) (for residuals). The information contained in "Summary of Emissions for BC v2.xlsx", by Dymond (2013), was identified after the assessment for biomass burning emissions for the proposed Project was complete.	Vanessa Foord: Same as Issue Tracking #26 comment.	
43	Application Appendix 2F		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		The project will certainly be accounted for as deforestation in the national and provincial GHG inventory reports where ROW and cleared areas are wider than 20 m. Impacts do not have to be 100 years to be considered permanent or deforestation under the Zero Net Deforestation Act.	Coastal GasLink considered a temporary clearing of a 100m RoW, however, only 10m of this RoW will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. This 10m width over the permanent RoW, as well as the land clearing required for the construction of meter and compressor stations, can be defined as deforestation based on the definitions presented above. Table 7-2 of the GHG TDR presents the data for the total emissions related to biomass open burning and land clearing residuals. Applying the definition of deforestation above, 13% of the emissions due to biomass open burning and land clearing residuals can be considered deforestation, or approximately 12% of the total construction phase emissions. Coastal GasLink will implement the following mitigation: 1) Timber will be salvaged where practical and either sold or donated. 2) Provincially accepted guidelines will be followed in the event of burning biomass to maximize the combustion efficiency. 3) Coastal GasLink has committed to maintain clean-up and reclamation procedures which will be initiated	Vanessa Foord: See Issue Tracking #21 for comment.	

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									<p>immediately following construction.</p> <p>4) In agricultural soils, compaction in subsoils will be relieved and the topsoil replaced. All disturbed upland areas will be re-seeded with an appropriate seed mix and specific land reclamation measures will be applied, as appropriate.</p> <p>5) At compressor and meter stations, Coastal GasLink will consider alternatives to increase the capacity of surrounding carbon sinks.</p>		
44	Application Appendix 2F		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		<p>It is inappropriate to use biomass fuel loading values from Amiro et al. (2001) because they studied forest fires, which leave most of the biomass behind as dead trees. Burning as part of land clearing activities typically consume a much higher proportion of biomass. Land clearing GHG emissions, including burning of waste piles are estimated in the Dymond (2013) spreadsheet under Type of deforestation activity: burn. The calculations assume sawlog are sold and converted to harvested wood products, of which 25% last for 100 years. The estimates are based on the land-use change accounting as done for the National and Provincial GHG emissions inventory reports.</p>	<p>Coastal GasLink has followed a conservative approach in using methods previously applied in approved in past environmental assessments. The conservative approach includes the consistent use of the maximum fuel loading factor for all ecozones crossed by the proposed route. Biomass loading factors were not reduced to compensate for the volume of timber that may be salvaged from the RoW (i.e., not burned) and does not recognize regions where there will be less dense forest cover (i.e. river crossings, rock outcrops, and previously cleared lands). Coastal GasLink notes that the Application was deemed satisfactory in accordance with the AIR by the EAO on February 28, 2014. Coastal GasLink submitted its Application to commence the 180-day review on March 3, 2014. On March 7, 2014, CAS and FLNRO provided direction about the relationship between the previously approved methods used to assess biomass burning and emissions factors prepared by Caren Dymond (2013) (for residuals). The information contained in "Summary of Emissions for BC v2.xlsx", by Dymond (2013), was identified after the assessment for biomass burning emissions for the proposed Project was complete.</p>	<p>Vanessa Foord: Same as Issue Tracking #26 comment.</p>	

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45	Application Appendix 2F		Greenhouse Gas Emissions	19-Feb-14	Caren Dymond	FLNRO		<p>The TDR currently only uses one emissions factor for land clearing, however regional factors are provided to represent different forest ecosystems and standing carbon stocks. Why don't you use them? Also, why are only first year emissions considered? Map of regions: https://www.for.gov.bc.ca/mof/maps/regdis/regdismap.pdf</p>	<p>Coastal GasLink has followed a conservative approach in using methods previously applied in approved in past environmental assessments. The conservative approach includes the consistent use of the maximum fuel loading factor for all ecozones crossed by the proposed route. Biomass loading factors were not reduced to compensate for the volume of timber that may be salvaged from the RoW (i.e., not burned) and does not recognize regions where there will be less dense forest cover (i.e. river crossings, rock outcrops, and previously cleared lands). Coastal GasLink notes that the Application was deemed satisfactory in accordance with the AIR by the EAO on February 28, 2014. Coastal GasLink submitted its Application to commence the 180-day review on March 3, 2014. On March 7, 2014, CAS and FLNRO provided direction about the relationship between the previously approved methods used to assess biomass burning and emissions factors prepared by Caren Dymond (2013) (for residuals). The information contained in "Summary of Emissions for BC v2.xlsx", by Dymond (2013), was identified after the assessment for biomass burning emissions for the proposed Project was complete.</p> <p>Open burning emissions were calculated based on a biomass fuel loading value from the Canadian Journal of Forest Research (Amiro et al. 2001) and emission factors from Environment Canada's National GHG Inventory. The fuel loading recognized was the maximum loading rate for all ecozones crossed by the pipeline (39t/ha for Montane Cordillera). When this fuel loading value and Environment Canada EFs are used in conjunction with the assumption that all biomass will be burned, this results in a conservative prediction when compared to past approved methods.</p> <p>The same assumptions were made for land clearing residuals to remain consistent with the approach used for biomass burning. For this reason, one conservative emission factor was consistently applied to the entire RoW. The emission factor that was applied is characteristic of residual decay when all harvested carbon is assumed instantly emitted in the Skeena Region (228 tonnes CO₂e/ha).</p>	Vanessa Foord: Same as Issue Tracking #26 comment.	
46	Application Section 22		Sec. 22	19-Feb-14	Vanessa Foord	FLNRO		<p>In the identification of Hazards for the Project under Future Climate Change Scenarios, the following were not listed and the proponent should consider the effect of climate change on: avalanches, flooding, ice jams, and the impact of warming temperatures on landslides (not just precipitation) and how they may impact the Project.</p>	<p>Coastal GasLink prepared its risk assessment of Effects of the Environment on the Project according to the scope defined in the AIR, issued by EAO in spring 2013. While this scope does not explicitly address the effects of climate change on the factors listed by the reviewer, the potential adverse effects associated with these factors are addressed in the Application, as follows:</p> <ul style="list-style-type: none"> -Avalanches: please refer to Slope Stability and Mass Wasting in Section 22 of the Application - Flooding: please refer to the assessment of potential adverse effects on the aquatic environment in Section 7 of the Application and Extreme Weather Events in Section 22 	No further response required.	

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									of the Application. - Ice jams: while ice jams are not explicitly addressed in the application, please refer to the effects of Extreme Weather Events in Section 22 of the Application. - Landslides: Please refer to the terrain effects assessment in Section 5 of the Application as well as the assessment of Slope Stability and Mass Wasting events in Section 22.		
47	Application Section 22		Sec. 22	19-Feb-14	Vanessa Foord	FLNRO		The proponent should consider the current state of knowledge of Future Climate Scenarios for the project area to help predict and mitigate hazards from potential climate change impacts. Many tools exist for the province to quantify predicted changes in temperature and precipitation, changes to snow, changes to hydrology, most of which can be found on the Pacific Climate Impacts Consortium's website. http://www.pacificclimate.org/ . Some of this information can be provided at a scale reasonable to the project area.	Coastal GasLink will consider future climate scenarios in the construction planning and detailed engineering design of the proposed Project.	No further response required.	
48	Application Appendix 2F		Greenhouse Gas Emissions	8-Apr-14	Vanessa Foord	FLNRO		If possible, I am requesting more information regarding the Area to be cleared given in Table C-13. What is included in these areas, permanent ROW, construction ROW, access roads? How were these amounts calculated or measured?	Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. The complete temporary facility footprint was not included because the locations for these will be developed during the construction planning and detailed engineering design. For example, in the case of access roads as shown in Table 1-5 of the Application, in some cases, there will be no work required, while in others there may be a need for road upgrades or new road construction. Each of these scenarios would have a different requirements for clearing, depending on the location and type of access needed. The only areas where removal of forest is required for the life of the facility are the compressor and meter station sites and the approximately 10m wide area above the operating pipeline. Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will include allowing for natural reforestation.	Resolved.	
49	Application Appendix 2F		Greenhouse Gas Emissions Technical Data Report	8-Apr-14	Vanessa Foord	FLNRO		Appendix 2F, Section 8. The proponent states the construction phase of the project will contribute 23% of the GHG emissions (Section 6.7.2) and 90% of the construction phase emissions come from land clearing and biomass burning (Appendix 2F Section 7.2). The proponent should present in Appendix 2F, Section 8 on Follow Up and Monitoring, a strategy for verifying these GHG emission forecasts and determining effectiveness of any GHG reduction or offset measures associated with land clearing and biomass burning as outlined CEAA http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=A41F45C5-1&offset=3&toc=show .	Coastal GasLink will report its GHG emissions in accordance with the BC Greenhouse Gas Reduction (Cap and Trade) Act Reporting Regulations and Section 46 of the Canadian Environmental Protection Act. Follow-up and Monitoring, as well as details about the effectiveness of GHG mitigation strategies are examples of information that will be prepared in the detailed GHG Emissions Management Plan to be prepared upon project approval.	Resolved with GHG Management Plan to come.	

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50	Application Section 1		Soils	3-Apr-14	Stephane Dube	FLNRO		<p>"Conserved topsoil or surface material will be replaced during cleanup. In agricultural soils, compaction in subsoils on the construction ROW will be alleviated and the topsoil replaced. They say: "With the application of industry-accepted best practices, including strict adherence to soil handling recommendations developed specifically for the proposed Project, specific measures to prevent or alleviate soil compaction, and careful monitoring and maintenance of vegetation cover and drainage, potential residual adverse effects are expected to be of low magnitude and of 1 low likelihood of occurrence, and are assessed to be not significant. No potential cumulative adverse effects are anticipated."</p> <p>I don't agree there won't be any soil related and surface water residual effects from all the activities under this project. There will be some effects – very likely - and they need to be identified and monitored since other activities (i) have taken, (ii) are taking or (iii) will take place in vicinity (forestry, recreation, mining etc...).</p>	Coastal GasLink acknowledges there will be potential residual adverse effects on soil capability. These effects are listed in Table 5-6 of the Application. Table 5-5 outlines the mitigation proposed to address the potential adverse effects. Following the methodology outlined in the AIR, Coastal GasLink has concluded these residual adverse effects are considered not significant.	See comment for #59	See response to issue tacking #59
51	Application Section 3		Soils	3-Apr-14	Stephane Dube	FLNRO		Properly identify alpine wetlands (not covered in Wetlands of BC Guide)	Coastal GasLink followed the standards and guidance outlined in Table 3-1 of the AIR.	See comment for #59	See response to issue tacking #59
52	Application Section 3		Soils	3-Apr-14	Stephane Dube	FLNRO		MAJOR OMISSION in Assessment Methods. Table 3-4 Standards & Guidance. Where is "SOILS" as a standard/subject? Sensitive soils, shallow soil over bedrock and soil classification for conservation and management during trench construction and reclamation. Oil and Gas Activities Act, ENVIRONMENTAL PROTECTION AND MANAGEMENT REGULATION. Part 3, sec. 17 & 19 provide guidance for conserving soils, operations within wetlands and areas to be restored. It is mentioned in the Soil Technical Data Report though. Soil surveys, mapping, soil landscapes of BC found in various format and different scales was accessed at BC Soil Information Centre..	Coastal GasLink applied the following guidance and framework to the assessment of the valued component, Soil Capability: • Soil Quality Criteria Relative to Disturbance and Reclamation (Alberta Agriculture 1987);• Field Manual for Describing Terrestrial Ecosystems. 2nd Edition (B. C. Ministry of Environment 2010);• Hazard assessment keys for evaluating site sensitivity to soil degrading processes guidebook. 2nd ed. Version 2.1. (B.C Ministry of Forests, Forest Practices Code of British Columbia Guidebook 1999);• Land Capability Classification for Agriculture in BC (Kenk and Cotic 1983);• The Canadian System of Soil Classification (Agriculture and Agri-Food Canada 1998);• Revised Universal Soil Loss Equation for Application in Canada: A Handbook for Estimating Soil Loss from Water Erosion in Canada (Wall et al 2002);• Guidelines for Pipeline development within the ALR (B.C. Oil and Gas Commission and B.C. Agricultural Land Commission 2008); and• Various Soil Surveys and related information accessed through the B.C. Soil Information Centre.	See comment for #59	See response to issue tacking #59
53	Application Section 3		Soils	3-Apr-14	Stephane Dube	FLNRO		Wetlands. Oil and Gas Activities Act, ENVIRONMENTAL PROTECTION AND MANAGEMENT REGULATION. About guidelines, classification and protection of wetlands and surface drainage patterns.	Coastal GasLink will comply with the applicable sections of Environmental Protection and Management Regulation under the <i>Oil and Gas Activities Act</i> .	See comment for #59	See response to issue tacking #59
54	Application Appendix 2C		Soils	3-Apr-14	Stephane Dube	FLNRO		1. Why no compaction & rutting rating completed on non-ALR lands? According to Oil and Gas Activities Act, ENVIRONMENTAL PROTECTION AND MANAGEMENT REGULATION. Part 3, sec. 17, ALL soils must be conserved not just on ALR lands.	Coastal GasLink will maintain equivalent land capability on all lands disturbed by the construction of the Project, including agricultural and non-agricultural lands.	See comment for #59	See response to issue tacking #59
55	Application Appendix 2C		Soils	3-Apr-14	Stephane Dube	FLNRO		2. On page 26, it says:" Calculations for reclamation suitability are shown in Appendix E" I couldn't find calculations for reclamation suitability. All I see is limiting factors. How are ratings calculated? E.g., unsuitable rating due to coarse fragment: does it mean the proponent won't attempt to fix it . Is this because its to expensive? It would be better to avoid the area OR mitigate activities impacts. In my opinion, if it is worth breaking then it's is worth fixing. Or else, don't break it. It appears to me that the reclamation suitability rating is solely based on economic conditions.	Reclamation suitability was considered a key indicator of soil capability in the AIR for this project (p26). Reclamation suitability was assessed using criteria for evaluating the suitability of soil material for reclamation for the Eastern Slopes Region of Alberta (Alberta Soils Advisory Committee 1987), but modified for conditions in the proposed Project area, using soil moisture and drainage condition information for soils. The reviewer is correct that reclamation suitability is a rating system based on limiting factors. In the context of this project, reclamation suitability is used as an indicator of soil capability in non-ALR areas not used for agriculture.	See comment for #59	See response to issue tacking #59
									Coastal GasLink will maintain equivalent land		

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									capability on all lands disturbed by the construction of the Project, including agricultural and non-agricultural lands.		
56	Application Appendix 2C		Soils	3-Apr-14	Stephane Dube	FLNRO		This section refers to advice from a soil scientist. Please provide information on the name of this source of expertise.	Coastal GasLink has provided a listing of professional leads contributing to the assessment in the attached technical memo Professionals/Disciplines Leads .	See comment for #59	See response to issue tacking #59
57	Application Appendix 2C		Soils	3-Apr-14	Stephane Dube	FLNRO		4. Page 31. Unsuitability or poor suitability of certain soils for reclamation along the route are concerns to me (e.g., high coarse fragment). They cannot be ignored just because they are tough to rehab. They're sensitive soils in terms of productivity and so, deserve our attention. What are the recommendations to minimize impacts of activities on these types of soil given their low suitability rating? The application should identify how the proponent plans to manage regosols – most mapped with brunisols - since they are highly permeable to water, which make them sensitive to erosion. Once productivity is impeded, those soils are very slow to recover. Will operations shut down in wet periods?	Coastal GasLink will maintain equivalent land capability on all lands disturbed by the construction of the Project, including agricultural and non-agricultural lands. Specific soil handling methods for individual soil units requiring special handling, including shallow and highly erodible soils, will be communicated during construction to the field personnel using construction alignment sheets. The Wet Soils Contingency Plan (Appendix C.4 of the Environmental Management Plan) outlines a number of procedures, including shut down under certain conditions, that could be implemented if planned activities have the potential to cause unacceptable damage to soils.	See comment for #59	See response to issue tacking #59
58	Application Appendix 2C			3-Apr-14	Stephane Dube	FLNRO		5. Page 11. Quote: "Soil mapping was not completed on the lands within the restricted technical boundary" Please provide clarification.	Coastal GasLink could not access certain areas near the Morice River, as described on page 3-8 of the Application. The information to inform the assessment for these lands was collected using existing data sources or desktop analysis.	See comment for #59	See response to issue tacking #59
59	Application Section 5		Soils	3-Apr-14	Stephane Dube	FLNRO		Page 6. Quote " Susceptibility to compaction and rutting were not rated for non-ALR soils". Why not? We do it for tree harvesting. Soil hazards are rated according to: https://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/HAZARD/HazardAssessKeys-web.pdf How are they going to manage the risk of compaction given the lack of data on non-ALR soils, which represent the greatest portion of the proposed route? On non-ALR soils its about growing trees not crops, They have a duty to conserve soils under the OGA Act. I want to know what tare the plans in terms of protecting finer textured organic soils within the Footprint	Coastal GasLink will maintain equivalent land capability on all lands disturbed by the construction of the Project, including agricultural and non-agricultural lands.	I am satisfied with the proponent responses to most of my comments. To evaluate soil change or soil quality in the context of forest soils, ideal key indicators should among other things (1) provide a condition for plant growth similar to pre-disturbance conditions, (2) provide a sensitive and timely measure of a soil ability to function within a given ecosystem, (3) discriminate between natural changes and those induced by LNG activities, and (4) be responsive to corrective measures. For example, it may be the change in soil tilt i.e. a property that combines measurement of bulk density, soil strength, aggregate uniformity, soil organic matter and plasticity. This can be determined visually or via measurements in-situ or in the lab. Again, the assessment of soil productivity should use indicators that measure and describe an existing soil condition before any disturbance (including those ones as they pertain to hydrologic function). Soil Quality is usually based on indicators that are sufficient for root growth. The	Coastal GasLink assessed valued components and key indicators outlined in the Application Information Requirements issued by the EAO in May 2013. While the valued components and key indicators differ from the suggested wording provided by the reviewer, Coastal GasLink acknowledges the importance of maintaining equivalent land capability, and the importance of ensuring soil productivity.

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										assumption is that if it is sufficient for root growth, it will be sufficient for tree growth. Outside of ALR areas, a key indicator of soil capability should be a soil condition, property or process (or any combination thereof) that has a baseline against which to compare change in the forest site's ability to grow trees and plants.	
60	Application Section 5		Soils	3-Apr-14	Stephane Dube	FLNRO		Page 34. Table 5-5. Quote: "Alleviate compaction after abandonment by using a disc plow or other suitable equipment to loosen subsoil and smooth the surface before topsoil replacement in ALR lands and non-ALR areas in agricultural use." Quote: "Regrade areas of rutted mineral subsoil before topsoil replacement on ALR lands and non-ALR areas in agricultural use." Compaction must be alleviated in all areas regardless of agriculture use or not. Soils support any plants, cultivated crop as well as planted/seeded-in trees. Loosening compacted soils will also help to restore surface drainage patterns within the entire Footprint.	Coastal GasLink will maintain equivalent land capability on all lands disturbed by the Project, including agricultural and non-agricultural lands.	See comment for #59	See response to issue tacking #59
61	Application Section 5		Soils	3-Apr-14	Stephane Dube	FLNRO		Page 35 – Table 5-6. Re: "Temporal Context". It is very well documented in the literature that under our wet and cold conditions i.e. Northern BC, residual effects from compaction, erosion etc. are NOT short-term in terms of reversibility. Both the magnitude and likelihood of residual effects in terms of soil disturbance will be high. Make no mistake about it. There is no established thresholds for full (healthy) or no (unhealthy) soil recovery following a perturbation in terms of physical, chemical or biological indicators. Nor is there possible to define baselines for soil resilience given the nature and extent of available data. However, field observations, research data and monitoring conducted under the Forest and Range Evaluation Program since 2005 strongly suggest that soil is not resilient to change – especially finer-textured soils and organic - from machine traffic and its recovery can be slow, sometimes impossible within a lifetime (ie. the capacity of a soil to recover its functional and structural integrity after a disturbance). It is in my opinion that there will be significant residual environmental effects from machine traffic/construction on soils along the proposed route; soil disturbance will be extensive and its effects will be medium-term to long-term. Given that, prevention measures and/or reclamation will be necessary to minimize the damage to soils; reclamation will be challenging at times. I believe that this project poses a potential threat to soil quality, particularly within the Footprint. Currently, this report does not fully recognize or address adequately the protection of forest soils; it has identified the potential risk of damage to soils during all phases BUT has minimized its significance especially within non-ALR areas. Table 5-6 fails to reflect this.	Coastal GasLink will maintain equivalent land capability on all lands disturbed by the construction of the Project, including agricultural and non-agricultural lands. Coastal GasLink has assessed the residual adverse effect of soil compaction and rutting on soil capability to be reversible in the short term because it is expected to take less than one year to reverse the effect. During cleanup and post-construction reclamation, compaction will be alleviated, as described in Section 8.8, Cleanup and Reclamation, of the EMP.	See comment for #59	See response to issue tacking #59
62	Application Section 7.5		Fish Habitat	10-Apr-14	John Rex	FLNRO		Table 7-8 Similar to forestry, recommendation is no harvesting within 10m of small streams.	Coastal GasLink will limit clearing activities at watercourse crossings to the removal of trees and shrubs along the ditchline and areas required for vehicle crossings, as indicated in Table 7-8. Mitigation is also included in Section 8.4, Watercourse Crossings, of the Environmental Management Plan.	Response Satisfactory.	

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
63	Application Section 7.5		Fish Habitat	10-Apr-14	John Rex	FLNRO		Table 7-8 No comment on monitoring design to ensure mitigation is effective. Particularly for streambed fine sediment content as opposed to turbidity/TSS	Monitoring will be conducted during and following construction to ensure that mitigation is implemented and is effective. Section 25.2 of the Application and Section 8.4 of the EMP provide information about environmental monitoring during construction at watercourse crossings. Potential for streambed sediment deposition will be addressed by monitoring for turbidity/suspended sediment during construction at watercourse crossings. Adherence to standards for suspended sediment in the BC Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments (BC MOE 2001) during construction will ensure that suspended sediments remain within acceptable levels, which will avoid downstream sediment deposition. Post-construction monitoring for stability, erosion and vegetation establishment at watercourse crossings will be conducted for a period of five years following construction, as described in Section 25.3 of the Application. Referenced Guideline: British Columbia Ministry of Environment and Parks. 2001. Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments. Prepared by Ministry of Environment. Website: http://www.env.gov.bc.ca/wat/wq/BCguidelines/turbidity/turbidity.html . Accessed: April 2014.	Pre-construction assessment will also identify if there have been changes, particularly important for valued fish streams. The guideline referred to here provides criteria for suspended and benthic sediments, yet the proponent only describes monitoring for suspended sediments. Consequently, they are misquoting the guideline and may be overestimating the effectiveness of their sampling program.	Coastal GasLink confirms that potential for streambed sediment deposition will be addressed by <u>monitoring for turbidity/suspended sediment</u> during construction at watercourse crossings. Adherence to <u>standards for suspended sediment</u> in the BC Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments (BC MOE 2001) during construction will ensure that suspended sediments remain within acceptable levels, which will avoid downstream sediment deposition.
64	Application Section 7.5		Fish Habitat	10-Apr-14	John Rex	FLNRO		The entire focus of the program is on turbidity and TSS ignoring streambed fine sediment content. This issue was raised during the AIR and screening, streambed fine sedimentation can have more pervasive and long-lasting habitat effects. Consequently, this component should be added to monitoring program.	Potential for streambed sediment deposition will be monitored during construction following the BC Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments (BC MOE 2001). Adherence to these guidelines is expected to lessen the adverse effects of downstream sediment deposition. Reference: British Columbia Ministry of Environment and Parks. 2001. Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments. Prepared by Ministry of Environment. Website: http://www.env.gov.bc.ca/wat/wq/BCguidelines/turbidity/turbidity.html . Accessed: April 2014.	As above, there is a relationship between suspended and benthic sediments but they are not the same thing. It is recommended that some measure of effectiveness be considered rather than solely expecting adherence to TSS guidelines to minimize sediment deposition. There should be some form of validation monitoring.	Coastal GasLink will comply with all applicable regulatory requirements. Coastal GasLink confirms that potential for streambed sediment deposition will be addressed by monitoring for turbidity/suspended sediment during construction at watercourse crossings. Adherence to standards for suspended sediment in the BC Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments (BC MOE 2001) during construction will ensure that suspended sediments remain within acceptable levels, which will avoid downstream sediment deposition.
65	Application Section 7.5.3		Fish Habitat: Characterization of potential residual effects	10-Apr-14	John Rex	FLNRO		As for 7.5 comment above, residual effect can be a fining of the streambed. Bedload changes are longer-lasting than turbidity events.	Coastal GasLink is proposing to use industry accepted best practices to lessen siltation of watercourses, and does not anticipate that there will be substantial downstream deposition of sediment to the streambed. Coastal GasLink expects mitigation will be effective in reducing the quantities of downstream sediment deposition.	As above, particularly for valued fish streams and potable systems a monitoring program should be implemented.	Coastal GasLink will comply with all applicable regulatory requirements. Coastal GasLink confirms that potential for streambed sediment deposition will be addressed by monitoring for turbidity/suspended sediment during construction at watercourse crossings. Adherence to standards for suspended sediment in the BC Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments (BC MOE 2001) during construction will ensure that suspended sediments remain within acceptable levels, which will avoid downstream sediment deposition.

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66	Application Section 7.5.3		Fish Habitat: Increased fish mortality due to TSS	10-Apr-14	John Rex	FLNRO		Monitoring of allowable TSS concentrations 100-400 mg/l. Turbidity surrogate will be used presumably because TSS cannot be directly measured. Is it acceptable for selecting CCME guidelines rather than BC provincial water quality standards?	Monitoring and activities will be conducted according to criteria set out in the BC Approved Water Quality Guidelines (BC MOE 2001), in addition to criteria in the CCME guidelines. Reference: British Columbia Ministry of Environment. 2001. Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments: Overview Report. Website: http://www.env.gov.bc.ca/wat/wq/BCguidelines/turbidity/turbidity.html .	Specific statement on threshold will be helpful. Does construction cease when turbidity increases are > 8 NTU or 80NTU, 10% of baseline measures, or other. Are the BC water quality guidelines = CCME guidelines?	Coastal GasLink will comply with all applicable regulatory requirements.
67	Application Section 7.5.3		Fish Habitat: increased fish mortality/injury due to increased access	10-Apr-14	John Rex	FLNRO		Replant work area and crossing approaches to reduce future access issues?	Appropriate measures will be implemented to reduce access along the pipeline ROW following construction (i.e., during final cleanup). Mitigation is described in Section 7.5.1 of the Application. Coastal GasLink will also develop its Access Control Management Plan as described in Appendix D of the Environmental Management Plan.	Opportunity for revegetation and/or barriers where range intersects potable supply.	
68	Application Section 7.5.3		Fish Habitat: Alteration of loss of riparian habitat	10-Apr-14	John Rex	FLNRO		Conifers are not to be re-planted so shrub growth and or deciduous, research has shown these may not provide adequate shade, so openings must be kept small <tree length as possible to maintain riparian function.	Coastal GasLink will limit clearing activities at watercourse crossings to the removal of trees and shrubs along the ditchline and areas required for vehicle crossings, as indicated in Table 7-8. Mitigation is also included in Section 8.4, Watercourse Crossings, of the Environmental Management Plan. Coastal GasLink will determine reclamation materials in discussion with the appropriate regulatory authorities.	Opportunity for revegetation and/or barriers where range intersects potable supply.	
69	Application Section 7.7.2		Surface Water Effects: Potential Residual Effects	10-Apr-14	John Rex	FLNRO		Decrease in TSS is due to dilution or sedimentation. Hence streambed in ZOI should also be assessed.	Turbidity monitoring at watercourse construction sites will provide early warning of any sediment releases, assess the magnitude, duration and extent of any sediment releases and provide insight into possible effects on aquatic resources downstream, should such an event occur. TSS/turbidity monitoring will provide an indication of sediment effects from crossing construction and allow adjustments to construction activities to maintain TSS/turbidity within accepted guidelines. Maintaining suspended sediment levels within accepted standards will reduce amounts and potential effects of depositing sediment on streambed. As such, streambed composition is not included in construction monitoring activities. If an exceedance of accepted guidelines occurs and impacts to fish habitat within the ZOI is suspected, additional monitoring and investigation will be conducted and required action taken, in consultation with the appropriate regulatory authorities.	As above, recommend streambed assessment particularly at sensitive crossing and watershed with high valued fish habitat.	Coastal GasLink will comply with all applicable regulatory requirements.

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70	Application Section 7.7.5		Surface Water Quality	10-Apr-14	John Rex	FLNRO		Stream crossing density is presented as a quantitative indicator of surface water quality. It is the primary strategy presented to address sediment -based water quality issues. The issue is that this is an incorrect assumption/statement. Stream crossing density is only one of several watershed assessment hazard indicators for surface erosion. Stream crossing density is neither a "quantitative indicator" of surface water quality nor the only hazard indicator in the watershed assessment procedure cited. Although an important indicator, it should not be accepted as a rationale for decreasing future surface water quality monitoring.	Stream crossing density calculations were not used to assess Project-specific water quality effects but were part of the cumulative effects assessment; which is an assessment conducted to identify how potential adverse effects from a proposed project could interact with impacts from other developments occurring in the same region. Using a quantitative metric allows an understanding of the potential cumulative effects of the proposed Project in relation to existing and reasonably foreseeable future developments. While there are other metrics that can be used for watershed assessment, stream crossing density was used for this assessment as an indirect measure of sediment and nutrient input resulting from land use. Project-specific monitoring and mitigation measures, such as surface water quality monitoring are discussed in the environmental effects assessment (refer to Table 7-8 of Section 7.5.1). Stream crossing density is not used to guide surface water quality monitoring during construction.	Clarification is appreciated.	
71	Application Section 7.7.5		Surface Water Quality	10-Apr-14	John Rex	FLNRO		Although agriculture was mentioned, there is no discussion/strategy presented for preventing increased cattle access to streams due to temporary construction or maintenance roads post-construction. This may be a potable supply issue due to the potential for fecal contamination.	Agriculture is discussed in Section 7.7.5 in the assessment of cumulative effects, an activity that may interact with the proposed Project in a cumulative manner. Project-specific access controls are outlined in Table 7.8 of Section 7.5.1 and would be included in the Access Control Management Plan. In addition, as noted in the Application, Fraser (2009) and the Ministry of Forests, Lands and Natural Resource Operations (2011) provide range users with best management practices and range management measures intended to protect riparian and instream habitat. Coastal GasLink will also continue dialogue with landowners about livestock management activities to lessen the potential for adverse effects on riparian habitats. References: British Columbia Ministry of Forests, Lands, and Natural Resource Operations. 2011. Best Management Practices on Crown Range in Community Watersheds. Range Branch. Fraser, D.A. 2009. Water quality and livestock grazing on Crown rangeland in British Columbia, B.C. Ministry of Forests and Range, Range Branch. Kamloops, B.C. Rangeland Health Brochure 12.	Good to see CGL engaging other stakeholders. The question to CGL was more to explore how they can address the issue of range intersection and crossing access to minimize likelihood of contamination.	Section 8 of the EMP includes mitigation to control erosion and sedimentation. Appendix C.7 of the EMP provides the Soil Erosion Contingency Plan.

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72	Application Section 25.3		Surface Water/Fish Habitat: Post-Construction Monitoring	10-Apr-14	John Rex	FLNRO		Watercourse monitoring should include streambed sediment assessment. Also should provide flexibility for monitoring >5 yrs where chronic sediment additions are identified and effectiveness of remediation measures should be assessed.	<p>Potential for streambed sediment deposition will be monitored during construction following the BC Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments (BC MOE 2001). Adherence to these guidelines is expected to lessen the adverse effects of downstream sediment deposition.</p> <p>Referenced Guideline: British Columbia Ministry of Environment and Parks. 2001. Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments. Prepared by Ministry of Environment. Website: http://www.env.gov.bc.ca/wat/wq/BCguidelines/turbidity/turbidity.html. Accessed: April 2014.</p> <p>Coastal GasLink will conduct post-construction monitoring for 5 years after reclamation and clean-up. If issues of sedimentation are identified, remediation measures will be implemented and further monitoring conducted, as necessary.</p>	CGL agrees to further monitoring and remediation at chronic sites. Chronic impact threshold levels should adhere to provincial water quality standards (i.e. < 8 NTU or 10% of background).	Coastal GasLink will comply with all applicable regulatory requirements.
73	Application Appendix 2J		Ecological communities of concern, Plant species of concern	10-Apr-14	Bruce Rogers	FLNRO		TEM Methods: In the "2J Vegetation TDR_REV_1_Part1" document on pp 21 it is stated that "A Survey Intensity Level 4 (RIC 1998) was used to focus the sampling effort and was based partly on the size of the vegetation RSA. Approximately 132,000 ha of land is encompassed in the vegetation RSA, which results in approximately 1,650 TEM plots." The total number of plots given in 5:20:75-detailed:GIF:visual plot distribution ratio is 261:361:1,671 which totals 2293 plots. Were 1650 or 2293 plots sampled? If the 261:361:1,671 distribution and total is correct then it meets and exceeds the minimum number of inspections required of 66:264:990.	Coastal GasLink confirms that the total number of TEM plots completed was 2,293, therefore exceeding the number of plots recommended for SiL 4.	Issue Resolved	
74	Application Appendix 2J		Ecological communities of concern, Plant species of concern	10-Apr-14	Bruce Rogers	FLNRO		TEM Methods: In terms of % polygon inspections, in the 2J Vegetation TDR_REV_1_Part1" document on pp 21, TEM methods I don't see any indication of what the polygon total was with respect to 2293 inspections or what the accuracy assessment was so this also limits my ability to comment on the quality of the TAM product. Also although, numerically plot numbers may indicate over achievement, I would still like to see some rationale presented in the methods for plot distribution spatially throughout the study area to see that it was in fact representative of the variable terrain throughout the route.	Coastal GasLink adhered to the Standard for Terrestrial Ecosystem Mapping in British Columbia (RIC 1998). Survey Intensity Level 4, 1:20000 scale. A total of 8,810 polygons were mapped, and a minimum of one inspection was completed in 1,513 polygons (17.2%). Plot distribution was representative of the biogeoclimatic subzone-variants crossed by the RSA. Thus, the number of TEM plots within each biogeoclimatic subzone-variant was proportionate to the area of each biogeoclimatic subzone-variant within the RSA.	Issue Resolved	
75	Application Appendix 2A		Ecological communities of concern, Plant species of concern	10-Apr-14	Bruce Rogers	FLNRO		In the document "2A Environmental Management Plan_Main_Rev 1" Section 9, Post Construction Monitoring, pp81, it is stated: "Coastal GasLink will record locations of concerns identified during construction related to weeds, vegetation establishment, general ROW conditions, water crossing stability, and reclamation success. This issues list will be used to measure the success of mitigation used during construction of the proposed Project, and to ensure outstanding issues are investigated, resolved, and reported during Project operations". This is the only reference to vegetation monitoring in this section of the document and appears to imply that vegetation monitoring will be based on concerns related to invasive plants only. What plans exist for monitoring native/traditional plants and plant communities of concern for both terrestrial and wetland vegetation and what are the methods, objectives and monitoring timelines?	A more detailed description of post construction monitoring is provided in Section 25.3 of the Application. Timing, type, and the description of monitoring for vegetation are outlined on page 25-10. For vegetation, the focus of monitoring will be on unresolved issues, including invasive species, to determine whether vegetation on the reclaimed construction ROW is comparable to that of conditions off the construction ROW.	Issue Resolved	

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76	Application Appendix 2A		Ecological communities of concern, Plant species of concern	10-Apr-14	Bruce Rogers	FLNRO		Regarding the document "2A Environmental Management Plan_Main_Rev 1, Table 7-1: Resource-specific Mitigation Table, pp40" In terms mitigation in OGMA's it is stated that: "A provincial OGMA replacement process has been established to guide the replacement of OGMA's that are affected by resource development activities (Integrated Land Management Bureau 2008). Participate in the OGMA replacement process when the proposed route is finalized, in consultation with BC MFLNRO." Although this process may still be in effect, I am not aware of the extent to which it addresses all OGMA's and other land use objectives such as WHA's Biodiversity Order related spatial old growth targets etc. If it is still in effect, then it is a viable mitigation option for those objectives for which it was intended, if not then it isn't.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in Old Growth Management Areas.	Issue Resolved with consideration: I am aware that OGC and FLNRO are in discussion regarding this process, but want to emphasize as the process develops that it should address all old growth land use objectives including aspatial old growth targets of forest licensees regarding Prince George TSA and Provincial Biodiversity Orders	See response to issue tracking #77
77	Application Section 8.2.3		Ecological communities of concern, Plant species of concern	10-Apr-14	Bruce Rogers	FLNRO		Federal and provincial policy around vegetation and provincial old growth objectives is comprehensive in the application. However, there are also spatial and aspatial old-growth retention targets in FRPA Forest Stewardship Plans of forest licensee's in TSA's throughout the North East, Omineca, Skeena and Coast regions along the pipeline route with respect to the Provincial and Prince George TSA Biodiversity Orders. These should also be referenced and mitigation measures presented.	Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in old forest managed through aspatial biodiversity orders and forest stewardship plans.	Issue Resolved with consideration: I am aware that OGC and FLNRO are in discussion regarding this process, but want to emphasize as the process develops that it should address all old growth land use objectives including aspatial old growth targets of forest licensees regarding Prince George TSA and Provincial Biodiversity Orders	Coastal GasLink submitted a technical memo to EAO June 24 2014 with additional information about estimated incursions into Old Growth Management Areas, and potential effects on the aspatial Provincial Biodiversity Orders for the Prince George TSA. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and requirements with respect to the appropriate plans for Coastal GasLink activities in old forest managed through aspatial biodiversity orders and forest stewardship plans.
78	Application Section 8.3		Ecological communities of concern, Plant species of concern	10-Apr-14	Bruce Rogers	FLNRO		It is stated on 8.3 Spatial Boundaries - pp 8-8 that: New Roads will only be created in mountainous areas". Is this accurate only in mountainous areas? What proportion of the new roads created for construction will be deactivated following completion of the pipeline and what methods of deactivation will be used?	The majority of new roads will be constructed in the mountains. All new roads that are not required as permanent access to compressor stations will be deactivated in accordance with resource road standard practices. These standard practices may include activities such as removal of culverts, bridges, and blocking access points. Table 1-5 in the Application lists the approximate ranges of new roads constructed in mountainous and non-mountainous areas. Section 1.4.15 provides further information on temporary and permanent access roads.	Issue Resolved	
79	Application Section 8.4		Ecological communities of concern, Plant species of concern	10-Apr-14	Bruce Rogers	FLNRO		8.4 BASELINE INFORMATION AND PROJECT SETTING it is stated on pp8-12, Line 29 that: "The baseline data available for the Vegetation VCs have been collected over a long enough time period to be reliable, of good quality and applicable to this Project." What data does this refer to? Was this data collected for other purposes or as a part of this application project?	The existing data sources and literature referred to by this sentence are listed in Section 2.1.1 of the Vegetation Technical Data Report (Appendix 2J of the Application) (e.g., BEI, BC CDC data, VRI). Coastal GasLink confirms that lines 29-34 on page 8-12 could be relocated to page 8-17, following line 6.	Issue Resolved	
80	Application Section 8.5			10-Apr-14	Bruce Rogers	FLNRO		In the 8.5 ECOLOGICAL COMMUNITIES OF CONCERN EFFECTS ASSESSMENT, pp 8-32, Line 30, Armillaria ostoyae is cited as being a common forest disease root rot when in fact it doesn't exist as far north as the pipeline route. Through much of boreal and sub-boreal forests Inonotus tomentosus root rot is present. Regional Pathologist for FLNRO Omineca will also comment on this.	Coastal GasLink acknowledges that common root rots in the Project area do not include Armillaria ostoyae but do include Armillaria sinapina which affects broadleaf trees and Inonotus tomentosus which particularly affects interior spruce stands (MOF/CFS 2001). Reference: Ministry of Forests/Canadian Wildlife Service. 2001. Field Guide to Forest Damage in BC. Second Edition.	Issue Resolved	
81	Application Section 8.5			10-Apr-14	Bruce Rogers	FLNRO		In the 8.5 ECOLOGICAL COMMUNITIES OF CONCERN EFFECTS ASSESSMENT, pp 8-34, Line 5 it is stated that: "aside from the mountain pine beetle killed forest "The remaining forest patches are a mix of maturing (30 to 60 years old) to mature (80 to 140 years old)" In actual fact, this depends on where along the pipeline route you refer to. Some of the biogeoclimatic units such as the very wet/cool SBSvk and ESSF that had very little pine are not fragmented and attain stand ages of 250+ years.	Coastal GasLink acknowledges that there are areas of fragmented forest along the route where there is little pine, little mountain pine beetle damage and stands of 250+ years.	Issue Resolved	

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82	Application Section 8			10-Apr-14	Bruce Rogers	FLNRO		Throughout Table 8-7: Potential Adverse Effects, Key Mitigation and Residual Environmental Effects of the Proposed Project on Ecological Communities of Concern, "Key Mitigation" activities include such things as removing and replacing topsoil, removing and replacing structural elements and having these elements documented in contracts (e.g. pp8-37-38). This implies that after the pipe has been installed it would be part of the contract that the contractor would remain at that location to complete these tasks and before moving on. Is there a process in place to monitor these secondary construction activities?	Coastal GasLink's construction management team will monitor all activities associated with the proposed Project. All activities associated with the construction of the proposed Project will be carried out in accordance with the Environmental Management Plan, and will be monitored by Environmental Inspectors. The Environmental Inspector's main responsibility is to ensure that all environmental commitments, undertakings and conditions of authorizations are met and that work is completed in compliance with applicable environmental regulations and Coastal GasLink policies, procedures and specifications in the most efficient and effective way possible.	Issue Resolved	
83	Application Section 8			10-Apr-14	Bruce Rogers	FLNRO		In Table 8-7: Potential Adverse Effects, Key Mitigation and Residual Environmental Effects of the Proposed Project on Ecological Communities of Concern, pp 8-39 mitigation to Douglas-fir Forests is discussed in terms of natural recovery. As do white bark pine, at higher elevation (as noted on pp 8-42) at lower elevations Douglas-fir forests also proliferate on southerly facing slopes and are rare at the northern extent of their range in North America, therefore the same accommodation of avoidance of south slopes in the BGC units where Douglas-fir exists as that given to white bark pine (pp8-42) should also be given to Douglas-fir	Coastal GasLink acknowledges Douglas-fir forests as environmentally sensitive areas. Information about site specific environmentally sensitive areas will continue to inform Coastal GasLink's construction planning and detailed engineering design. Coastal GasLink will avoid ecological communities of concern where practical or implement site specific mitigation.	Issue Resolved	
84	Application Section 8			10-Apr-14	Bruce Rogers	FLNRO		In Table 8-7: Potential Adverse Effects, Key Mitigation and Residual Environmental Effects of the Proposed Project on Ecological Communities of Concern, pp 8-42, it is stated that: "In alpine areas, avoid workspace and route alignments that traverse south-facing slopes, where practical. Concentrating the alignment and particularly workspace on north aspects will impact fewer whitebark pine trees." How much of the route plan is on north slopes in the ESSF BGC?	Approximately 29.6 km of proposed route crosses northerly aspects in the ESSF BGZ. Criteria for north aspect taken from DIF (BC MOF and MOE 2010): aspects between 285 - 135 degrees, and greater than 25% slope. Note: 1.3 km of the route lacks LiDAR, so there could be an additional 1.3 km of north aspect in the ESSF.	Issue Resolved	
85	Application Section 8			10-Apr-14	Bruce Rogers	FLNRO		Table 8-9: Determination of Significance and Confidence for Potential Residual Adverse Effects on Ecological Communities of Concern for the Proposed Project, pp8-60. For many of the Potential Residual effects it is indicated that post construction monitoring will be carried out for 5 years. It is indicated that for all of the residual effects there is a "high confidence" that impact has low significance and that they will return to normal. Are there a set of measurable parameters for this? In my opinion 5 years will not be long enough to determine whether mitigation was successful in the ecosystems. Perhaps 5 years of seasonal monitoring and then monitoring every 3-5 years for the life of the pipeline or 20 years would be more appropriate.	Post-construction monitoring will be conducted during the first five years after final cleanup and reclamation. Post construction monitoring will begin after the first full growing season after final cleanup of the areas disturbed by the proposed Project and the implementation of post-construction reclamation measures. The issues identified and additional mitigation actions taken within the first year following final cleanup and reclamation will be assessed and any residual outstanding issues will be managed during subsequent years as necessary including implementing further monitoring where warranted.	Issue Resolved with consideration: With the consideration that it will be determined after 5 years of monitoring for mitigation success whether further monitoring will be required and if so will be carried out, I support this approach	Section 25.3.3. of the Application describes post construction monitoring to occur as part of operations and maintenance activities, and confirms that any outstanding issues remaining after the fifth year after final clean up and reclamation will be identified and addressed by Coastal GasLink through adaptive management.
86	Application Section 8			10-Apr-14	Bruce Rogers	FLNRO		Regarding "Potential Combined Adverse Effects on Occurrences of Whitebark Pine pp8-96", it is stated that: "Whitebark pine was observed in 25 locations in the LSA, five of which occur on the proposed route. TEM mapping indicates there are 36.8 ha of whitebark pine Blue-listed community along the proposed route.". what is the confidence that this is the extent of WBP? How does the distribution of ground/visual plots along the route support this?	Confidence in the location of these whitebark pine occurrences and whitebark pine communities is high. In addition a field program is planned for 2014 to delineate whitebark pine stands with additional precision. In addition to TEM surveys, rare plant surveys were targeted in the area where whitebark pine is expected to occur, using a combination of ground plots and visual inspections from a helicopter.	Issue Resolved	

Coastal GasLink Project: Working Group Comment Tracking Table

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87	Application Section 9			10-Apr-14	Bruce Rogers	FLNRO		The Wetlands VC is given as Wetlands Function with three functionally related KI's rather than Wetland Plant Community/Wetland Plant Species related VC and KI's, as is the Vegetation VC. Therefore, although the proponent discusses elements of vegetation in this section, it is done in context of impacts and mitigation around broader classes and wetland function rather than directly to that of classified ecosystems in BC and thus difficult for me to comment on directly from a vegetation standpoint regarding linkages from function to ecosystem/vegetation. It is that link or the direct assessment of ecosystem class as per Mackenzie and Moran (2005), Wetlands of British Columbia Classification that I consider most important in terms of measuring success of mitigation through operational activities and long-term monitoring and I feel the KIs should reflect vegetation communities and species as well as function to provide an appropriate measure of mitigation/reclamation success. The link between function and actual impact to ecosystems and species of concern at the level they are inventoried at in BC such as Mackenzie and Moran (2005) is the level I would need to see in order to comment clearly on impact and mitigation to vegetation and that link in this section is not very clear to me. Also, in some cases some broad statements around links between "loss or alteration of wetland function" and ecosystem, species and habitat elements are made without supporting literature/evidence which leaves some of them as assumptions rather than facts. With that said, TEM did capture wetland ecosystems at the site association level of Mackenzie and Moran, (2005) and it is summarized along the ROW in the 2K Wetland_TDR_REV_1_Part1 document and acknowledged in the context of Plant communities of and Rare Plant species of Concern in the Section_08_Vegetation_Rev_1 and 2J Vegetation TDR_REV_1_Part1 documents. In summary, I feel that although the baseline information for Wetland Vegetation is present in the application, it hasn't been incorporated directly into the Wetlands section as a measurable parameter as broader class and function have been.	Valued Components are in the AIR issued by the EAO in the spring of 2013, and include the valued components Wetland Function, and the Key Indicators Hydrologic Functions, Habitat Functions, and Biogeochemical Functions. Consequently, the wetland assessment focuses specifically on wetland function, which broadly includes vegetation under wetland habitat function. Wetland site associations (Mackenzie and Moran 2004) identified by TEM and expected wetland functions associated with those site associations are listed in Section 9.4.5 of the Application. Where locations of plant species and ecological communities of concern intersect with wetlands on the proposed route, mitigation for wetlands, plant species and ecological communities of concern has been identified. The Vegetation Section (Section 8) addresses effects assessment on all ecological communities of concern, including wetland ecosystems under the VC Ecological Communities of Concern.	I acknowledge that the project address intersections with wetland ecological communities of concern at the site association level. However, the VC should reflect all wetland communities as determined from the TEM as does was done for the terrestrial vegetation communities. This way success of mitigation will be based on more site specific indicators not only around listed wetlands but for all.	Coastal GasLink assessed valued components and key indicators outlined in the Application Information Requirements issued by the EAO in May 2013. The focus on the valued component wetland function includes hydrology, habitat, and biochemical function. Section 8 of the Application addresses potential adverse effects and mitigation on all vegetation communities, including vegetation found in wetlands.
88	Application Section 9			10-Apr-14	Bruce Rogers	FLNRO		Add a KI for the Wetland Function VC of Wetland plant communities and species of concern: Although I understand that wetland associated ecological communities of concern and plant species of concern are addressed in the Section 8 Vegetation component of the application as with the Terrestrial Vegetation VC's, with the Wetlands Function VC there is not an indicator for wetlands directly relating function to vegetation. Just as wetland class area (CWC) was summarized as a KI reference point, in Table 9-5: Distribution and Projection of Area of Wetland Class in the Wetlands LSA and RSA of Section 9 Wetlands document, the same should be done for wetland plant associations of the BC Wetland Classification for which the spatial data also already exists in the report. This would facilitate a KI for the Wetland Function VC of "Wetland plant communities and species of concern" and function could then be evaluated in relation to ecosystems at a more suitable scale for determining impact and mitigation success over time.	Valued Components are in the AIR issued by the EAO in the spring of 2013, and include the valued components Wetland Function, and the Key Indicators Hydrologic Functions, Habitat Functions, and Biogeochemical Functions. Consequently, the wetland assessment focuses specifically on wetland function, which broadly includes vegetation under wetland habitat function. Wetland site associations (Mackenzie and Moran 2004) identified by TEM and expected wetland functions associated with those site associations are listed in Section 9.4.5 of the Application. Where locations of plant species and ecological communities of concern intersect with wetlands on the proposed route, mitigation for wetlands, plant species and ecological communities of concern has been identified. The Vegetation Section (Section 8) addresses effects assessment on all ecological communities of concern, including wetland ecosystems under the VC Ecological Communities of Concern.	I acknowledge that the project address intersections with wetland ecological communities of concern at the site association level. However, the VC should reflect all wetland communities as determined from the TEM as does was done for the terrestrial vegetation communities. This way success of mitigation will be based on more site specific indicators not only around listed wetlands but for all.	See response to issue tacking #87
89	Application Section 9			10-Apr-14	Bruce Rogers	FLNRO		In section 9.5.3 Potential Residual Adverse Effects - Determination of Significance and Confidence, the following the statement appears numerous time regarding "loss or alteration of KI wetland function: "The potential residual adverse effects on habitat function are not predicted to threaten the capacity of wetlands to maintain functional integrity and are considered not significant because they are reversible following reclamation or can be technically and economically mitigated." Following that statement it is then stated that "Prediction of the effectiveness of mitigation and the resilience of wetland ecosystems is based on experience gained during post-construction monitoring on projects with similar conditions, where potential adverse effects on wetland habitat function were avoided by proper mitigation implementation". If literature exists to support these statements it should be referenced in this document. If only operational accounts exist then this information/data should be presented in an operational	Section 9.5 of the Application provides a review of potential effects on wetland function (e.g. hydrological function) based on review of relevant literature and reports. For example, post-construction monitoring reports for the TMX Anchor Loop Project (TERA 2013) are referenced in Section 9.5.2, page 9-46. A complete list of references referred to in the assessment of wetlands is provided in Section 9.6.	Issue Resolved with consideration: Provided that the literature and reporting used to substantiate these statements is scientifically sound, geographically relevant and reflects conclusions at the correct temporal scale, one may be able to conclude that certain impacts to some wetland elements may not be significant, but it should also be recognized that some will. The evaluation of mitigation success will only be as accurate as the level that the VC/KI's are defined	Coastal GasLink will implement Post Construction Monitoring over the areas disturbed by construction as described in Section 25.3 of the Application and includes an objective to evaluate the effectiveness of environmental protection and mitigation during construction.

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								report and subsequently referenced in this document			
90	Application Section 9			10-Apr-14	Bruce Rogers	FLNRO		In the document "Section_09_Wetlands_Rev 1" pp 9-53, Line 6-29 it is stated that: "The potential residual adverse effects on hydrologic function are not predicted to threaten the capacity of wetlands to maintain functional integrity and are considered not significant because they are reversible following reclamation or can be technically and economically mitigated." Similar presumptions are stated for that of biochemical and habitat functions. These statements may or may not be accurate and should be substituted with relevant literature and/or data from previous studies	Section 9.5 of the Application provides a review of potential effects on wetland function (e.g. hydrological function) based on review of relevant literature and reports. For example, post-construction monitoring reports for the TMX Anchor Loop Project (TERA 2013) are referenced in Section 9.5.2, page 9-46. A complete list of references referred to in the assessment of wetlands is provided in Section 9.6.	Issue Resolved with consideration: Provided that the literature and reporting used to substantiate these statements is scientifically sound, geographically relevant and reflects conclusions at the correct temporal scale, one may be able to conclude that certain impacts to some wetland elements may not be significant, but it should also be recognized that some will. The evaluation of mitigation success will only be as accurate as the level that the VC/KI's are defined	See response to issue tacking #89
91	Application Section 9			10-Apr-14	Bruce Rogers	FLNRO		In the document "Section_09_Wetlands_Rev 1" pp 9-64, Line 29 it is stated that: "with implementation of appropriate mitigation, recovery of wetland habitat function is expected in the medium-term, which reflects the minimum time period for which potential cumulative adverse effects can be considered reversible following short-term recovery of graminoid and shrub vegetation and recovery of hydrologic function. Potential cumulative adverse effects resulting from alteration in treed wetland habitat is considered to be reversible in the long term and potential adverse effects are expected to extend through the operations phase (until treed habitat is allowed to regenerate on the ROW)." Similar presumptions are stated for that of many other aspects of the document. These statements may or may not be accurate and should be substituted with relevant literature and/or data from previous studies	Section 9.5 of the Application provides a review of potential effects on wetland function (e.g. hydrological function) based on review of relevant literature and reports. For example, post-construction monitoring reports for the TMX Anchor Loop Project (TERA 2013) are referenced in Section 9.5.2, page 9-46. A complete list of references referred to in the assessment of wetlands is provided in Section 9.6.	Issue Resolved with consideration: Provided that the literature and reporting used to substantiate these statements is scientifically sound, geographically relevant and reflects conclusions at the correct temporal scale, one may be able to conclude that certain impacts to some wetland elements may not be significant, but it should also be recognized that some will. The evaluation of mitigation success will only be as accurate as the level that the VC/KI's are defined	See response to issue tacking #89
92	Application Section 5		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Mountain Passes and Valleys; What is missing is a treatment of the effects of glacial thinning and mountain permafrost. A quick review of the literature indicates that much has been written on this topic recently (see references below). The route goes through a few passes where glacial retreat has occurred in the last century and where mountain permafrost is predicted. Both of these factors condition rock slopes to failure. This is missing from the application.	The bedrock geology, and surficial material along the proposed route were mapped at scales of 1:250,000 and 1:25,000, respectively. This information was provided in the Terrain Technical Data Report. Coastal GasLink is completing terrain stability mapping of the route, as part of construction planning and detailed engineering design. Terrain stability is a product of the geology, the geological history and the earth materials and their properties. While the potential effects of the presence of permafrost and glacial retreat for the current terrain stability along the Project route were not explicitly required to be considered in the AIR, they are considered in the surficial material and geomorphological process terrain attributes. Coastal GasLink will consider the occurrence of mountain permafrost and recently deglaciated terrain hazards as construction planning and detailed engineering design advances. Coastal GasLink expects such aspects of the detailed engineering design of the proposed Project to be subject to review by the OGC.	Response is satisfactory	

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93	Application Section 5		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Glaciomarine/estuarine sediments; It seems that no in situ strength testing results have been submitted. Glaciomarine and estuarine deposits can undergo failure from loading, excavation, and seismicity. This missing information is important to review for routing.	Submission of in-situ strength testing results is not a requirement outlined in the AIR. Subsurface strength information will be collected during the summer 2014 geotechnical program. This information will support construction planning and detailed engineering design, which will be provided to OGC for their review.	Response is satisfactory	
94	Application Section 5		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Mapping; To conduct a mapping review a reviewer needs the following: <ul style="list-style-type: none"> • Shapefiles of polygons • Aerial imagery used to generate polygons • LiDAR (Bare earth, .xyz or grd files) Without these things there is no way to verify the accuracy of the mapping. All three are essential. None have been provided.	Coastal GasLink provided the requested mapping to EAO to share with Working Group if requested.	Response is satisfactory	
95	Application Section 5		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Terrain Maps; The terrain map (Volume 22B) has been replaced by a pdf document with the filename: Coastal GasLink_Terrain_Mapping. Nice work! This map, in my opinion, can be held up as an example of the type of product the Province should require for pipeline routing studies. Some of the important attributes include: <ul style="list-style-type: none"> • Subsurface materials • On-site symbols • Geomorphic processes • Surface expression • Texture • Drainage • Slope • Derived terrain stability class Moreover, in critical areas the mapping extends to height of land. The polygon size is reasonable.	The terrain maps referred to were provided to EAO on 16 April 2014 and subsequently forwarded to FLNRO. This comment confirms that the reviewer has accepted the mapping provided.	Response is satisfactory	
96	Application Section 5		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Stability Maps; This is now included as an interpretive layer on the terrain map. In critical areas, mapping extends to the height of land.	Acknowledged.	Response is satisfactory	
97	Application Section 5		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Recommendations <ul style="list-style-type: none"> • Submit LiDAR (xyz), polygon shapefiles, and imagery to FLNRO for review. There are sharing protocols in place for proprietary data. • Ideally some subsurface strength parameters will be provided for the marine estuarine portion to guide routing decisions. • Update sections 5 and 22 to include mountain permafrost and recently deglaciated terrain hazards. 	Coastal GasLink has provided the requested information to FLNRO. Subsurface strength parameters through marine estuarine areas will be collected during the summer 2014 geotechnical program. This information will support construction planning and detailed engineering design, which will be provided to OGC for their review. Coastal GasLink will consider the occurrence of mountain permafrost and recently deglaciated terrain hazards as construction planning and detailed engineering design advances.	Response is satisfactory	
98	Application Section 5		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		"Terrain Integrity Project Footprint: The proposed route, compressor and meter station sites, ancillary sites (laydown areas, stockpile sites, construction camps etc.) and access roads comprise the Project Footprint) LSA: the terrain integrity LSA includes a 2 km-wide band centred on the proposed route (i.e., extending 1 km on both sides of the proposed route) RSA: no regional effects for terrain integrity are expected and, therefore, an RSA has not been defined for terrain integrity." Comment: How does terrain integrity relate to the effect of geohazards on the environment?	The AIR does not require Coastal GasLink to describe effects of geohazards on the environment, however, terrain integrity was chosen as a Valued Ecosystem Component for the proposed project (Table 5-1, Page 5-1 of the Project Application). The currently occurring Geology, Physiography, Topography, Landforms, Surface Material and Geohazards in the proposed Project LSA together describe the terrain integrity baseline of the Project LSA. Potential effects of the proposed Project on terrain integrity (including naturally occurring geohazards) are described in Table 5-8 (pages 5-47 to 5-50, section 5.6) of the proposed Project Application. Potential effects of the environment (including naturally occurring geohazards) on the proposed Project are described in Section 22	Response is satisfactory	

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									of the Application.		
99	Application Section 22		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Comment: No assessment of seismicity in glaciomarine /estuarine sediments?	The assessment of seismic hazards in glaciomarine and estuarine sediments is not specified in the scope of the assessment as defined by the AIR. The Application does however discuss natural seismic events and hazard identification in Section 22.3. Detailed engineering design is subject to the OGC review process, and additional information will be provided by Coastal GasLink for that review.	Response is satisfactory	
100	Application Section 22		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Comment: • No mention of effects of mountain permafrost degradation on slope stability. (There are many recent papers on this topic) • No mapping of mountain permafrost. No mention of the province's permafrost layer, or the layer provided by Gruber (2011). • No mention of effects of glacial thinning on slope stability.	The assessment of mountain permafrost degradation effects on slope stability is not specified in the scope of the assessment as defined by the AIR. The Application does however discuss terrain hazards in Section 5 of the Application. Detailed engineering design is subject to the OGC review process, and additional information will be provided by Coastal GasLink for that review.	The proponent or representative is encouraged to attend a mountain permafrost workshop in Whistler October 2014.	Coastal GasLink appreciates the reviewer identifying this opportunity and will consider attending.
101	Application Section 22		Terrain Integrity	13-Mar-14	Marten Geerstema	FLNRO		Comment: No mention of seismic induced liquefaction potential. No subsurface information provided on sensitivity for review.	Information on seismic and tectonic geohazards and liquefaction geohazards has been provided in Section 5 of the Application.	Response is satisfactory	
102	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> • Change the term "architectural sites" to "historic places" (here and throughout document). Historic places do not have to be architectural to be significant. In BC, historic places are non-archaeological places that are valued for their aesthetic, historic, cultural, social, scientific, and spiritual heritage values. Historic places include structures, buildings, groups of buildings, districts, landscapes, or other places that have heritage values. • Limiting this type of VC to above-ground built structures may eliminate the possibility of recognizing other historic places that have provincial or local heritage values, such as historic trails, transportation routes, bridges, cultural landscapes, etc. • There should be consistent use of the term "historic place" to identify post-1846 non-archaeological heritage resources throughout the document. 	Valued Components are in the AIR issued by the EAO in the spring of 2013, and include the valued components Architectural Sites and Historical Sites. The VC Historical Sites encompasses post-1846, non-archaeological and non-architectural sites such as the ones listed in the comment.	Considering that the use of the BC Archaeological Assessment Guidelines as the primary guidance for assessment of heritage values was approved in the AIR in 2013, Heritage Branch can accept that those guidelines will allow for sufficient assessment of non-archaeological historic resources for this project. However, it should be noted that the comments provided regarding terminology and assessment of historic places should be carefully considered in future projects involving mitigation of impacts to non-archaeological historic places.	

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103	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> • Historic Sites and "Architectural Sites" (changed to "Historic Places") should be treated separately, as they are in table 18-1, with each having its own paragraph defining it. • Architectural Sites should be referred to as "Historic Places" to distinguish them from pre-and post-1846 archaeological sites and historic sites, respectively. The term "Architectural" should no longer be used to define a general type of site. • Heritage Branch and Archaeology Branch share responsibility for regulating and managing historic sites formally designated under the Heritage Conservation Act in BC. Heritage Branch is primarily responsible for the regulation of post-1846 historic places and resources. It is important for the distinction between Archaeology Branch and Heritage Branch (and their respective conservation policies) to be clearly articulated in the document, so that responsibility for providing guidance and potential regulation on non-archaeological (post-1846) historic places is understood to be within Heritage Branch. • Similar to Archaeological Impact Assessments, Heritage Branch may order Heritage Impact Assessments (HIA) under section 14 of the Heritage Conservation Act, to evaluate the significance and heritage values of historic places. The terms of reference for HIAs can be found at: http://www.for.gov.bc.ca/ftp/heritage/external/publish/web/Heritage_Impact_Assessment_TOR.pdf • Consideration should be given to historic places that have been identified by local governments under the Local Government Act. Many local governments (including Regional Districts) have formally identified or protected places that possess community heritage values. Places on Community Heritage Registers, or places that are designated by local governments, should be identified so that community heritage values are not lost as the project moves forward. • Here is a list that defines the different types of formal recognition and protection that may be awarded to historic places in British Columbia: <ol style="list-style-type: none"> 1. Protected as a heritage property by the Province under the Heritage Conservation Act; 2. Identified by Order-in-Council as a park, monument or historic site by a regulation made under the Municipal Act; 3. Subject to a heritage designation bylaw pursuant to the Municipal Act or Vancouver Charter; 4. Protected as heritage property in a heritage revitalization agreement pursuant to the Local Government Act or Vancouver Charter; 5. Identified by local government as heritage property in an official community plan, rural land-use bylaw or a heritage conservation area bylaw; 6. Protected as heritage property in a conservation covenant entered into under section 219 of the Land Title Act; 7. Identified as a heritage building in a community heritage register pursuant to the Local Government Act or Vancouver Charter; 8. Identified as a heritage property in a resolution that has been passed by a municipal council or regional district board or; 9. Listed in a Provincial heritage register or in an inventory of heritage buildings maintained for this purpose under section 20(1)(h) of the Heritage Conservation Act 	Valued Components are in the AIR issued by the EAO in the spring of 2013, and include the valued components Architectural Sites and Historical Sites. The VC Historical Sites encompasses post-1846, non-archaeological and non-architectural sites such as the ones listed in the comment.	Considering that the use of the BC Archaeological Assessment Guidelines as the primary guidance for assessment of heritage values was approved in the AIR in 2013, Heritage Branch can accept that those guidelines will allow for sufficient assessment of non-archaeological historic resources for this project. However, future projects should have distinctive processes for identifying, assessing, and evaluating historic places (as opposed to approaching same as archaeological resources). The TOR for Heritage Impact Assessments identifies how the process for assessing non-archaeological heritage is different from the AIA process, and should be integrated into projects in the future. The references to paleontology in the memo seems to be disconnected from the concerns raised about post-1846 historic places and their conservation.	
104	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> • Non-archaeological (post-1846) historic places should be assessed using best practices for historic place conservation. Some of the tools to guide these assessments include the terms of reference for Heritage Impact Assessments (http://www.for.gov.bc.ca/ftp/heritage/external/publish/web/Heritage_Impact_Assessment_TOR.pdf) and The Standards and Guidelines for the Conservation of Historic Places in Canada (http://www.historicplaces.ca/media/18072/81468-parks-s+g-eng-web2.pdf) 	In the Application, Historical Sites were assessed using best practices for historic place conservation listed in the Standards and Guidelines for the Conservation of Historic Places in Canada, as listed in Table 3-1 of the AIR.	The Standards and Guidelines provide detailed information for how to minimize impacts on heritage values of historic places. It is good that these are being used. However, the assessment process outlined in the Heritage Impact Assessment methodology is different from the S&Gs. It is designed to identify and understand the heritage values of historic places that have not yet been formally recognized or protected. For future reference, the HIA process should be used as a specific approach for non-archaeological heritage resources.	Acknowledged.

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105	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> The section of the table identifying "Architectural Sites" should be changed to "Historic Places". The Key Indicators should include the following: <ul style="list-style-type: none"> Buildings Groups of Buildings Structures Landscapes Districts Landscapes Other places that have been formally recognized as having heritage values. 	Valued Components are in the AIR issued by the EAO in the spring of 2013, and include the valued components Architectural Sites and Historic Sites. The VC Historic Sites encompasses post-1846, non-archaeological and non-architectural sites such as the ones listed in the comment.	Considering that the use of the BC Archaeological Assessment Guidelines as the primary guidance for assessment of heritage values was approved in the AIR in 2013, Heritage Branch can accept that those guidelines will allow for sufficient assessment of non-archaeological historic resources for this project.	
106	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> Has consideration been given to assessing historic places as Valued Components using BC Heritage Branch, MFLNRO standards? The TOR for Heritage Impact Assessments identified above provide useful guidance. 	In the Application, Historical Sites were assessed using best practices for historic place conservation listed in the Standards and Guidelines for the Conservation of Historic Places in Canada, as listed in Table 3-1 of the AIR.	The Standards and Guidelines provide detailed information for how to minimize impacts on heritage values of historic places. It is good that these are being used. However, the assessment process outlined in the Heritage Impact Assessment methodology is different from the S&Gs. It is designed to identify and understand the heritage values of historic places that have not yet been formally recognized or protected. For future reference, the HIA process should be used as a specific approach for non-archaeological heritage resources.	Acknowledged.
107	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> Line 10 – indicate that Archaeology Branch and Heritage Branch are in the Ministry of Forests, Lands, and Natural Resource Operations? Line 11-12: Change to: "The BC Archaeology Branch and the BC Heritage Branch are the departments responsible for administering the HCA and maintaining the BC Register of Historic Places." Include the following information: <ul style="list-style-type: none"> That BC Heritage Branch is responsible for regulatory authority under the HCA regarding the protection and alteration of provincially designated historic sites. (Use "historic" instead of "historical", and remove the word "heritage"). 	Coastal GasLink acknowledges that the Archaeology Branch and the Heritage Branch are part of the FLNRO. Coastal GasLink expects further direction from FLNRO and OGC to ensure appropriate steps are followed during permitting for the proposed Project.	The response to the comments don't indicate if these changes have been made to the application.	The information provided by the reviewer has been noted. Changes to the Application at this stage of the Application Review are not anticipated.
108	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> The sentence that states that "most historic sites are not protected in BC" should provide stronger distinction of the fact that sites may be formally recognized or protected by local governments under the Local Government Act. Consideration of LGA designations and registrations of historic places should be included in the project assessment so that the loss of community heritage values is mitigated. This section should also include reference to guidance for the conservation of non-archaeological historic resources that can be found on the BC Heritage Branch website (http://www.for.gov.bc.ca/heritage/), and should also reference The Standards and Guidelines for the Conservation of Historic Places in Canada, which has been adopted as the guiding best practice for non-archaeological conservation in BC. http://www.historicplaces.ca/media/18072/81468-parks-s-g-eng-web2.pdf 	Coastal GasLink acknowledges the consideration of the <i>Local Government Act</i> . In the Application, Historical Sites were assessed using best practices for historic place conservation listed in the Standards and Guidelines for the Conservation of Historic Places in Canada, as listed in Table 3-1 of the AIR. Further to the content provided in Section 18.5.2 of the Application, Coastal GasLink expects further discussion about Historic Sites to occur during the AIA process.	The response to this comment doesn't demonstrate that the suggested changes have been made. These changes can be made without compromising the retention of the use of the AIA as the guiding process for identifying and mitigating impacts to historic places.	The information provided by the reviewer has been noted. Changes to the Application at this stage of the Application Review are not anticipated.
109	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> Architectural Sites should be consistently referred to as "historic places" as they may be places with heritage values that are not buildings or structures. Heritage Impact Assessments (HIAs) may be more practical for assessing heritage values of historic places than AIA. HIAs follow a values-based approach for conserving historic places. Assessment of heritage values, and development of mitigation strategies to minimize impact on historic places, should also involve work with local governments, since some historic places may be formally recognized or protected under the Local Government Act, or may have potential heritage values at the community level but have not been recognized or protected yet. It's important to acknowledge community heritage values as historic places are evaluated as part of the project. Did fieldwork for the AIA include an investigation of the BC Register of Historic Places, and communication with local/regional governments, to identify historic places that have been formally recognized or protected under the Heritage Conservation Act? 	The AIA process includes investigation and recording of places of potential historical significance. The Register of Historic Places has been consulted as part of the desktop overview, and no areas of concern were identified.	Considering that the use of the BC Archaeological Assessment Guidelines as the primary guidance for assessment of heritage values was approved in the AIR in 2013, Heritage Branch can accept that those guidelines will allow for sufficient assessment of non-archaeological historic resources for this project. However, for future reference the Heritage Impact Assessment process should be integrated into projects so that values-based management practices are implemented for non-archaeological historic places.	

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110	Application Section 18		Heritage Resources	15-Apr-14	Berdine Jonker	FLNRO		<ul style="list-style-type: none"> Use the term "historic places" to ensure that types of resources other than built structures are not lost. Check the BC Register of Historic Places, and engage with local governments to ensure that places with potential or already recognized/protected historic places are not negatively impacted by project activities. 	Coastal GasLink acknowledges the consideration of the Local Government Act. In the Application, Historical Sites were assessed using best practices for historic place conservation listed in the Standards and Guidelines for the Conservation of Historic Places in Canada, as listed in Table 3-1 of the AIR. Further to the content provided in Section 18.5.2 of the Application, Coastal GasLink expects further discussion about Historic Sites to occur during the AIA process.	It is good that the BC Register of Historic Places has been reference and that Local Government Act recognized and protected historic places have been identified in the process. However, for future reference it is important to acknowledge that many communities value historic places that they have not yet formally recognized or protected using the Local Government Act. The proponent's consultation with local governments should consider undertaking a heritage context study to help understand where potential historic places are in relation to the project.	Coastal GasLink will continue to implement the Public Consultation Plan and will include discussion about historic places with regional district and municipal governments .
114	Application Appendix 2M		Visual Quality	19-Feb-14 (Comments carried forward from Screening)	Luc Roberge	FLNRO		The Report does include Section 3-5 describing baseline information for "Visual Quality and Aesthetics" and a table showing the various sections of the pipeline crossing over VQO polygons. However, a map showing an overlay of the proposed pipeline route and VQO polygons was not produced as suggested in my dAIR review. Such a map makes the interactions between the two much more understandable for the public and may prove useful for EAO's open houses in March.	Coastal GasLink has provided mapping that shows the overlap between the Retention and Partial Retention VQOs in the Project corridor to the EAO to make available to the Working Group.	The proponent may have provided a map to the EAO but I was not able to locate it on the EAO website nor was it forwarded to the WG. The map and an updated version of Sect. 14.4.5 should be added to the Addendums produced in March 2014. Section 14 of Addendum Part 2 is currently empty except for two additions to the References section.	EAO to provide requested link to mapbook. Changes to the Application at this stage of the Application Review are not anticipated.
115	Application Section 3		Visual Quality	19-Feb-14 (Comments carried forward from Screening)	Luc Roberge	FLNRO		Table 3-4 has been updated to include standards and guidance documents dealing with Visual Assessment.	Acknowledged.	No further comment.	
116	Application Section 14.4		Visual Quality	19-Feb-14 (Comments carried forward from Screening)	Luc Roberge	FLNRO		Although section 14.4.5 adequately describes the interaction between the proposed pipeline and visual quality, it would benefit by including a map showing the overlaps between the two. Such a map would be beneficial for the open houses scheduled for March 2014.	Coastal GasLink has provided mapping that shows the overlap between the Retention and Partial Retention VQOs in the Project corridor to the EAO to make available to the Working Group.	The proponent may have provided a map to the EAO but I was not able to locate it on the EAO website nor was it forwarded to the WG. The map and an updated version of Sect. 14.4.5 should be added to the Addendums produced in March 2014. Section 14 of Addendum Part 2 is currently empty except for two additions to the References section.	EAO to provide requested link to mapbook. Changes to the Application at this stage of the Application Review are not anticipated.
117	Application Section 14.5		Visual Quality	19-Feb-14 (Comments carried forward from Screening)	Luc Roberge	FLNRO		The strategies listed in Table14-30 to mitigate visual impact are a good start but one of the key issues with linear development is the permanent impact created by the right-of-way clearing. Re-vegetating disturbed areas with native plants and/or allowing low growing grasses and shrubs to re-populate these areas help in mitigating the contrast in texture and colour. However, the straight boundaries of the clearings between logged and unlogged areas remain. The best way to address this kind of impact is to design the clearings to avoid straight boundaries and some guidance can be found in our Visual Landscape Design Manual from p.99 to 104. http://www.for.gov.bc.ca/hfd/pubs/Docs/Mr/Rec/Rec023-7.pdf I suggest the Proponent review these guidelines and incorporate them in the design of the pipeline ROW crossing the visually sensitive areas, especially in areas with a Retention and Partial Retention VQO.	The proposed route avoids community viewsheds and parallels existing linear disturbance, where practical. Coastal GasLink will review the Visual Landscape Design Manual during construction planning and detailed engineering design.	Satisfied with the response.	

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118	Application Section 14.5		Visual Quality	19-Feb-14 (Comments carried forward from Screening)	Luc Roberge	FLNRO		<p>However there is a discrepancy between what is presented in Table 14-31 and the related text that follows dealing with "Alteration of visually sensitive viewsapes". The table on p.14-113 indicates the Duration of the Potential Residual Effects has "Short-term" while the text on p. 14-134 and 135 correctly describes Duration as "Long-term" due to the ROW (thus the importance of designing the ROW to avoid straight boundaries in the most visually sensitive areas).</p> <p>Table 14-32 (p. 14-138) and the text that follows on p. 14-144 indicate that the potential residual adverse effect on viewsapes would not be significant. This may be true in general term for the entire length of the pipeline due to being mostly in non visually sensitive areas but may not be true for specific sections crossing over Retention and Partial Retention VQO areas. As a "Recommended Follow-up and Monitoring" item, I suggest the Proponent add to the table that they will assess visual changes and VQO achievement by following FLNRO's FREP Visual Quality Effectiveness Protocol (see link below). http://www.for.gov.bc.ca/hfp/values/visual/Effectiveness/index.htm</p>	The inconsistency identified during the screening of Rev. 0 of the Application has been corrected in Rev. 1 of the Application.	No further comment.	
119	Application Multi Section		Vegetation, Wetlands, Wildlife	16-Apr-14	Megan Watters	FLNRO		<p>The extent of the Project footprint used to assess Project effects on environmental values needs to be clarified. Section 3 defines the footprint as "the land area that will be directly disturbed by Project construction and clean-up activities, including associated physical works and activities (e.g., permanent RoW, temporary construction camps and temporary workspaces for construction)".</p> <p>'- The vegetation assessment states that "temporary ancillary sites including access roads, stockpile sites, staging areas and construction camps are assessed conceptually...as the locations for these sites are not yet confirmed".</p> <p>'- The wildlife assessment states that "the spatial footprint is defined as a 100 m wide corridor, which would encompass the permanent ROW and likely temporary workspace, in addition to proposed permanent facility locations".</p> <p>'- The proponent is asked to clarify the footprint that was used in the assessment: 1) areal extent of footprint used to quantify Project effects; 2) features that were assessed qualitatively; 3) how the effects of any features not included in the footprint in the assessment (e.g., access roads) will be assessed for environmental values.</p>	The wetlands, vegetation, and wildlife effects assessments were completed based on the location of the proposed route, meter stations and compressor stations.	Response satisfactory.	
119	Application Multi Section		Vegetation, Wetlands, Wildlife	16-Apr-14	Megan Watters	FLNRO			<p>Quantitative analysis for the proposed route assumed a 100 m wide corridor. This corridor width was selected for the analysis as it reflects the construction right of way and temporary workspace as well as to the permanent facility footprints of the meter stations and compressor stations. Temporary ancillary facilities such as camps, stockpiles, and borrow pits were assessed qualitatively.</p> <p>Coastal GasLink will provide detailed information about temporary ancillary facilities to the OGC during the permitting phase. Coastal GasLink seeks to use existing roads and trails to the extent practical, and minimize the construction of new roads. Potential adverse effects of roads have been addressed in a qualitative manner in the Application.</p> <p>Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the Oil and Gas Activities Act and regulations, as well as the OGC's Environmental Protection and Management Guide.</p>		
120	Application Multi Section		Vegetation, Wetlands, Wildlife	16-Apr-14	Megan Watters	FLNRO		<p>Short-term duration is defined as an event that "...occurs during the construction phase or is completed within any one year during the operations phase". This is understood to mean that the event occurs during construction and intermittently into operations, with the operations events EACH completed in less than one year, but repeating for the entire operations period. In terms of vegetation, wetlands, wildlife, and potentially aquatic values, vegetation maintenance during operations has long-term effects, lasting the length of the Project or longer, even though the maintenance itself may be conducted within a period of a few months. It is unclear how maintenance of the RoW in an early seral state for the duration of the life of the Project could be classified as short-term duration. The proponent is requested to discuss the definition of duration and why duration is considered short-term and not long-term for environmental values.</p>	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the <u>event</u> causing the effect, whereas reversibility is defined as the period of time over which the residual adverse <u>effect</u> extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. In situations where the residual adverse effect is expected to last for more than one year, the reversibility for those effects was assessed as medium or long term.	No further clarification required, however, in the future, the proponent is advised to follow guidance provided in the EAO's document "Guideline for the Selection of Valued Components and Assessment of Potential Effects" on effects characterization.	

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121	Application Section 8-10		Vegetation, Wetlands, Wildlife	16-Apr-14	Megan Watters	FLNRO		The compressor stations and metre stations are not addressed consistently throughout the environmental assessment. For example, compressor stations will be present and operational throughout the Operations phase, and will result in long-term disturbance of environmental values, particularly wildlife. Compressor stations could be considered a long-term duration disturbance event. The proponent is requested to clarify throughout the assessment how compressor stations and metre stations are being assessed, and to ensure these features are completely and fully assessed.	The effects of compressor and meter stations have been fully assessed in the Application. To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. For example, those effects that are the results of compressor or meter station construction were deemed to have short term duration, because the activity would be completed during the construction phase or within one year of operation. In situations where the residual adverse effect is expected to last for more than one year, the reversibility for those effects was assessed as medium or long term.	Response satisfactory (note comment in Issue 120 for further detail).	
122	Application Multi Section		Fish and Fish Habitat, Wetlands, Vegetation, Wildlife and Wildlife Habitat	16-Apr-14	Kerry Harvey	FLNRO		Does the proponent have some high level insight as to what their annual integrity inspection/maintenance program looks like? Are there any circumstances where riparian areas will need to be disturbed more frequently to facilitate such inspections? Depending on what these programs look like, the frequency may be more than occasional for this environmental effect.	<p>The integrity of the pipeline system is verified through annual aerial inspections and regular internal in-line inspections (ILI) using tools that identify and, through data interpretation, measure corrosion of the pipe through wall loss.</p> <p>On the Coastal GasLink system the ILI frequency is guided by the Integrity Management Plan which is currently every 7 years. The number of digs will be dictated by the results of the ILI inspection. The requirement for digs are dependent upon a number of factors with the exact location of the digs dependent upon the inline inspection results. Other factors which may require additional digs would be due to third party damage or external environmental interference. The pipeline inspection digs are completed by Coastal GasLink as directed by the Pipeline Integrity team.</p> <p>In some cases as the pipe ages, the inspection of the pipeline may involve exposing sections of the pipe where wall loss is approaching set standards or at areas where environmental factors allow for corrosion propagation. As a result, there may be a situation where the pipe may be exposed within a riparian area but those instances will be occasional, indicating that this will occur only intermittently and sporadically over the assessment period, and is dependent on the findings of the integrity verification program. The inspection digs footprint is typically limited to within the Pipeline Right of Way (ROW).</p>	Response satisfactory.	
123	Application Section 10		Wildlife	16-Apr-14	Megan Watters	FLNRO		Has the proponent considered providing the wildlife data collected to support the project, to the government via the Wildlife Species Inventory Database?	Coastal Tailed Frog information was provided to FLNRO to meet a condition of the 2013 field program Wildlife Permit. Coastal GasLink will provide appropriate wildlife data to the Wildlife Species Inventory Database.	Response satisfactory.	
124	N/A			16-Apr-14	Megan Watters	FLNRO		Has helicopter access been considered for the compressor stations, to reduce the length of access roads required for the Operations phase of the Project?	All Compressor Station locations will have helicopter access, however ongoing operations and maintenance will require permanent access roads to transport heavy equipment to the site.	Response satisfactory.	

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125	N/A			16-Apr-14	Megan Watters	FLNRO		The proponent is reminded of the working documents "Policy for Mitigating Impacts on Environmental Values (Environmental Mitigation Policy)" and "Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures)", available here: http://www.env.gov.bc.ca/emop/ . Consideration of the mitigation hierarchy of Avoidance, Minimize, Restore on-site and Offsets when characterizing the effects of the Project is important; avoidance is considered the most important step in the hierarchy (e.g., avoidance of UWRs, OGMAs).	Coastal GasLink is aware of these policies, and continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink acknowledges the importance of avoidance in addressing adverse effects of the proposed Project. Section 1.4 of the Application outlines the route and facility site selection process, and identifies the factors considered. During construction planning and detailed engineering design, Coastal GasLink continues to seek opportunities to avoid environmentally sensitive areas.	Response satisfactory.	
126	N/A		Fish and Fish Habitat, Wildlife and Wildlife Habitat	16-Apr-14	Kerry Harvey	FLNRO		General comment about the applicability of GWM's in the Northeast Region. The FRPA GWM's, which are legally applicable to forest and range practices within delineated UWR or WHA, have been established for such areas to maintain habitat values and minimize or prevent human-caused disturbances. Northeast Ecosystems considers these GWM's as best management practices, and encourages all other industrial proponents to implement this direction into their project planning. UWR's and WHA's have been established under the Environmental Protection and Management Regulation of the <i>Oil and Gas Activities Act</i> (OGAA) and there are environmental objectives set for these areas as well (test being basically no material adverse effect). Refer to the EMPR Guide for more information http://www.bcogc.ca/node/5899/download .	Acknowledged.	Response satisfactory.	
127	Application Multi Section		Fish and Fish Habitat, Wetlands, Vegetation, Wildlife and Wildlife Habitat	16-Apr-14	Kerry Harvey	FLNRO		Can the proponent please expand on how site conditions within the LSA will limit opportunities for recreational/off-road users? There is some discussion that speaks to re-vegetation (trees/shrubs being planted where warranted) to assist in this regard and other mitigation in the EMP suggests practices like rollback will be employed. These mitigation strategies (namely vegetation) can be effective over the long term but really offer little in terms of restricting access unless coupled with other physical works.	Coastal GasLink has committed to developing and implementing the Access Control Management Plan and Traffic Control Management Plan. The Traffic Control Management Plan is focused on the construction phase. Traffic control measures during construction will follow direction from the appropriate regulatory authorities. The Access Control Management Plan focuses on the operations phase of the proposed Project. The plan will consider site specific measures, such as rollback of timber, access control structures, and vegetation planting. The locations of site specific measures will be determined based on consultation with the appropriate regulatory authorities.	Response satisfactory.	
128	N/A		Vegetation	16-Apr-14	Megan Watters	FLNRO		Will the permanent RoW have an abrupt, straight-line edge (e.g., herbs to mature trees) or a "soft" edge (e.g., herbs to tall shrubs to mature trees)?	During operations Coastal GasLink will implement TransCanada's existing vegetation management procedures to effectively control the growth of vegetation on the permanent RoW using the most environmentally appropriate and economical vegetation management methods as described in Table 1-14 of the Application. Controlling the growth of trees is required on approximately a 10m wide area above the operating pipeline for purposes of pipe integrity monitoring. Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will allow for natural reforestation, including shrub growth.	Response satisfactory.	
129	N/A		Vegetation	16-Apr-14	Megan Watters	FLNRO		There does not appear to be a Reclamation Plan for the Project; the proponent is asked to clarify where it is located or when this Plan will be available for review.	The Reclamation Plan will be developed in advance of construction of the proposed Project. The development of the Reclamation Plan will include discussions with landowners, and the appropriate regulatory authorities. As construction continues, there may be updates to the reclamation plan to reflect site specific conditions encountered during construction.	Would it be possible for the proponent to provide some detail on the anticipated content of the Reclamation Plan? It is difficult to gauge the effectiveness of the mitigation and Plan on vegetation resources without having any detail on the Plan itself.	The Reclamation Plan will be developed prior to construction and will be subject to update during construction to reflect the final construction footprint and site-specific conditions. The Plan will include information for post-construction reclamation such as: activity schedules; materials, seed mixes and application rates; application methods; and site-specific designs (e.g. biostabilization). Post Construction Monitoring, described in Section 25.3 of the Application, will include an assessment of the effectiveness of

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											reclamation measures. Section 8.8 of the EMP also provides information about cleanup and reclamation.
130	Application Appendix 2J		Vegetation	16-Apr-14	Megan Watters	FLNRO		The figure shows a workspace or laydown area located between KP 83 and 84, on the edge of a wetland. Such close proximity to the wetland raises concerns over alteration of hydrology, erosion and sediment release and direct loss of wetland habitat. The proponent is requested to justify the location of this project feature, and comment on why this feature could not be located between KP 84 and 85, further from the wetland.	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in the wetland at this location. The location of compressor facilities along the pipeline is based on the gas hydraulic analysis for the system. Further evaluation criteria information used in the selection of potential compressor station sites is provided in Section 1.4.14 of the Application.	Response satisfactory.	
131	Application Appendix 2J		Vegetation	16-Apr-14	Megan Watters	FLNRO		Vegetation surveys occurred essentially over one year (fall to late summer). Are there any concerns that some rare species may have been missed because conditions during that one year were not preferable for those species (e.g., too wet, too dry etc.)? Would Coastal GasLink consider collecting additional field data if missed species are a concern?	"Section 2.4 of the Vegetation Technical Data Report identifies the limitations of the study pertaining to plant species at risk. Appendix C.9 of the Environmental Management Plan is a Plant Species of Concern Contingency Plan that includes provisions for mitigating potential effects to plant species at risk that might not have been detected during baseline surveys."	Section 2.4 of the Vegetation TDR does not address potential limitations of one year of sampling; should it be concluded that this factor is not considered a limitation? Thank you for the guidance towards Appendix C.9.	The technical data report describes technical limitations in the detection of all locations with rare plant species. Even with additional field work, this limitation would remain. Although this technical limitation to detect all species at risk locations exists, the confidence in the assessment is not affected since the cause and effect relationship between Project construction and operation in relation to rare plants is well understood, and the mitigation outlined has been successfully applied in past projects.
132	Application Appendix 2J		Vegetation	16-Apr-14	Megan Watters	FLNRO		The precipitation ranges provided in the EA do not appear to be consistent with those in BC MOF 1991. The proponent is asked to clarify if a different resource is being referenced.	Coastal GasLink used the BC MOF 1991 reference in developing its application. Coastal GasLink acknowledges the following: - For the BWBS biogeoclimatic zone, the precipitation range is 330-570 mm (not 330-700 mm). - For the SBS biogeoclimatic zone, the overall precipitation range (400-1650 mm) is reported, whereas the reference states that precipitation is 440-900 mm based on long term data and 415-1650 mm based on short term data. - For the CWH biogeoclimatic zone, although a range is provided in the reference, the mean value (of 2,228 mm; also mentioned in the reference) was reported in the Application. This additional information about each biogeoclimatic zone does not affect the findings of the assessment of potential adverse effects presented in the Application.	Response satisfactory.	
133	Application Section 8.3.1		Vegetation	16-Apr-14	Megan Watters	FLNRO		The proponent states that temporary ancillary sites, such as staging areas, stockpile sites, access roads and construction camps are assessed conceptually because the locations for these project components are not finalized. These sites could potentially account for significant project-related alteration of vegetation and wetland resources, particularly if rare species or ecosystems are affected. The proponent is requested to address how effects of the ancillary sites on vegetation and wetland resources will be characterized.	Section 1.2.2 of the Application outlines the components and location of the proposed Project, including the site selection process implemented to select locations for temporary ancillary sites. Potential adverse effects of these sites are included in a qualitative manner for each valued component. As part of the permitting process for the proposed Project, Coastal GasLink will provide detailed information about the temporary sites and access roads to meet the OGC's requirements, pursuant to the <i>Oil and Gas Activities Act</i> and the OGC Environmental Protection and Management Guide	Response satisfactory.	

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134	Application Section 8.3.1		Vegetation	16-Apr-14	Megan Watters	FLNRO		The proponent states that the construction RoW <i>could</i> extend to 100 m; please confirm the areal extent of the RoW used to determine potential effects of the Project on vegetation resources.	The assessment provided in the Application is reflective of the project footprint. Analysis of the project footprint was based on the description provided on Page 8-9, of Section 8.3.1 of the Application.	It is understood from the response to Issue 119 that the Row is assumed to be 100 m for the purposes of the assessment. No further clarification required.	
135	Application Section 8.3.2		Vegetation	16-Apr-14	Megan Watters	FLNRO		Will field surveys be conducted in the area not surveyed due to the protest? If so, how will these data be incorporated into the assessment of potential effects on vegetation?	Coastal GasLink plans to complete data collection, as necessary, in the area identified as a technical boundary when the area can be safely accessed. Any additional information will inform the construction planning and detailed engineering design. As part of the permitting process for the proposed Project, Coastal GasLink will provide detailed information to meet the OGC's requirements, pursuant to the <i>Oil and Gas Activities Act</i> and the OGC Environmental Protection and Management Guide.	Response satisfactory, assuming that data collection is included as a condition of the EA certificate, as suggested by the EAO.	
136	Application Section 8.3.3		Vegetation	16-Apr-14	Megan Watters	FLNRO		The construction phase is said to include surveying; however, some survey activities, including geotechnical programs, may occur prior to issuance of an EA certificate and OGC permits. How are effects of these pre-application survey activities on vegetation resources assessed and mitigated?	Coastal GasLink is completing geotechnical programs as part of its baseline data collection and route selection program. In accordance with Section 3.3 of the Section 11 Order issued under the BC <i>Environmental Assessment Act</i> , the scope of the assessment excludes activities required to prepare the Application. Coastal GasLink has obtained and complied with permits from the OGC for its geotechnical programs. Detailed information about environmental management of these activities has been provided to OGC for review as part of its permitting process.	Response satisfactory.	
137	Application Section 8.4		Vegetation	16-Apr-14	Megan Watters	FLNRO		The paragraph at lines 29-34 appears to be out of context.	Acknowledged. This paragraph is still applicable to Section 8.4, and may be more appropriately placed on page 8-17, after line 6.	Response satisfactory.	
138	Application Section 8.4		Vegetation	16-Apr-14	Megan Watters	FLNRO		What proportion of the vegetation within the boreal plains ecoprovince has been affected by Mountain Pine Beetle?	Approximately 0.8% of the Boreal Plains Ecoprovince within the Vegetation RSA has been affected by mountain pine beetle. Further detail is provided in Table 3-2 in the Vegetation Technical Data Report (Appendix 2J of the Application).	Thank you for the information.	
139	Application Section 8.4		Vegetation	16-Apr-14	Megan Watters	FLNRO		What vegetation communities characterize KP 99 - 198 (see lines 29 and 30)?	The route segment from KP 98 to KP 163 is dominated by coniferous high-elevation forests.	Response satisfactory.	
140	Application Section 8.4		Vegetation	16-Apr-14	Megan Watters	FLNRO		Common name for <i>Ranunculus acris</i> is listed as "All Buttercup". Please clarify if this is meadow buttercup, or is intended to encompass all exotic buttercup species?	The common name for <i>Ranunculus acris</i> is Tall Buttercup.	Thank you for the clarification.	
141	Application Section 8.5.1		Vegetation	16-Apr-14	Megan Watters	FLNRO		EA states that most vegetation types on the pipeline will recover naturally (pg 8-29; lines 26-28), but later refers to seeding with appropriate seed mixes (pg 8-30; lines 5-7). The EMP indicates that high risk areas, such as communities at risk and areas at risk of invasion by non-native and weedy species, will be seeded. Could the proponent please clarify the approach that will be used to revegetate and restore the pipeline corridor and associated features, keeping in mind that exposed soils are vulnerable to invasive species. In addition, what proportion of RoW will be maintained in an early seral state?	Coastal GasLink will maintain equivalent land capability on all lands disturbed by the construction of the Project, including agricultural and non-agricultural lands. Coastal GasLink will follow the direction of the appropriate regulatory authority or landowner when developing the reclamation plan. Section 8.8 of the EMP (Cleanup and Reclamation) notes that natural recovery is the preferred method of reclamation in appropriate areas. Providing areas are weed and erosion free, natural recovery will be used in wetlands (peatland and non-peatland), ecological communities at risk, areas with species at risk, alpine/subalpine areas, areas with traditionally important plants (in some of these locations, the planting of certain shrub or forb species has been stipulated), old forests, Douglas-fir forests, aspen forests and deciduous forests. If weed or erosion concerns exist, a cover crop may be used to control erosion while	Response satisfactory.	

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									the appropriate vegetation cover establishes. Controlling the growth of trees is required on approximately a 10m wide area above the operating pipeline for purposes of pipe integrity monitoring. Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will allow for natural reforestation, including shrub growth.		
142	Application Section 8.5.3		Vegetation	16-Apr-14	Megan Watters	FLNRO		The proponent is requested to clarify how permanent facilities, such as compressor stations and metre stations were considered in the characterization of effects. Effects of these features on vegetation could be considered irreversible, although the event that caused the disturbance occurs only once. Further to this, it is unclear how reversibility was taken into consideration when determining significance (e.g., effects in alpine / subalpine, and grassland were characterized as permanent). The significance determination should consider that effects that are characterized as permanent are of greater concern than effects that are reversible, particularly in ecosystem communities that are relatively rare on the landscape.	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. In situations where the residual adverse effect is expected to last for more than one year, the reversibility for those effects was assessed as medium or long term. The threshold for significance for ecological communities of concern is provided in Section 8.5.4 and for 8.6.4 of the Application for plant species of concern.	It is still a little unclear how effects of permanent facilities are considered long-term in reversibility, rather than permanent. While it is certainly true that adverse residual effects will be reversible in longer than 10 years, by their very definition, permanent facilities could be expected to have permanent effects on vegetation resources. Is there a "cut-off" amount of time at which long-term becomes permanent?	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Definitions are provided in Table 3-5 of the Application. Permanent reversibility is defined as effects that are irreversible. The determination of long term reversibility was made based on the description of Decommissioning and Abandonment Activities (Section 1.2.7 of the Application), which indicate that the abandonment of the pipeline and associated facilities involves the removal of above-ground facilities, and that any land disturbed by physical activities will be reclaimed. The residual adverse effect is therefore not considered irreversible, since the effect will be reversed at the end of the useful life of the Project.
143	Application Section 8.5.3		Vegetation	16-Apr-14	Megan Watters	FLNRO		The discussion of Potential Combined Adverse Effects on Grasslands contains some text around alpine and subalpine communities.	Acknowledged. Lines 34-39 on page 8-55 should be under the subheading "Potential Combined Adverse Effects on Alpine/Subalpine Areas Resulting from Clearing and Invasive Plans" on page 8-54.	Response satisfactory.	
144	Application Section 8.6.3		Vegetation	16-Apr-14	Megan Watters	FLNRO		Information on Whitebark Pine can be found at www.whitebarkpine.ca , including a link to the "Tactical Plan for the Recovery of Whitebark Pine in the Omenica Region". Further, the proponent is encouraged to contact Michael Murray (Michael.Murray@gov.bc.ca), Forest Pathologist in the Kootenay Region, regarding opportunities to participate in Whitebark Pine research.	Acknowledged	Response satisfactory.	
145	Application Section 3.1.1		Wetlands	16-Apr-14	Megan Watters	FLNRO		Table 3-1 presents BEC subzones and Site Series that reflect classifications current when the BEI was published. It is assumed that current BEC subzones and Site Series are used throughout the TDR and EA; it would therefore be useful to see how the current classifications correlate with BEI Units.	The purpose of Table 3-1 was to provide an overview of the wetland ecosystems in the RSA using a broad classification system (BEI). The current BEC subzone names and linework, and current site series were used in the TEM data that is presented in the TDR and the assessment for the wetlands in the proposed route and LSA. Analysis beyond what is required for the environmental assessment can be done by exploring the relationship between BEI and TEM through the tables within each ecoprovince showing wetland extent according to TEM and referencing the BEI standards.	Response satisfactory.	

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146	Application Appendix 2K		Wetlands	16-Apr-14	Megan Watters	FLNRO		Some of the wetlands surveyed for spring waterfowl migration were identified as unsuitable habitat because of ice cover. It should be noted that the spring of 2013 was relatively late in the Northeast Region, and wetlands that were ice covered during the surveys may in fact be open, and potentially suitable for migrating waterfowl, during other years.	Coastal GasLink acknowledges that ice-off times vary from year to year. However, the timing of the spring waterfowl surveys is considered suitable because 266 wetlands were ice-free or partially thawed and aggregations of waterfowl were observed in all Ecosections except the Northern Hart Ranges (Section 4.4.2). Waterfowl migration and staging is strongly tied to ice-off timing, and waterfowl tend to aggregate on wetlands that are free or partially free of ice early in the season (RIC 1999; Chaulk and Turner 2007; Oja and Pöysä 2007). As additional wetlands become ice-free as the season progresses, waterfowl densities tend to decrease as later migrant and resident breeders disperse over larger areas. Baseline conditions consider not only the field data collected, but also other existing information, data and literature, as well as available traditional knowledge. References: Chaulk, K.G., and B. Tunrer. 2007. The timing of waterfowl arrival and dispersion during spring migration in Labrador. <i>Northeastern Naturalists</i> 14:375-386. Oja, H., and H. Pöysä. 2007. Spring phenology, latitude, and the timing of breeding in two migratory ducks: implications of climate change impacts. <i>Annales Zoologica Fennici</i> 44:475-485. Resources Inventory Committee [RIC]. 1999. Inventory methods for waterfowl and allied species: loons, grebes, swans, geese, ducks, American coot and sandhill crane. <i>Standards for Components of Biodiversity</i> No. 18. Ministry of Environment, Lands and Parks, Victoria, BC. 82 pp.	Response satisfactory.	
147	Application Section 9.4.3		Wetlands	16-Apr-14	Megan Watters	FLNRO		The EA states that floodplains are not assessed because Mackenzie and Moran (2004) consider these a "non-wetland ecosystem". There is some discrepancy between the TDR and EA; floodplains are discussed in some detail in the TDR as having high wetland function and importance in ecosystems. It is suggested that either Project effects on floodplains should be assessed or information on floodplains should not be presented in the TDR. Alternatively, to reduce confusion, the proponent could make clear in the TDR that floodplains are not being considered as wetland ecosystems for the assessment.	Potential adverse effects of the proposed Project on floodplain ecosystems were assessed as part of the valued component Ecological Communities of Concern, in Section 8.5 of the Application.	Response satisfactory; proponent may consider clarifying the statement that floodplains are not assessed.	
148	Application Section 9.4		Wetlands	16-Apr-14	Megan Watters	FLNRO		Given that the effects assessment is based on Wetland Aerial Imagery Interpretation, data and methods on the delineation of wetlands using this technique should be presented in the TDR. Further, if Wetland Aerial Imagery Interpretation is used to calculate area of wetland affected by the project for the assessment, these values should be presented in all tables, such as Table 9.6.	The Wetlands TDR focusses on baseline data collection for wetlands and TEM interpretation. The wetland aerial imagery interpretation at a 1:6,000 scale was undertaken to support the effects assessment, and is discussed in Section 9.4.3 of the Application.	Response satisfactory	
149	Application Section 9.5.2		Wetlands	16-Apr-14	Megan Watters	FLNRO		The proponent acknowledges that there may be some permanent loss of wetlands with compressor stations and metre stations, which will be compensated as necessary. The proponent is requested to provide justification for the location of Wilde Lake, Sukunka Falls and Raccoon Lake compressor stations where they overlap with wetlands.	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in the wetland at this location. The location of compressor facilities along the pipeline is based on the gas hydraulic analysis for the system. Further evaluation criteria information used in the selection of potential compressor station sites is provided in Section 1.4.14 of the Application.	Response satisfactory	

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150	Application Section 9.5.5		Wetlands	16-Apr-14	Megan Watters	FLNRO		The information provided in Table 9-11 suggests that access roads associated with the project have not been included in the project effects or cumulative effects assessments. Further, it is unclear if all compressor stations, construction camps and other ancillary features are included in the 94 ha of areal disturbance in "commercial/industrial facilities/features or oil and gas facilities". The proponent is requested to clarify which features have been included.	The 94 hectares indicated in Table 9-11 is the area expected to be occupied by compressor and meter station facilities. Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary ancillary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. The Application considers potential adverse effects associated with these temporary facilities in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the information will be provided to appropriate regulatory agencies during the permitting process.	Response satisfactory	
151	Application Section 9.5.7		Wetlands	16-Apr-14	Megan Watters	FLNRO		It appears that the proponent has assessed the contribution of the Project to cumulative effects on wetland function. The proponent is requested to comment on the total cumulative effects in the RSA (i.e., 13% of wetland area in the RSA) that is predicted to be disturbed under existing, project and future conditions combined.	The total cumulative disturbance of baseline case, proposed project and foreseeable future areal disturbance is provided in Table 9-11 (page 9-57), under the column "Total Cumulative Disturbance".	Response satisfactory	
152	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Bats have been identified as a Key Indicator for the Wildlife and Wildlife Habitat VC, but are not included in the TDR. The proponent is requested to provide baseline information on bats in the LSA and RSA to support the assessment of Project effects on this KI.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued May 2013. A comprehensive review of available information was compiled to support the assessment of bats as described in Section 10.9 of the Application for a summary of ecological context. A precautionary approach was taken in the assessment, such that bats are assumed to be present despite the absence of field data.	Response satisfactory.	
153	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		The proponent is asked to comment on the potential implications of collecting wildlife data over a single field season (except for remote cameras) and being unable to repeat sampling at survey sites; this question applies to amphibians and all other VCs.	Coastal GasLink has prepared a comprehensive environmental assessment for the proposed Project. Collecting wildlife data over a single field season provides useful information on wildlife species densities, occupancy, and/or presence/not detected for that survey period. Wildlife species densities, occupancy, and/or presence/not detected may vary across years. However, in the context of the Environmental Assessment, the primary objectives of the wildlife field surveys are to aid in the characterization of baseline conditions (i.e., in combination with other data where available), inform construction planning and detailed engineering design, and develop effective mitigation. Baseline conditions consider not only the field data collected, but also other existing information, data and literature, as well as available traditional knowledge. Habitat suitability models are an important tool used in the assessment, and during their development for the key indicator's selected for the Project (see section 3.6 of the TDR) a conservative approach is used to take into account imperfect (i.e., lack of detection of a given species does not always mean it is not present or does not occur), particularly if the Project occurs within a species' habitat. As a further means of mitigating potential Project effects on wildlife, Coastal GasLink is	Response satisfactory	

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									committed to pre-disturbance surveys for important wildlife habitat features.		
154	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Surveys specific to mammals were not conducted in support of this proposed Project, although it is understood that the remote camera study provided local information on mammal occurrence. The proponent is requested to comment on how reliance on existing data may have affected the level of confidence regarding significance determination for mammals. Further, please comment on how lack of field data may have affected model verification.	As noted in Section 3 of the Application, the level of confidence in each significance determination was determined by the availability of data, precedents and degree of scientific uncertainty or other factors beyond the control of the assessment team. Available data includes ecological context (e.g. species status, population trends, sensitivity to disturbance [including known threats] and best management practices and conservation strategies) in addition to field data. Model confidence was determined using field-based wildlife habitat assessments that were completed in 2013 as part of the TEM field program. A total of 293 TEM survey plots were visited by wildlife biologists and habitat suitability was assessed for the bird and mammal indicators. Confidence in the wildlife habitat models was determined by comparing field-based habitat suitability ratings to office-based ratings assessments, and viewing the range of agreement or disagreement. Histograms illustrating the range of variability between office- and field-based ratings are provided in Section 4.5.2 of the Wildlife Technical Data Report (Appendix 2-L of the Application).	Response satisfactory	
155	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Northern Goshawk appears to be absent from Table 3-6.	Coastal GasLink acknowledges that Northern Goshawk should have been included in Table 3-6 of Section 3.6.4 of the Wildlife Technical Data Report.	Response satisfactory	
156	Application Section 10.2.2		Wildlife	16-Apr-14	Megan Watters	FLNRO		Mountain caribou habitat in the Hart Ranges is protected by Map Reserve 4404314 under Section 16 of the Lands Act; the Project appears to overlap with one section of this Map Reserve. The proponent is advised that approval from the Ministry of Forests, Lands and Natural Resource Operations will need to be sought for activities within the Map Reserve. The proponent is directed to DataBC for the necessary shapefiles.	Acknowledged. Coastal GasLink will work with the appropriate regulatory authorities to ensure compliance with all applicable legislation.	Response satisfactory. It is suggested that the proponent contact Kevin Hoekstra, Ecosystem Biologist in Omenica, for further information on this map reserve.	Comment noted.

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157	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Ecosystems units with recent cutblocks were rated as very low (5). The proponent is asked to clarify 1) the age at which a cutblock is considered recent, 2) the seral stage considered recent for moose, and 3) the accuracy of the available data in determining age of the cutblock.	1) Recent cutblocks were assumed to be equivalent to Structural Stage 2 using TEM. RIC (1998) defines Structural Stage 2 as "early successional stage or herbaceous communities maintained by environmental conditions or disturbance (e.g., snow fields, avalanche tracks, wetlands, grasslands, flooding, intensive grazing, intense fire damage); dominated by herbs (forbs, graminoids, ferns); some invading or residual shrubs and trees may be present; tree layer cover less than 10%, shrub layer cover less than or equal to 20% or less than 1/3 of total cover, herb-layer cover greater than 20%, or greater than or equal to 1/3 of total cover; time since disturbance less than 20 years for normal forest succession; many herbaceous communities are perpetually maintained in this stage". 2) "Seral stage" is used in the Broad Ecosystem Inventory, not in TEM. As this IR refers to TEM, Coastal GasLink assumes Structural Stage was intended. As stated in (1) above, Structural Stage 2 is less than 20 years old, and in an early successional state. 3) The accuracy of cutblock age determination is uncertain as the cutblock data in the disturbance layer had no supporting information (i.e., harvest date). There are 41,028 ha (2.08%) of cutblocks in the disturbance layer, of which the Project footprint overlaps directly with 2,509 ha (0.13%). Therefore, the overall proportion of this disturbance feature class is relatively small, and would have little overall influence on model results.	Response satisfactory	
158	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Ardea Biological Consulting (2004) is referenced as the source of the assumption that 100 m is the maximum distance between foraging and shelter habitat for moose. The proponent is requested to provide further detail on this reference: did Ardea Biological Consulting obtain the 100 m distance used in their habitat models from scientific literature, field studies or professional judgment?	Coastal Gas Link's understanding is that the 100 m distance used by Ardea Biological Consulting (2004) was based on a review of scientific literature.	Response satisfactory.	
159	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Although UWRs and WHAs are expected to encompass areas of high intensity use by mountain goats, it is important to acknowledge that mountain goat occurrence is not restricted to these features. Suitable habitat also occurs outside of the designated areas and therefore using only UWRs to calculate the availability of mountain goat habitat is likely to underestimate the habitat that is actually available.	Coastal GasLink acknowledges that mountain goat occurrence is not restricted to designated UWRs and WHAs, and will implement appropriate mitigation to avoid adverse effects. For more information about mitigation for mountain goat habitat, please refer to Section 7.1.3 of the EMP.	Response satisfactory.	
160	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		The proponent is requested to provide some detail on why sensory disturbance buffers were not applied to the mountain goat model.	Coastal GasLink did not develop a "mountain goat model". This comment may be referencing the statement on page 130 of the Wildlife and Wildlife Habitat TDR that notes sensory disturbance buffers were not applied to disturbance features. As indicated in that paragraph sensory disturbance to mountain goat UWRs and WHAs is addressed through mitigation (i.e., setbacks and timing restrictions). These measures are predicted to minimize or eliminate the potential for indirect (disturbance) effects on mountain goats and their habitat.	Response satisfactory.	

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161	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		The proponent is requested to clarify the rating of "3" for Talus and Exposed Soil for grizzly bear spring foraging habitat. These ecosystem units are generally non-vegetated or have very sparse vegetation and are unlikely to provide much forage for grizzly bears.	<p>The talus and exposed soil TEM ecosystem units were rated moderate (suitability class 3) for grizzly bear spring foraging, because these areas represent locations where foraging for insects and some plants could occur (see Section 3.6.7, page 134 of the Wildlife and Wildlife Habitat TDR). This assumption was only applied to talus and exposed soil below the alpine zone as any habitat in the BAFA and CMA was rated nil (6) for grizzly bear spring foraging (Section 3.6.7, page 134 of the Wildlife and Wildlife Habitat TDR).</p> <p>These units have sparse (exposed soil) to minimal (talus) vegetation. The moderate rating is based primarily on the assumed availability of insects, particularly in association with talus. It is understood that the availability of insects as a spring food source for grizzly bears will vary annually, is likely to be site-specific, and may occur later in the season and at higher elevations than suggested by this model.</p>	Response satisfactory.	
162	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Some of the wetlands and waterbodies surveyed for spring waterfowl migration were identified as unsuitable habitat because of ice cover. It should be noted that the spring of 2013 was relatively late in the Northeast Region, and wetlands that were ice covered during the surveys may in fact be open, and potentially suitable for migrating waterfowl, during other years.	<p>Coastal GasLink acknowledges that ice-off times vary from year to year. However, the timing of the spring waterfowl surveys is considered suitable because 266 wetlands were ice-free or partially thawed and aggregations of waterfowl were observed in all Ecoregions except the Northern Hart Ranges (Section 4.4.2). Waterfowl migration and staging is strongly tied to ice-off timing, and waterfowl tend to aggregate on wetlands that are free or partially free of ice early in the season (RIC 1999; Chaulk and Turner 2007; Oja and Pöysä 2007). As additional wetlands become ice-free as the season progresses, waterfowl densities tend to decrease as later migrant and resident breeders disperse over larger areas.</p> <p>Baseline conditions consider not only the field data collected, but also other existing information, data and literature, as well as available traditional knowledge.</p> <p>References: Chaulk, K.G., and B. Tunner. 2007. The timing of waterfowl arrival and dispersion during spring migration in Labrador. <i>Northeastern Naturalists</i> 14:375-386. Oja, H., and H. Pöysä. 2007. Spring phenology, latitude, and the timing of breeding in two migratory ducks: implications of climate change impacts. <i>Annales Zoologicae Fennicae</i> 44:475-485. Resources Inventory Committee [RIC]. 1999. Inventory methods for waterfowl and allied species: loons, grebes, swans, geese, ducks, American coot and sandhill crane. Standards for Components of Biodiversity No. 18. Ministry of Environment, Lands and Parks, Victoria, BC. 82 pp.</p>	Response satisfactory.	
163	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		There are no data provided in Table 4-22 for Peace Lowland, Kiskatinaw Plateau and Northern Hart Ranges; given that waterbodies and wetlands were surveyed, should there at least be "zeroes"?	Only wetland size classes with three or more samples (i.e., wetlands) were included in the analysis. No wetland size class in the combined Peace Lowland, Kiskatinaw Plateau and Northern Hart Ranges had three or more samples, and as such were left blank. Table 4-21 of the Wildlife and Wildlife Habitat TDR provides the overall estimate of	Response satisfactory.	

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									waterfowl abundance for the six wetlands surveyed in these Ecosections.		
164	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		The proponent is asked to comment on the potential implications of undersampling the SBS BEC Zone.	Despite the SBS zone being under-sampled relative to its proportion of the proposed route corridor, the majority (147 of 269; 55%) of songbird point count surveys were completed within the SBS zone. The 147 point count surveys are sufficient (from a statistical analysis perspective) to provide a precise estimate of songbird density within the SBS zone (see standard error estimates in Table 4-32, pg. 250 of the TDR). We made no inferences about bird density in any sub-zone, including the SBSdk and SBS mc2, as the required sample size (i.e., > 60 detections – see Line 8, Page 56 of the TDR) was insufficient to calculate bird density at the sub-zone scale.	Response satisfactory.	
165	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		The proponent is encouraged to consider the occurrences of tailed frogs when planning the type of crossing to be used at watercourses where tailed frogs were recorded or where suitable habitat exists. For example, a trenchless crossing would be optimal to minimize impacts on this listed species.	Section 1.4.16 of the Application describes alternative construction methods for pipeline installations at watercourses including the considerations for determining the appropriate installation method for each location. Section 7.1, Resource Specific Protection Measures, of the EMP includes mitigation for Coastal Tailed Frogs. Site specific mitigation would be implemented as appropriate for species of management concern, including Coastal Tailed Frog.	Response satisfactory.	
166	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		The text states that 1,464 ha of effective breeding habitat is available for the coastal subspecies of northern goshawk; this is inconsistent with the value presented in Table 4-35. Please clarify.	Table 4-35 in the Wildlife and Wildlife Habitat Technical Data Report identifies the correct value of 284 ha of effective habitat available in the wildlife LSA for the coastal subspecies of northern goshawk. This does not affect the findings of the assessment of potential adverse effects on northern goshawk.	Response satisfactory.	
167	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		Please review the hectares of effective habitat available for pond-dwelling amphibians in Morice LRMP.	The area of effective habitat for pond-dwelling amphibians in the Morice Land and Resource Management Plan area reported in Table 4-83 of the Wildlife and Wildlife Habitat TDR should be 15,985 ha of effective habitat in the Morice Land and Resource Management Plan area. The total of effect habitat for all LRMPs is correct. This does not affect the findings of the assessment of potential adverse effects on pond-dwelling amphibians.	Response satisfactory.	
168	Application Appendix 2L		Wildlife	16-Apr-14	Megan Watters	FLNRO		It is stated in the field program summary that none of the species recorded on the acoustic recorders were on Schedule 1 of SARA, or red- or blue-listed in BC. This is contradictory to the data presented in Table 4-28 (pg 242), which confirms that Olive-sided Flycatcher (blue-listed and Threatened on Schedule 1 of SARA) was detected at a number of the acoustic recorders.	The data reported in Section 4.4.5 of the Wildlife and Wildlife Habitat TDR is correct, stating that only one species of conservation concern, olive-sided flycatcher, was detected during the acoustic recorder survey. This does not affect the findings of the assessment of potential adverse effects.	Response satisfactory.	
169	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Habitat Loss/Alteration: Will the appropriate regulatory agencies be consulted on the appropriate size of avoidance buffers around sensitive resources?	Appropriate regulatory authorities will be consulted on the size of avoidance buffers around sensitive resources.	Response satisfactory.	
170	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Habitat Loss/Alteration: Will the pre-construction wildlife surveys include a walk through of the entire line to detect wildlife habitat features?	Table 10-6 of the Application states that pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation will be selected to focus on habitats or segments of the proposed route determined to have the potential occurrence	Response satisfactory.	

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									of habitat features that could be adversely affected by the proposed Project.		
171	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Riparian and Aquatic Habitat: The proponent suggests that riparian buffers may be extended to 100 m at select locations in old growth forest where fisher is detected. Are focused fisher surveys going to be conducted to provide the data required for this determination?	This determination will be made based on habitat (e.g., occurrence of old growth riparian forest) and the site specific construction methods associated with each stream crossing.	Response satisfactory.	
172	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Wildlife Movement: How will the Proponent mitigate effects on wildlife due to access roads to compressor stations and metre stations during operations? Further, effects on wildlife movement during construction focus on the RoW; please provide detail on potential effects to wildlife associated with access roads, including those created specifically for the Project and existing roads. Also please provide some detail on how these effects will be mitigated.	Due to their linear nature, access roads are expected to have similar effects on wildlife movement as the pipeline right-of-way (ROW) (e.g. an incremental barrier effect for some wildlife species, possible travel route for predators). Relative to the ROW, the presence of traffic on access roads may increase potential barrier effects. Deactivation and reclamation of the temporary construction access roads and shoo-flies will be implemented to lessen the potential adverse effects of Project-specific access roads on wildlife movement. Existing access roads will be used wherever practical. All Project-related vehicles will follow applicable traffic, road-use and safety laws. Coastal GasLink will implement a Traffic Control Management Plan and an Access Control Management Plan, as outlined in Appendix D of the EMP.	Response satisfactory.	
173	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Beaver dams and lodges: The proponent should be aware that applications for Wildlife Sundry Permits should be submitted as far in advance as possible in the Peace Region, due to the lengthy permit approval process. It is recommended that six to eight months may be required for permit approval.	Acknowledged.	Response satisfactory.	
174	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Caribou Ranges: As mitigation for caribou, the proponent suggests retaining breaks in pipe, stockpiles and windrows every 500 m for 72 hours if the top height exceeds 1.5 m, and references BC OGC (2013). These values appear to be from the document "Interim Operating Practices for Oil and Gas Activities in Identified Boreal Caribou Habitat in British Columbia (2011). These IOPs were created specifically for boreal caribou, while guidance from the PNCP documents (eg. Table 10-3) are specifically for northern caribou; the proponent is requested to comment on the applicability of these guidance pieces to mountain caribou, and the likelihood that mitigation measures from these sources will be successful for mountain caribou. This is briefly addressed in Table 10-32, but further detail is requested.	In the absence of provincial and federal guidelines specific to mountain caribou, the guidance pieces for northern and boreal caribou were adopted as the best available management practices.	It is acknowledged that there are currently no guidelines specific to mountain caribou; however it is suggested that the proponent ensure that the biology of the Hart Ranges caribou is suitable for application of some or all of the boreal caribou and northern caribou guidance pieces. Where components of the boreal and northern caribou guidance are not applicable, the proponent should suggest appropriate alternatives; MFLRNO would welcome these discussions. Another potential source of information for mountain caribou management is: http://www.env.gov.bc.ca/wld/speciesconservation/mc/#resources	Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.
175	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		UWR u-9-001: Although the proposed Project has the potential to create suitable forage for elk by reducing the seral stage along the RoW, the Project also has the potential to reduce stand sizes of mature coniferous-leading stands that are important for thermal cover. The optimal stand size for thermal cover is 12 - 24 ha; the proponent is asked to comment on how the Project is expected to affect thermal cover in the UWR.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	Response satisfactory.	
176	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Mineral licks: BC MFLRNO (2011) is cited as the reference for mitigation pertaining to mineral licks; however, this reference is for Peace Region Least Risk Timing Windows, which does not contain any detail on mineral licks. The proponent is asked to update this reference to the appropriate source (MWLAP 2004?).	Coastal GasLink acknowledges that the appropriate reference is Wildlife Habitat Features Summary of Management Guidelines Northern Interior Region (BC MWLAP 2004).	Response satisfactory.	

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
177	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Bat Maternity Roost / Hibernation Habitat: How will roost and hibernation habitat be identified during pre-construction surveys?	A bat was observed during field studies crawling on a rock face, which might indicate roosting or hibernation habitat (Wildlife and Wildlife Habitat TDR in Appendix 2-L of the Application). A site visit will be completed prior to construction to assess this feature, its proximity to the construction footprint and additional mitigation will be developed, if warranted. As construction planning and detailed engineering design advance, the information collected to date for the Application will be reviewed to determine where additional field work related to bat hibernation habitat is warranted. If additional mitigation is warranted, Coastal GasLink will discuss the approach with the appropriate regulatory authorities.	Response satisfactory.	
178	Application Section 10.6		Wildlife	16-Apr-14	Megan Watters	FLNRO		Although the LSA does not overlap with the warbler WHAs in Dawson Creek LRMP, the proponent may consider referring to the General Wildlife Measures identified for these WHAs; these GWMs provide further guidance on ecological context and mitigation measures. The Legal Orders for the warbler WHAs are available here: http://www.env.gov.bc.ca/cgi-bin/apps/faw/wharesult.cgi?search=wlap_region&wlap=Peace	Acknowledged.	Response satisfactory.	
179	Application Section 10.7		Wildlife	16-Apr-14	Megan Watters	FLNRO		Woodland Caribou: Mitigation around mineral licks should also be considered for woodland caribou.	Acknowledged.	Response satisfactory.	
180	Application Section 10.7		Wildlife	16-Apr-14	Megan Watters	FLNRO		Pond-dwelling amphibians: Given that beavers create ponds used by many amphibians, mitigation around beaver dams / lodges should also be considered for pond-dwelling amphibians.	Acknowledged.	Response satisfactory.	
181	Application Section 10.7		Wildlife	16-Apr-14	Megan Watters	FLNRO		Western Toad: Given that beavers create ponds used by many amphibians, mitigation around beaver dams / lodges should also be considered for Western Toad.	Acknowledged.	Response satisfactory.	
182	Application Section 10.7		Wildlife	16-Apr-14	Megan Watters	FLNRO		The proponent is requested to provide the areal extent of the portion of the RoW that will require ongoing brushing during operations.	During operations Coastal GasLink will implement TransCanada's existing vegetation management procedures to effectively control the growth of vegetation on the permanent RoW using the most environmentally appropriate and economical vegetation management methods as described in Table 1-14 of the Application. Controlling the growth of trees is required on approximately a 10m wide area above the operating pipeline for purposes of pipe integrity monitoring. Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will allow for natural reforestation, including shrub growth.	Response satisfactory, thank you for the information.	
183	Application Section 10.9.1		Wildlife	16-Apr-14	Megan Watters	FLNRO		While it is true that the majority of sensory disturbance will occur during the construction phase, noise and human activity will be associated with the compressor and metre stations for the duration of the operations phase. The proponent is requested to discuss how this long-term sensory disturbance is expected to affect carnivores, such as wolverine and bears, as well as other mammal species.	The mitigation listed in Table 10-6 of Section 10.6 in the Application related to sensory disturbance is also appropriate for the operations phase of the proposed Project. Examples of mitigation that will be implemented to reduce the potential adverse effects of sensory disturbance on carnivores such as wolverine and bears, as well as other mammal species includes use of directional or shielded lighting, where practical, to reduce light pollution, and implementing appropriate noise reduction for compressor stations according to regulatory guidelines.	Response satisfactory.	

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184	Application Section 10.9.1		Wildlife	16-Apr-14	Megan Watters	FLNRO		Caribou: The text states that "there are no permanent above-ground facilities proposed within the Hart Ranges caribou range". This is, however, contradictory to information presented in Table 10-5, which describes the Sukunka Falls and Mount Bracey compressor stations as located within the Hart Ranges. If these compressor stations are planned for the Hart Ranges, the proponent is requested to assess the potential impacts from sensory disturbance and ongoing human activity on caribou.	Coastal GasLink acknowledges that there is one compressor station proposed within the Hart Ranges caribou range and one compressor station proposed within the Telkwa caribou range. The Hart Ranges caribou range is located within both the Dawson Creek and Prince George LRMPs. Table 10-5 of the Application shows the KP Range for these LRMPs and the associated Project components. Although both the Sukunka Falls and Mount Bracey compressor stations are within these LRMPs only the Mount Bracey compressor station is within the Hart Ranges caribou range. The conclusions of the assessment remain unchanged.	Response satisfactory.	
185	Application Section 10.9.1		Wildlife	16-Apr-14	Megan Watters	FLNRO		Clearing and construction may overlap with sensitive calving/rearing timing window in UWR u-7-003; the proponent has stated that they may request regulatory approval to deviate from the GWMs. This UWR is designated for movement of caribou; bisecting this corridor with a RoW has the potential to not only disrupt movement during construction and possibly operations, but to improve long-term access to the area for humans and predators, and displace caribou into lower elevation habitats where they are more vulnerable to predation. It is unlikely that these effects can be fully mitigated, and it should be noted that compensation and offsetting should be considered as a last resort. Further, there is currently no mechanism for compensation and offsetting for the Hart Ranges caribou herd and it is suggested that compensation and offsetting should not be relied upon as a form of mitigation. The proponent is referred to the Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures; MOE 2013) for guidance on the mitigation hierarchy. Given the uncertainty around mitigation applicability and success, it is suggested that the proponent take a conservative approach to the significance determination for the Hart Ranges herd, and consider effects to be significant.	The Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC MOE 2014) notes that, in practice, the mitigation hierarchy is often considered holistically and iteratively. Coastal GasLink adopted an iterative approach to mitigating potential Project effects as outlined in the Environmental Mitigation Procedures, beginning with avoidance, minimization and on-site mitigation, prior to consideration of the need for alternative mitigation strategies, such as compensation or offsets. The Application discusses mitigation and environmental management strategies for project effects in Section 10.6 and for cumulative effects in Sections 10.13.2 and 10.13.3. Given the sensitivity of the caribou populations potentially affected by the Project, and in accordance with the mitigation hierarchy, Coastal GasLink has incorporated consideration of alternative mitigation strategies, such as compensation or offsets, and monitoring into mitigation planning to reduce the magnitude of residual Project effects on caribou. With implementation of the proposed measures to avoid, minimize, mitigate on-site, and implement alternative mitigation strategies, such as compensation or offset where warranted, the residual effects of the Project are not predicted to affect conservation objectives for southern mountain caribou. Uncertainty is expected to be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach. Following the assessment method in the AIR, Coastal GasLink concluded the residual adverse effect on caribou is not significant. Reference: BC Ministry of Environment. 2014. Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures). Working Document, January 9, 2014. Website: http://www.env.gov.bc.ca/emop/ . Accessed: May 2014.	Thank you for your response; it is appreciated that the proponent undertook an iterative approach to mitigating Project effects on caribou. The memo provided about the caribou assessment also provides background on the process used to reach the significance determination, and is very helpful. While not considered mitigation, monitoring will certainly be crucial, and should include monitoring of both the Row and use of the surrounding areas by caribou, predators and humans. To further increase confidence in a determination of "not significant", it is recommended that the Proponent provide some detail around specific mitigation measures being considered (above-and-beyond the standard measures outlined in the EA), in addition to compensation and offsetting. It is understood that the actual measures used may depend upon final routing and facility placement; however, it would be beneficial to develop a "tool kit" of additional, "over-and-above" mitigation specific to working within the UWR. I would be happy to provide feedback to the EAO on proposed mitigation.	Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
186	Application Section 10.9.4		Wildlife	16-Apr-14	Megan Watters	FLNRO		The proponent is requested to provide some background on how sensory disturbance from compressor stations and metre stations, which is expected to be continuous for the operations phase, was factored in to the determination of duration as short-term. This comment applies to all wildlife KIs for which habitat availability may be indirectly affected by sensory disturbance.	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect (e.g. construction of the compressor or meter station) is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer (e.g. sensory disturbance associated with noise and artificial light at the proposed compressor stations will be ongoing over the life of the proposed Project), and therefore the reversibility was assessed as long-term.	Response satisfactory (note comment in Issue 120 for further detail).	
187	Application Section 10.9.4		Wildlife	16-Apr-14	Megan Watters	FLNRO		Woodland caribou: It is unclear how the magnitude of combined potential project adverse effects on caribou and subsequent significance determination can be assessed when mitigation for working within u-7-003 has not been resolved. Mitigation in Table 10-6 is unlikely to fully reduce effects on caribou within the migratory corridor, and until further mitigation have been provided by the proponent and/or a mechanism for compensation / offsetting discussed with the appropriate regulatory agencies, effects cannot be fully and accurately characterized. As suggested above, the proponent should adopt a conservative approach and consider effects on Hart Ranges caribou to be significant.	The Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC MOE 2014) notes that, in practice, the mitigation hierarchy is often considered holistically and iteratively. Coastal GasLink adopted an iterative approach to mitigating potential Project effects as outlined in the Environmental Mitigation Procedures, beginning with avoidance, minimization and on-site mitigation, prior to consideration of the need for alternative mitigation strategies, such as compensation or offsets. The Application discusses mitigation and environmental management strategies for project effects in Section 10.6 and for cumulative effects in Sections 10.13.2 and 10.13.3. Given the sensitivity of the caribou populations potentially affected by the Project, and in accordance with the mitigation hierarchy, Coastal GasLink has incorporated consideration of alternative mitigation strategies, such as compensation or offsets, and monitoring into mitigation planning to reduce the magnitude of residual Project effects on caribou. With implementation of the proposed measures to avoid, minimize, mitigate on-site, and implement alternative mitigation strategies, such as compensation or offset where warranted, the residual effects of the Project are not predicted to affect conservation objectives for southern mountain caribou. Uncertainty is expected to be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach. Following the assessment method in the AIR, Coastal GasLink concluded the residual adverse effect on caribou is not significant. Reference: BC Ministry of Environment. 2014. Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures). Working Document, January 9, 2014. Website: http://www.env.gov.bc.ca/emop/ . Accessed:	See response to issue tracking #192	

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									May 2014.		
188	Application Section 10.10.1		Wildlife	16-Apr-14	Megan Watters	FLNRO		A relatively large loss of Western Toad breeding habitat is predicted for the Dawson Creek LRMP. Will the proponent consider additional mitigation and avoidance measures to reduce effects on this listed species in this area?	Coastal GasLink acknowledges the status of western toad (SARA Schedule 1). Mitigation for potential adverse effects on western toad is provided in Table 10-6 of the Application. Coastal GasLink will discuss proposed mitigation with the appropriate regulatory authorities, including FLNRO.	Response satisfactory.	
189	Application Section 10.12.4		Wildlife	16-Apr-14	Megan Watters	FLNRO		For those KIs with a "low" confidence in significance determination, please provide detail on the anticipated follow-up and specific monitoring that will be conducted as per Section 10.12.2.	Uncertainty will be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach. A more detailed post construction monitoring plan will be developed in consultation with the appropriate regulatory authorities.	Response satisfactory; the earlier a post construction monitoring plan can be developed, the better.	
190	Application Section 10.14.1		Wildlife	16-Apr-14	Megan Watters	FLNRO		Please clarify whether the hectares of habitat under Project and cumulative conditions includes indirect effects. For many species, indirect habitat loss is as important, if not more so, as direct habitat loss, and should be considered in a cumulative effects assessment.	Coastal GasLink confirms that the habitat modelling included species-specific habitat ratings adjustments to account for indirect effects. Please refer to the Wildlife and Wildlife Habitat Technical Data Report (Appendix 2-L of the Application) for additional information.	Thank you for the clarification.	
191	Application Section 10.14.3		Wildlife	16-Apr-14	Megan Watters	FLNRO		Does the proponent intend to repeat the grizzly bear linear feature density calculations once the location and length of access roads associated with the Project are finalized?	As construction planning and detailed engineering design advances, Coastal GasLink will continue discussions with appropriate regulatory authorities to ensure required information is available for permitting purposes. If directed by OGC, this may include further information about linear features, such as access roads, in grizzly bear habitat.	Response satisfactory.	

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192	Application Section 10.14.4		Wildlife	16-Apr-14	Megan Watters	FLNRO		As with woodland caribou, it is difficult to fully and accurately assess the effects of the Project and cumulative effects on grizzly bear when access roads have not been finalized and appropriate mitigation plans have yet to be developed. The proponent is requested to comment on how this lack of information has been accounted for in the determination of significance for both Project and Cumulative effects.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The Application considers potential adverse effects associated with access roads in a qualitative manner. As construction planning and detailed engineering design advances, Coastal GasLink will continue discussions with appropriate regulatory authorities to ensure required information is available for permitting purposes. If directed by OGC, this may include further information about linear features, such as access roads, in grizzly bear habitat.	Response satisfactory.	
193	Application Section 10.14.4		Wildlife	16-Apr-14	Megan Watters	FLNRO		Woodland caribou: The proponent states in the Context section that "Coastal GasLink will apply for deviation from the GWMs and will implement the best practices (including timing restrictions) recommended by the BC OGC within the UWR and WHA for caribou". This appears to contradict information provided in Section 10.9.1, which suggested that working within the timing windows for u-7-003 would be difficult because of snow conditions. Please clarify.	The information presented in Section 10.9.1 is accurate. The schedule of work within the high UWR unit is expected to be constrained by terrain and heavy snowfall, resulting in activity within the timing window. Coastal GasLink will continue to discuss the proposed construction schedule and deviation from the GWMs with FLNRO as the project advances through the OGC permitting process.	Response satisfactory; MFLRNO welcomes discussion with OGC on proposed activities within this UWR.	
194	Application Section 10.17.1		Wildlife	16-Apr-14	Megan Watters	FLNRO		Woodland Caribou: The cumulative effects assessment for caribou should take into consideration the comments provided above regarding uncertainty of mitigation to fully and accurately assess impacts to caribou with confidence.	The Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC MOE 2014) notes that, in practice, the mitigation hierarchy is often considered holistically and iteratively. Coastal GasLink adopted an iterative approach to mitigating potential Project effects as outlined in the Environmental Mitigation Procedures, beginning with avoidance, minimization and on-site mitigation, prior to consideration of the need for alternative mitigation strategies, such as compensation or offsets. The Application discusses mitigation and environmental management strategies for project effects in Section 10.6 and for cumulative effects in Sections 10.13.2 and 10.13.3. Given the sensitivity of the caribou populations potentially affected by the Project, and in accordance with the mitigation hierarchy, Coastal GasLink has incorporated consideration of alternative mitigation strategies, such as compensation or offsets, and monitoring into mitigation planning to reduce the magnitude of residual Project effects on caribou. With implementation of the proposed measures to avoid, minimize, mitigate on-site, and implement alternative mitigation strategies, such as compensation or offset where warranted, the residual effects of the Project are not predicted to affect conservation objectives for southern mountain caribou. Uncertainty is expected to be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management	Please refer to comments in Issue 192.	

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									approach. Following the assessment method in the AIR, Coastal GasLink concluded the residual adverse effect on caribou is not significant. Reference: BC Ministry of Environment. 2014. Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures). Working Document, January 9, 2014. Website: http://www.env.gov.bc.ca/emop/ . Accessed: May 2014.		
195	Application Section 10		Wildlife	16-Apr-14	Megan Watters	FLNRO		Does the proponent intend to produce a Caribou Habitat Restoration Plan to supplement the Restoration Plan referenced in Section 14 (note that the Restoration Plan does not appear to be included in the Application)?	Instead of having a specific caribou habitat reclamation plan, Coastal GasLink would include measures specific to caribou habitat reclamation in its Reclamation Plan. The final Reclamation Plan will be developed before clearing and construction, and will include measures for effectively reclaiming the land disturbed by construction activities. This plan will also include measures appropriate to effectively reclaim caribou habitat, to the extent practical, based on feedback from the appropriate regulatory authorities.	Response satisfactory.	
196	Application Appendix 2A Section 6.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		1st bullet in Environmental Resource Delineation: States "Following clearing, visual identification (e.g. snow fencing) will be installed to delineate sensitive resources." Suggest that this be reworded to include that the fencing (or whatever material used to mark sensitive features) be monitored and maintained (to ensure sites are clearly identified during all phases of construction).	Coastal GasLink acknowledges this comment. The EMP will be updated to note the monitoring and maintenance of visual identification features, such as fencing, during Project construction phases.	Response satisfactory.	
197	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Megan Watters	FLNRO		Hydrology: Is the proponent able to provide some examples of mitigation that would be used if springs and ground water are encountered, particularly with reference to upwelling for spawning bull trout, and ungulate mineral licks.	Coastal GasLink is committed to constructing the pipeline in accordance with the habitat protection provisions of the Fisheries Act, DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat (formerly DFO Operational Statements) and the BC OGC's Environmental Protection and Management Guide, which include avoidance of potential areas of groundwater upwelling or conducting works directly upstream of sensitive fish rearing or spawning areas and adhering to minimum setback distances for mineral lick. In the event springs or groundwater is encountered within the vicinity of fish habitat, wildlife species of concern or their site-specific habitat, Coastal GasLink will implement the Wildlife Species of Concern Discovery Contingency Plan (Appendix C of the EMP [Appendix 2a]).	Response satisfactory.	

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198	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Megan Watters	FLNRO		10th bullet in Wildlife General Section: What is the plan to manage invasive plants (including noxious weeds) near aquatic environments? Elsewhere in this EMP it is mentioned that there is an Invasive Plant Management Plan however it does not appear in the appendices of environmental management plans. Please confirm when this Plan will become available, where this document is or will be located, and how riparian areas will be managed with respect to invasive plants.	The Invasive Plant Management Plan will be prepared prior to construction in accordance with the applicable legislation and in consultation with the appropriate regulatory authorities. The Invasive Plant Management Plan will be available on site, for reference by the construction management team. The Plan will recognize sensitive locations, such as riparian areas, and outline site specific measures.	Response satisfactory; the sooner this plan is available, the better.	
199	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		5th bullet in Wildlife General about harassment/feeding of wildlife. Curious if the proponent has a plan to deal with problem/injured wildlife? Document states incidents/collisions will be reported but doesn't seem to speak to the what happens in the interim. Please clarify.	Coastal GasLink will prepare Human-Wildlife Conflict Management Plan, which will include measures to prevent any direct wildlife mortality associated with the construction and operation of the proposed Project. This plan will be developed in advance of project construction, and will be available on site for reference by the construction management team.	Response satisfactory.	
200	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Just to clarify, natural recovery does have its place on the landscape but there are expectations in other areas such the ALC where this would not be appropriate. The Ecosystems Section recommends that the proponent follow decision tree for re-vegetation in the Peace Liard Re-vegetation Manual (including where native seeds are to be used Appendix 7.3 LRMP Native Seed Map for the Peace).	Acknowledged.	Response satisfactory.	
201	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Amphibian Breeding Wetlands: Section discusses regulatory permitting for salvage activities. General comment about permits: please note, the Government of BC and three Treaty 8 First Nations in the Northeast Region have an agreement in place which provides for the collaborative management of wildlife (i.e. the Wildlife Collaborative Management Agreement (WCMA)). As per the WCMA, the Province is obligated to consult with Treaty 8 First Nations regarding a variety of permit authorizations. The proponent is encouraged to engage with local Treaty 8 First Nations at the onset and submit an application as early as possible to avoid any unnecessary delays.	Acknowledged.	Response satisfactory.	
202	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		With respect to bear dens, a provincial draft BMP exists that speaks to a variety of habitat features including grizzly bear ground dens and black bear den trees. Document entitled "Wildlife Habitat Features Summary of Management Guidelines Northern Interior Forest Region Draft (MWLAP July 30, 2004) is available at: http://www.env.gov.bc.ca/esd/distdata/Peace_Region_Wildlife_Values/Fish_and_Wildlife/FRPA/Wildlife_Habitat_Features/DRAFT.WHF.NorthInterior.revise.July30.pdf	Acknowledged.	Response satisfactory.	
203	Application Appendix 2A Section 7		EMP	16-Apr-14	Megan Watters	FLNRO		Sensory Disturbance: It is recommended that the "Peace Region Selected Terrestrial and Aquatic Wildlife Least-Risk Windows (April 2011)", or those provided in BC OGC (2013) be considered as an additional mitigation measure to reduce the impacts of sensory disturbance on wildlife.	Coastal GasLink referenced the guidelines in the development of mitigation presented in the Application. Mitigation identified in the EMP considers the least risk windows in other sections of the document specific to various wildlife species.	Response satisfactory.	
204	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Barriers to Movement Section: Suggest some wording be added to ensure that open excavations (e.g. trenches, pits, sumps etc.), do not entrap wildlife; can be achieved by fencing open excavations and/or backfilling/contouring open excavations to a stable angle of repose. Suggest also that if there are any potential sources of industrial contamination (e.g. sumps etc.) required to facilitate any aspect of this project that they be adequately contained (fenced) to prevent wildlife from accessing sites and ingesting hazardous material.	In addition to the mitigation described in the Environmental Management Plan, Coastal GasLink expects additional site specific measures will be identified and documented as the project advances.	Response satisfactory.	
205	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Megan Watters	FLNRO		Alpine/subalpine areas: "Manage the alpine/subalpine habitats as invasive plant free zones with strict guidelines on vehicle and equipment access". It is recommended that the same principle should be adhered to in all ecological communities, and particularly in riparian areas.	The Invasive Plant Management Plan will be prepared prior to construction in accordance with the applicable legislation and in consultation with the appropriate regulatory authorities. The Invasive Plant Management Plan will be available on site, for reference by the construction management team. The Plan will recognize sensitive locations, such as riparian areas and other sensitive ecological communities, and outline site specific measures.	Response satisfactory.	

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206	Application Appendix 2A Section 7.1.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Noxious Weeds Infestations - How are invasive plants and noxious weed infestations being tracked by the proponent? Is the proponent aware of the Invasive Alien Plant Program (IAPP) Application (Report-A-Weed)? Could serve as an option for tracking of invasive occurrences/treatments. As an aside, the Peace River Regional District has a series of sector specific BMPs (including one for oil and gas operations) dealing with invasive plants. Document available at: http://www.prrd.bc.ca/services/environmental/weed_control/index.php	Noxious weed infestations will be documented as part of the Environmental Inspection process. Coastal GasLink is aware of the IAPP Application. Guidance is also provided by Best Management Practices for Managing Invasive Plants on Oil & Gas Operations produced by the Peace River Regional District and the Invasive Species Council of BC.	Response satisfactory.	
207	Application Appendix 2A Section 7		EMP	16-Apr-14	Kerry Harvey	FLNRO		ALR - the last bullet in this section speaks to complying with the ALC requirements regarding soil handling and reclamation. Is the proponent aware that there is a delegation agreement between the ALC and the BC OGC which specifies reclamation requirements in the ALR including the need for Schedule A (pre-site) and B (post construction) site assessments? More information about this matter can be obtained at: http://www.bcogc.ca/node/11024/download . The proponent is advised to contact the OGC to discuss this matter further.	Coastal GasLink is aware of the delegation agreement between the ALC and the BC OGC. Coastal GasLink understands that this agreement is for the NE of the province, and does not apply for all ALR lands crossed by the proposed Project. Coastal GasLink will continue its discussions with the OGC and the ALC.	Response satisfactory.	
208	Application Appendix 2A Section 8.2.3		EMP	16-Apr-14	Megan Watters	FLNRO		Wet Terrain/Muskeg: To prevent the spread of invasive plant species, the proponent should ensure that any corduroy, wooden mats or their equivalent used during construction are clean and free of soil, plant material and seeds. Further, these items should be cleaned prior to use at another site.	As addressed in Section 7.1.3 of the EMP (Appendix 2A of the Application), "All equipment must arrive at the Project site clean and free of soil or vegetative debris. Equipment will be inspected by the Environmental Inspector(s) or designate, and if deemed to be in appropriate condition, will be identified with a suitable marker or tag. Any equipment which arrives in a dirty condition shall not be allowed on the ROW until it has been cleaned"	Response satisfactory.	
209	Application Appendix 2A Section 8.2.3		EMP	16-Apr-14	Megan Watters	FLNRO		How will the width of the forested or shrubby buffer between RoW's be determined?	Coastal GasLink will adhere to guidance from the appropriate regulatory authorities, and will ensure a safe work site.	Response satisfactory.	
210	Application Appendix 2A Section 8.2.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Clearing Section: Suggest that section also mention clearing should be undertaken in accordance with regional timing windows.	Coastal GasLink will continue to reference restricted activity periods as construction planning and detailed engineering design advances. If site-specific situations arise where Project activities may be a concern with respect to restricted activity periods, Coastal GasLink will work with the appropriate regulatory authorities to develop a practical approach.	Response satisfactory.	
211	Application Appendix 2A Section 8.4		EMP	16-Apr-14	Kerry Harvey	FLNRO		General Comment applicable to this entire section: Several references are made the Department of Fisheries and Oceans Canada Operational Statements. The federal website "Measures to Avoid Causing Harm to Fish and Fish Habitat" indicates that there are now 5 Measures Documents that replace the Operational Statements. It is recommended that the application be amended to reflect this change. Details available at: http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html	Coastal GasLink is aware that the DFO Operational Statements have been replaced by the Measures to Avoid Causing Harm to Fish and Fish Habitat guidance document. The Operational Statements were in place when the Application was developed and, though superseded by Measures to Avoid Harm to Fish and Fish Habitat, represent industry-accepted practices to avoid harm to fish and fish habitat and their inclusion in the Application is considered appropriate. The practices outlined in those documents will be adhered during construction activities and will satisfy corresponding requirements in the Measures to Avoid Harm to Fish and Fish Habitat.	The proponent is advised to consult with DFO regarding this issue to ensure that the correct approach is used (if DFO has not already been consulted).	Coastal GasLink will continue to engage with the appropriate regulatory authorities, including Fisheries and Oceans Canada, to achieve compliance with all regulatory requirements.
212	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Megan Watters	FLNRO		Riparian Buffers: The EMP prohibits clearing of temporary workspace within 10 m of a watercourse to protect riparian values. It was assumed that the buffer would correspond to guidance provided by the OGC in their Environmental Protection and Management Guide (e.g., 30 m for a S2 class stream); please clarify how 10 m was selected as a buffer distance.	The Environmental Protection and Management Guide provides guidelines for protection of riparian areas; however, construction of a crossing may require work closer to a watercourse than the 30 m buffer distance for a S2 Riparian Reserve Zone. Temporary workspace within 10 m is a minimum value set in consideration of potential terrain conditions (e.g., slopes and valleys) that may be present at site-specific watercourses and impose restrictions on work space which would require a deviation from the Environmental Protection and	Response satisfactory; the Proponent is advised to minimize their footprint within the riparian area to the greatest extent possible.	Comment noted.

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									Management Guide and subject to approval by the appropriate regulatory authority.		
213	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		1st bullet Grading Section: Suggest that this be reworded to include that the temporary sediment and erosion control used also be monitored and maintained (to ensure sites their functionality over the course of activities).	The Environmental Inspector will regularly inspect temporary sediment and erosion control measures along the ROW for effectiveness to ensure drainage and stream flow maintained.	Response satisfactory.	
214	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		General questions about vehicle crossings: Are any vehicle crossing required to remain in place during freshet? If so, can the proponent please confirm that those structures will be designed to withstand a minimum Q100 flood event? Additionally, nowhere in the EMP does it mention the OGC's Environmental Protection and Management (EMPG)Guideline, which discusses mitigation for a variety of crossing types permitted by the OGC. The proponent should review this OGC guideline and incorporated relevant guidance into the project EMP. OGC EMPG is available at: http://www.bcogc.ca/node/5899/download	Coastal GasLink confirms that certain vehicle crossings will remain in place during the freshet. At locations where the structure will stay in place for freshet, the crossings will be designed to meet the applicable regulatory requirements.	Response satisfactory.	
215	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		4th bullet in Vehicle Crossings Section: there appears to be conflicting guidance with respect to minimum snowpack depth at bank crossings in this section (suggests maintaining 0.5 m snowfill or fill material at each bank) yet on next page in Vehicle Crossing Section (3rd bullet) just suggests depth be of a sufficient thickness to protect stream channel and banks. Suggest consistent guidance in this regard. General question about stream crossings - there is no reference in this document about the OGC's Environmental Protection and Management Guideline. If proponent not yet aware of that guidance piece, Ecosystems suggests stream crossing guidance be reviewed and relevant sections incorporated into the EMP document.	The intent of maintaining snowpack depth at stream crossings is to ensure that the streambed and banks are protected. Coastal GasLink notes that the 0.5m snowpack depth to protect the banks is a general measure where watercourses have flow, whereas the depth at frozen watercourses can vary based on site specific conditions. The determination about the appropriate depth of snowpack at stream crossings will be guided by the Environmental Inspector, and appropriate Resource Specialists.	Response satisfactory; reiterate that the OGC's Environmental Protection and Management Guideline provides valuable guidance on stream crossings.	Comment noted.
216	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		2nd bullet in Vehicle Crossings: Frozen Conditions Section: Reference is made to not withdrawing more than 10% of the instantaneous stream flow at any given time. Can the proponent please clarify where that guidance came from (OGC?)? How does this 10% drawdown rate take into consideration the cumulative impacts of other short term water users permitted by the OGC (or other agencies for that matter) who could be potentially diverting water from the same systems (how will this be monitored cumulatively?).	The 10% withdrawal rate is an industry accepted best practice, and aligns with DFO's Pacific Region Operational Statement for Ice Bridges and Snow Fills. Coastal GasLink understands that BC OGC is responsible for permitting of water withdrawals and it is expected that OGC will ensure through their permitting process that cumulative withdrawals are acceptable.	Response satisfactory.	
217	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		3rd bullet under Pipeline Installation: Reference is made to developing water quality monitoring plans, as needed, to monitor sedimentation events during in-stream construction. Northeast Ecosystems suggests that such a plan be developed and incorporated into this EMP before construction activities commence. An immediate course of action that could be implemented as soon as sedimentation is noted as a project concern would help reduce the risk of adverse impacts to a variety of downstream aquatic values.	Water quality monitoring plans, where warranted will be developed prior to construction. The water quality monitoring plan will also include appropriate response measures, should a harmful sedimentation event occur.	Response satisfactory; Northeast Ecosystems would be interested in reviewing such plans.	Coastal GasLink will continue engagement with the appropriate regulatory authorities in developing water quality monitoring plans.
218	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		4th bullet under Pipeline Installation: Can the proponent please advise what the plan is for those trenched crossings that cannot be physically installed within one day (is the plan to work 24 hours a day or shut down at night with site monitors to keep pumps running etc. to maintain isolation)?	Pipe installation through watercourses will be scheduled to be completed safely during acceptable work hours. For those crossings that cannot be completed during that time period, the isolation will be maintained overnight with workers monitoring the crossing and the operation of the pumps. Reference to Isolated Open Cut Crossings, 4th bullet in section 8.4.3 of the Environmental Management Plan.	Response satisfactory.	
219	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		5th bullet under Pipeline Installation: Just a comment about the replacement of clean cobble.....the bed material needs to be appropriately sized to mimic natural pre-disturbance site conditions.	Pre-disturbance site conditions will be re-established to the extent practical by replacing granular material removed from the bed of the watercourse. Where granular material is not present on the bed of the watercourse, appropriately sized material will be used.	Response satisfactory.	

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220	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Isolated Open-Cut Crossings (Dry or Frozen to Bottom) Section: bullets 3 and 4 around dewatering the trench and discharge of sediment water seem out of place as mitigation for this scenario; likely more appropriate to those open cut situations outlined above and below this section.	Acknowledged.	Response satisfactory.	
221	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		2nd bullet in Water Withdrawal Section: This bullet speaks to sumps; Northeast Ecosystems recommends that direction be added in specifying that such features be fenced to prevent access to potentially hazardous materials. Also recommend that somewhere in the EMP there be text added along the lines of open excavations be designed for ease of egress by wildlife.	Coastal GasLink will continue to update mitigation as construction planning and detailed engineering design advances.	Response satisfactory; proponent is encouraged to consider the guidance provided by Northeast Ecosystems.	Comment noted.
222	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Channel Realignment Section: Can the proponent please specify which watercourses within the Peace Region are likely to have their channels realigned?	Installation plans for each watercourse crossing will be refined as construction planning and detailed engineering design advances. Further details about watercourse crossing installations will be provided to the OGC during the permitting phase.	Response satisfactory.	
223	Application Appendix 2A Section 8.4.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		3rd bullet in the Permits and Approvals Section: The MoE is noted as the regulatory agency for Water Act Section 8's. The BC OGC has such delegated authorities so it is in all likelihood the OGC that would issue this short term water use approval.	Acknowledged.	Response satisfactory.	
224	Application Appendix 2A Section 8.8.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		1st bullet in Topsoil Replacement Section: This line should be modified to reflect requirements of ALR versus non ALR lands. Technically topsoils in the ALR would be put back as per the stripping requirements of the Schedule A.	Mitigation measures specific soil handling in ALR and non ALR lands are outlined in Table 7-1 of the EMP (Appendix 2A of the Application). Coastal GasLink will comply with the Agricultural Land Commission requirements regarding soil handling and reclamation during construction in the ALR.	Response satisfactory.	
225	Application Appendix 2A Section 8.8.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Seeding and Re-vegetation Section: General comment around seeding. Should the proponent require information around seeding mixes, rates, site preparation options etc. for reclamation activities in the Northeast Region, the document entitled "Peace-Liard Re-vegetation Manual," which is available on line at: http://prrd.bc.ca/services/environmental/weed_control/documents/NEIP_C_Reveg_manual_PeaceLiard_April2010.pdf , can be referred to for guidance.	Acknowledged.	Response satisfactory.	
226	Application Appendix 2A Section 8.8.3		EMP	16-Apr-14	Kerry Harvey	FLNRO		Last bullet in Rollback Section: Can the proponent please elaborate how rollback will be used at watercourses? Ecosystems has concerns with the use of rollback near aquatic environments given it can serve as a source of deleterious material to the stream.	Section 8.4 of the EMP notes that trees and debris will not be allowed to enter watercourses. Locations and material to be used for rollback will be determined in consultation with the appropriate regulatory authorities (EMP Section 8.2, page 57) Rollback is one of the methods for consideration for erosion control, and potentially for access control.	Response satisfactory.	
227	Application Appendix 2A Appendix C		EMP	16-Apr-14	Kerry Harvey	FLNRO		5th Bullet in Monitoring Section: speaks to monitoring onshore and in-stream portions of drill path on trenchless crossings for mud release. Ecosystems is seeking clarification how this monitoring would be completed under frozen ground conditions should that situation occur? Snow and ice could hinder the frac fluid detection process.	Coastal GasLink will implement its directional drilling procedures and instream drilling mud release contingency plan contained in Appendix C.8 of the EMP. The approach is a combination of visual observation of ground conditions by identified personnel in addition to the monitoring of equipment indicating drilling pressure and drilling mud return.	Response satisfactory.	
228	Application Appendix 2A Appendix D		EMP	16-Apr-14	Megan Watters	FLNRO		Does the proponent intend to conduct Post-Construction Monitoring on the RoW to determine the efficacy of access management (e.g., snowmobile use, travelled by wolves)? If so, please provide some detail on this monitoring.	Coastal GasLink will implement a Post-Construction Monitoring (PCM) Program. This program will be developed in consultation with the appropriate regulatory authorities to monitor the effectiveness of mitigation and access control management. Two potential indicators of the efficacy of access control structures are the intactness of the structure and evidence of traffic moving around the structure to access the right of way.	Response satisfactory.	
229	Application Appendix 2A Appendix D		EMP	16-Apr-14	Megan Watters	FLNRO		Reference is made in Section 14 (Land & Resource Use) to a Reclamation Plan; however, this Plan does not appear in Appendix D. The proponent is requested to comment on when this Plan will be available.	The Reclamation Plan will be developed in advance of construction of the proposed Project. The development of the Reclamation Plan will include discussions with landowners, and the appropriate regulatory authorities.	Response satisfactory.	

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230	Application Appendix 2A Appendix D		EMP	16-Apr-14	Megan Watters	FLNRO		Post-construction vegetation monitoring is planned to occur through aerial reconnaissance and ground surveys. The effectiveness of aerial surveys to identify small-scale invasive species occurrences is unclear, however, particularly if the plants are not flowering at the time of the survey. There is concern that invasive species may not be noticed until the invasion is extensive and relatively difficult to manage. The proponent is requested to provide more detail on the methods that will be used to monitor the RoW and other disturbed areas for invasive species and for the success of reclamation.	The Invasive Plant Management Plan will be prepared prior to construction in accordance with the applicable legislation and in consultation with the appropriate regulatory authorities. The Invasive Plant Management Plan will be available on site, for reference by the construction management team. The Plan will recognize sensitive locations, such as riparian areas, and outline site specific measures. In addition, Coastal GasLink will implement a Post-Construction Monitoring (PCM) Program to monitor the effectiveness of mitigation.	Response satisfactory; the proponent is advised to consider reconnaissance methods most suitable to identifying small-scale invasions.	Comment noted.
231	Application Appendix 2A Section 25.3		EMP	16-Apr-14	Megan Watters	FLNRO		It is acknowledged that post-construction monitoring is expected to occur for five years after cleanup and reclamation. The proponent is requested to provide detail on the anticipated frequency of that monitoring (e.g., twice annually) for each biophysical VC. Also, is that frequency anticipated to change over the five year period?	Coastal GasLink will develop a Post-construction Monitoring Plan in advance of construction, in consultation with the appropriate regulatory authorities. Post-construction monitoring will be conducted during the first five years after final cleanup and reclamation. Post construction monitoring will begin after the first full growing season after final cleanup of the areas disturbed by the proposed Project and the implementation of post-construction reclamation measures. The issues identified and additional mitigation actions taken within the first year following final cleanup and reclamation will be assessed and any residual outstanding issues will be managed during subsequent years as necessary including implementing further monitoring where warranted..	Response satisfactory.	
232	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Local Study Area Section: Can the proponent please clarify how the upstream and downstream extents of the aquatic LSA were derived (e.g. was it informed based on an accepted sampling standard (RISC))?	Coastal GasLink defined LSA as 100 m upstream and 300 m downstream of the proposed pipeline crossing location with the understanding that this extent was representative of a potential zone of influence of the proposed Project.	Response satisfactory.	
233	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		General comment about field sampling program: Is there a single table that summarizes what sampling has actually occurred at each site over the four field programs, what streams were classified based on historical/existing information and/or which streams were assigned a default fish bearing status? In order to properly evaluate risk and appropriateness of mitigation this is important insight. It is acknowledged that some of this information exists on the alignment sheets however it is extremely onerous to try and collect this information from the many sheets associated with the project.	Appendix C contains summarized fish presence, and information regarding stream classification and fish captures can be found on the stream crossing data sheets (Appendix F of the Fish and Fish Habitat TDR).	Acknowledged. It would be useful if this information were all in one place and easy to locate.	
234	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		7th bullet in Field Programs Section: There is discussion in this section that the field program would aim to identify areas of hydrologic concerns. That said, have the proponents' aquatics specialists looked at the issue of groundwater upwelling in fish bearing streams inhabited by bull trout and the potential implications to spawning? Given the baseline work completed to date are there any streams in the project area where this has been identified as a concern? If there is a section in the application that speaks to this specifically, could the proponent please forward that to Northeast Ecosystems for review?	During the aquatics field program, Coastal GasLink noted locations of groundwater upwelling and bank seepage. Observations of groundwater upwelling was an emphasis of the winter field program, where the upwellings are often more readily identified by lack of ice cover and warmer water temperatures. Coastal GasLink is committed to constructing the pipeline in accordance with the habitat protection provisions of the Fisheries Act, DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat (formerly DFO Operational Statements) and the BC OGC's Environmental Protection and Management Guide, which include avoidance of potential areas of groundwater upwelling or conducting works directly upstream of sensitive fish rearing or spawning areas.	Thank you.	
235	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Just a minor editorial comment - lines 12 and 13 state WFA, presumably that should be WFP?	Acknowledged.	Response satisfactory.	

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236	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Open Water Fisheries Program - Given freshet conditions were not conducive to fish sampling at many sites, were these sites revisited later in the season to confirm/refute fish presence?	Coastal GasLink revisited streams when there was a strong potential for the stream classification to be changed. Streams were designated as fish bearing in situations where no fish sampling was conducted due to freshet conditions, but there is potential for fish presence.	Response satisfactory.	
237	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Table 3-4. Where can Northeast Ecosystems find the results specifically for the presence of bank seepage or groundwater upwelling biophysical fish parameters at those sites in the Northeast Region? This ties into comment above regarding bull trout spawning. Additionally, can the proponent please clarify their definition of habitat value by type in the Stream Classification and Mapping field?	Coastal GasLink offers the following additional information: Of the streams with fish-bearing classifications in Region 7B, bank seepage was noted at site 10B1 (Murray River), 51B1 (Sukunka River), 68 (Blind Creek), 72 (Burnt River), 73 (seepage at relict Burnt River backchannel), 84 (Rocky Creek), and 85 (tributary to Rocky Creek). Upwelling was noted at site 68 (Blind Creek) and spawning habitat was rated as good at this location, although historical sampling associated with a coal mine upstream did not document the presence of bull trout. Upwelling was also noted at site 73, associated with a seepage in a Burnt River backchannel. There was no spawning habitat identified at site 73. Upwelling was noted at site 84 (Rocky Creek), where bull trout are known present, and 85 (Rocky Creek tributary) but spawning habitat was rated as poor due to the embedded substrates and lack of water depth at the crossing locations. Coastal GasLink clarifies that "Type" in the definition of habitat value refers to the type of fish habitat (e.g., rearing, spawning, or overwintering).	Thank you for this information. The proponent is advised to keep it under consideration when planning instream activities and water crossings.	Comment noted.
238	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Habitat Evaluation Section: Line 30 speaks to species of management concern....is it more accurate to say key indicators in this regard?	Agreed.	Response satisfactory.	
239	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Fish Sampling Section - Where sampling was required to fill in data gaps and for those situations where site conditions may not have been conducive for sampling (e.g., water temperatures low, ephemeral habitats etc.) was a second sampling event conducted or was professional judgment used to determine whether and how much additional sampling was required?	Coastal Gaslink sampled twice at locations where fish presence was uncertain during the initial sampling event. Fish and fish habitat surveys are continuing to inform construction planning and detailed engineering design.	Response satisfactory.	
240	Application Appendix 2G		Fish and Fish Habitat; Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Risk Management Framework - DFO Operational Statements no longer exist. The federal website "Measures to Avoid Causing Harm to Fish and Fish Habitat" indicates that there are now 5 Measures Documents that replace the Operational Statements. It is recommended that the application be amended to reflect this change. Details available at: http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html . Additionally, nowhere in the aquatics sections does it mention the OGC's EPMR Guidelines, which discusses mitigation for a variety of crossing types permitted by the OGC. The proponent should review this OGC guideline and incorporate relevant guidance into the EMP. OGC EMPR Guideline is available at: http://www.bcogc.ca/node/5899/download	Coastal GasLink is aware that the DFO Operational Statements have been replaced by the Measures to Avoid Causing Harm to Fish and Fish Habitat guidance document. The Operational Statements were in place when the Application was developed and, though superseded by Measures to Avoid Harm to Fish and Fish Habitat, represent industry-accepted practices to avoid harm to fish and fish habitat and their inclusion in the Application is considered appropriate. The practices outlined in those documents will be adhered during construction activities and will satisfy corresponding requirements in the Measures to Avoid Harm to Fish and Fish Habitat.	The proponent is advised to consult with DFO regarding this issue to ensure that the correct approach is used (if DFO has not already been consulted).	Coastal GasLink will continue to engage with the appropriate regulatory authorities, including Fisheries and Oceans Canada, to achieve compliance with all regulatory requirements.
241	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		As the proponent is aware there have been amendments to the <i>Federal Fisheries Act</i> . That said, has the proponent had recent discussions with the Department of Oceans and Fisheries Canada to determine applicability of the risk management decision making framework (Figure 3-1) to the project in light of changes to the Act (consider serious harm component)? This is important insight and influences subsequent risk assessments so Ecosystems is interested in comment from the proponent in this regard.	Coastal GasLink will continue dialogue with Fisheries and Oceans Canada to clarify regulatory requirements.	Response satisfactory.	
242	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Line 25-26 speaks to the stream crossing data sheets for every proposed crossing being included in Appendix F. Ecosystems has reviewed that Appendix document and there appears to be relatively few data sheets available for review there. Please report on this inconsistency.	Coastal GasLink has provided the stream crossing catalogue cards to the EAO to provide to the members of the Working Group if requested.	Thank you for providing this information.	

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243	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Environmental Management Plan: Reclamation appears absent from the EMP and is not specifically listed in this section. Can the proponent please comment on why a reclamation plan is not included?	The Reclamation Plan will be developed in advance of construction of the proposed Project. The development of the Reclamation Plan will include discussions with landowners, and the appropriate regulatory authorities. As construction continues, there may be updates to the reclamation plan to reflect site specific conditions encountered during construction.	Response satisfactory.	
244	Application Appendix 2G		Fish and Fish Habitat	16-Apr-14	Kerry Harvey	FLNRO		Northeast Ecosystems has concern with isolation being proposed as the preferred crossing option for a majority of the S1A, S1B and S2 crossings proposed. It is the preference of Northeast Ecosystems that the identified large crossings be trenchless construction and that existing access for vehicles/equipment around the worksite be utilized (where possible) to reach drill entry and exit points.	Coastal GasLink's considerations for selecting pipeline watercourse crossing installation methods is described in Section 1.2.5, Pipeline Watercourse Crossing Construction Activities and Section 1.4.16 Alternative Construction Methods for Pipeline Installation at Watercourses. Coastal GasLink will use existing bridges and access to watercourse crossing locations to the extent practical.		Comment noted. Coastal GasLink will continue engagement with appropriate regulatory authorities as construction planning and detailed engineering design advances.
245	Application Section 7.1		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Can the proponent please provide some clarity around the groundwater quality & quantity KI's - Is it common practice to measure an indirect water quality parameter in this regard (line 7/8)? What kinds of spills are being referred to exactly (hydrocarbons, drilling fluid etc.)? Is the plan to monitor water wells within a specified distance of a reportable spill? Speaking to the actual use groundwater wells to facilitate construction activities, are groundwater wells proposed as sources of water supply versus surface water (when would groundwater wells be utilized or are those proposed as back-up water sources)?	The Key Indicators were identified in the AIR issued by the EAO in May 2013. A discussion of the potential adverse effects on the groundwater quality and quantity key indicators is contained in Section 7.8 of the Application.	Response satisfactory.	
246	Application Section 7.4.2		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Northeast Ecosystems Section was wondering if the proponent has had discussions with DFO regarding the <i>Fisheries Act</i> Sec 35(1) change - the prohibition applies to fish (and their habitat) that are part of commercial, recreational or Aboriginal fisheries, <u>and to fish (and their habitat) that support</u> commercial, recreational or Aboriginal fisheries. Although some of the species listed in Table 7-3 are not considered for the purposes of fish bearing designation under the EMPR, it is possible that some of those fish do in fact support the other commercial, recreational and Aboriginal fisheries. Insight about this matter from the proponent (and DFO) would be valuable insight to reviewers.	Coastal GasLink will continue dialogue with Fisheries and Oceans Canada to clarify regulatory requirements.	Response satisfactory.	
247	Application Section 7.5.1		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		It is assumed the mitigation presented in this table is the same as that outlined in the EMP. That said, rather than re-iterate those comments again here, please refer to comments provided elsewhere for the EMP review. In those situations where edits are required in the EMP, please ensure those changes also are made here in the EA.	Coastal GasLink confirms that as construction planning and detailed engineering advances, and the review of this application proceeds, the EMP will be updated accordingly.	Response satisfactory.	
248	Application Section 7.5.3		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Can the proponent please expand upon how the cited regulatory standards (in line 2) apply exactly? The two provincial documents cited suggest maintaining riparian habitat (through riparian reserve zones). Considering those details it is debatable as to whether or not the residual effects to loss of riparian function during construction is of low magnitude. Keeping on the theme of magnitude (line 34) suggests re-vegetation plans and mitigation will reduce the potential effects. As mentioned in other sections, Reclamation (re-vegetation) Plans appear absent from the submission. Can the proponent advise on this matter?	Coastal GasLink is guided by the BC Riparian Management Areas Guidebook (BC MOE and BC MOF 1995) which sets out criteria for designing and constructing temporary and permanent stream crossings through riparian areas adjacent to watercourses in BC. These standards and the industry accepted best practices outlined in CAPP et al. (2005) are the recommended mitigation to address potential adverse effects of the proposed Project on aquatic and riparian habitat. As a result, it is expected that residual effects to riparian areas will be of low magnitude, i.e., residual effects are detectable but are well within regulatory and environmental standards. The Reclamation Plan will be developed in advance of construction of the proposed Project. The development of the Reclamation Plan will include discussions with landowners, and the appropriate regulatory authorities. As construction continues, there may be updates to the reclamation plan to	Response satisfactory.	

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									reflect site specific conditions encountered during construction.		
249	Application Section 7.5.3		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Section 7.5.3 line 24 - It is acknowledged that the definition of project footprint on p. 7-8 refers to the RoW, but for this environmental effect, would it not be more appropriate to evaluate at the LSA? Agreed the clearing is within the riparian area of the RoW but the associated potential impacts (e.g. sedimentation etc.) would occur in the ZOI. Can the proponent please provide additional insight about this matter?	The potential residual effect 'Alteration or Loss of Riparian Habitat Function during Construction' on p.7-75 of the Application focuses on changes to riparian habitat function as an effect. The potential effects, such as sedimentation, associated with clearing of riparian areas, are addressed under 'Alteration of Instream Habitat within the Zone of Influence at Trenched Crossings and during Construction of Vehicle crossings' on p.7-78 of the Application and 'Increase Mortality or Injury due to Increase of Suspended Sediment during Instream Construction at Trenched and Vehicle Crossings within the Zone of Influence' on p.7-80 of the Application. Both of these residual effects consider sedimentation due to bank erosion and are assessed within the Project LSA.	Response satisfactory.	
250	Application Section 7.5.4		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Line 28 - Just to clarify, when "economically mitigated" is referred to are we talking financial compensation here? As the proponent is likely already aware, environmental mitigation should be in line with the provincial Environmental Mitigation Policy for BC which is based on the mitigation hierarchy; the corresponding types of mitigation measures to be applied under this Policy, in order of priority, are as follows: a. avoid impacts on environmental values and associated components. b. minimize impacts on environmental values and associated components. c. restore on-site the environmental values and associated components that have been impacted. d. offset impacts on environmental values and associated components.	"Economically mitigated" is not in reference to financial compensation. Coastal GasLink uses the term "technically or economically mitigated" to refer to the constructability and practicality of the mitigation. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink acknowledges the importance of avoidance in addressing adverse effects of the proposed Project.	Response satisfactory.	
251	Application Section 7.5.4		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		For the 3 sections dealing with increased fish mortality on these pages (due to increased suspended sediments during trenched crossings within the ZOI, increased suspended solids during operations and during construction activities), it is stated that the potential residual effects resulting in fish mortality can be technically or economically mitigated. Can the proponent please elaborate on the economically mitigated component of this analysis? Is there text elsewhere in the EA application that discusses this issue? The EMP would presumably provide construction/operational guidance how to minimize adverse impacts to fish but is unclear how the economically mitigation piece applies.	Coastal GasLink uses the term "technically or economically mitigated" to refer to the constructability and practicality of the mitigation. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink acknowledges the importance of avoidance in addressing adverse effects of the proposed Project.	Response satisfactory.	
252	Application Section 7.5.6		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Line 13 - For the purposes of the CE analysis, how have "reasonably foreseeable developments" been temporally defined?	Section 3.8.7 of the Application outlines the methods for identifying the reasonably foreseeable future projects considered for the cumulative effects assessment. These methods are presented in compliance with Section 3.11.1 of the AIR issued by the EAO during May 2013. To be considered in the assessment, projects needed to be announced before August 2013.	Response satisfactory.	
253	Application Section 7.6.6		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Table 7-29. Last bullet in this table identifies that a Compensation Plan Framework is to be implemented. Can the proponent please provide detail around what this framework looks like/entails?	Coastal GasLink will continue dialogue with the appropriate regulatory authorities about alternative mitigation strategies, such as compensation or offsets. Site specific plans will be developed for	Response satisfactory.	

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									locations as required by DFO under its <i>Fisheries Act</i> authority. Such plans may include habitat enhancement or creation and reclamation.		
254	Application Section 7.7.1		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Table 7-30. The mitigation proposed was already commented on in the EMP review. Please refer to that document for comments and incorporate relevant changes into this table as required.	Coastal GasLink confirms that as construction planning and detailed engineering advances, and the review of this application proceeds, the EMP will be updated accordingly.	Response satisfactory.	
255	Application Section 7.7.2		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Line 18 - minor correction, withdrawal seems out of context - discharge or release is likely more appropriate.	Coastal GasLink would like to clarify that the two bullets on lines 16-17 and 18-19 refer to activities related to hydrostatic testing that will not result in contamination of the aquatic environment.	Response satisfactory.	
256	Application Section 7.7.2		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Line 25/26: What criteria are the proponent utilizing to determine if a watercourse crossing has the potential to cause TSS level exceedances?	Coastal GasLink will confirm with the appropriate regulatory authorities that relevant guidelines for TSS levels are provided by the Canadian Water Quality Guidelines and the BC Approved Water Quality Guidelines.	Response satisfactory.	
257	Application Section 7.7.2		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Line 1 - Can the proponent please clarify what industry accepted standard mitigation practices they are referring to that will be implemented to minimize alteration of natural drainage patterns (Is there a CAPP guidance document in this regard or is this just the suite of measures outlined in the EMP?)?	The recommended mitigation to minimize alteration of natural drainage patterns provided in Table 7-30 was developed in part, according to the industry and provincial regulatory guidelines of the following documents (as included in Section 7.9 of the Application): <ul style="list-style-type: none"> • Canadian Water Quality Guidelines; • BC Approved Water Quality Guidelines; • BC Interior Watershed Assessment Procedures Guideline; • Procedure, Standards and Best Practices for Instream Work; • DFO Pacific Region Operational Statements; and • Pipeline Associated Watercourse Crossings. 	Response satisfactory.	
258	Application Section 7.7.3		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Lines 7-10: Speaks to compensation measures being potentially implemented. Again, clarification requested what compensation options may look like for the project.	Coastal GasLink will continue dialogue with the appropriate regulatory authorities about alternative mitigation strategies, such as compensation or offsets. Site specific plans will be developed for locations that DFO has determined under its <i>Fisheries Act</i> authority. Such plans may include habitat enhancement or creation and reclamation.	Response satisfactory.	
259	Application Section 7.7.3		Aquatic Env.	16-Apr-14	Kerry Harvey	FLNRO		Lines 32/33: Can the proponent please clarify how exactly they will identify areas of residual altered flow or drainage? Wouldn't this be challenging to determine if the site was constructed under frozen ground conditions; seems like a very good understanding of pre-disturbance site conditions is an important planning consideration in this regard.	Areas of residual altered flow will be identified by visual inspections carried out as part of the Post Construction Monitoring Program over a period of five years following construction. Regardless of season of construction, it is anticipated that areas of altered flow following construction will be identifiable from observations of pooled water or diverted flow paths along the right of way, relative to the surrounding terrain. As well, input from land users and land owners may also inform the identification of areas of residual altered flow.	The proponent is advised to collect as much data on flow and drainage pre-disturbance as possible to ensure that potential problem areas are identified as quickly as possible.	
260	Application Appendix 2M		Land and Resource Use	16-Apr-14	Megan Watters	FLNRO		How current are the data on developments (e.g., mineral tenures, oil and gas, etc.) with potential overlaps with the proposed Project?	Section 3.8.7 of the Application outlines the methods for identifying the reasonably foreseeable future projects considered for the cumulative effects assessment. These methods are presented in compliance with Section 3.11.1 of the AIR issued by the EAO during May 2013. To be considered in the assessment, projects needed to be announced before August 2013.	Response satisfactory.	

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261	Application Section 14.4.3		Land and Resource use	16-Apr-14	Megan Watters	FLNRO		Section 14.4.3 provides information on Ungulate Winter Ranges crossed by the route. According to Section 10.2.2 in the Wildlife and Wildlife Habitat EA, the route also crosses a proposed Telkwa caribou WHA 6-333 (KP 586.4 to 591.6). The proponent is requested to provide a review of this proposed designated area in Section 14.4.3.	Information about the proposed Telkwa caribou WHA is included in Section 10.2.2 of the Application.	Response satisfactory.	
262	Application Section 14.5.1		Land and Resource Use	16-Apr-14	Megan Watters	FLNRO		Industrial Activity: Mitigation for disruption of mineral and sub-surface resources specifies overlaps with access to Huckleberry and Endako mines. Huckleberry mine, however, is not mentioned in Section 14.4.4 and appears to be further south than the proposed route. Brule Mine is specified to overlap with the Project. Please clarify.	As noted in Section 3.4.1 of the Social Technical Report (Appendix 2M) and Section 14.4.4, the proposed route crosses two access roads to the Brule Mine, the access road to the Endako Mine and access road to the proposed Sukunka Mine. These mines are located in the Land and Resource Use RSA. Coastal GasLink will notify representatives from Brule mine before constructing the pipeline under the access roads to the mines.	Response satisfactory.	
263	Application Section 14.5.1		Land and Resource Use	16-Apr-14	Megan Watters	FLNRO		Hunting, fishing and gathering: This section refers to the Reclamation Plan, Soil Erosion Plan, and Invasive Plant Management Plan. These Plans do not appear to be in the EMP; it is difficult to gauge the accuracy of the effects characterization and significance determinations for those VCs which refer to the aforementioned Plans. The proponent is requested to clarify when these Plans will be available.	Additional plans, such as the Reclamation Plan and the Invasive Plant Management Plan will be prepared in advance of project construction, in consultation with the appropriate regulatory authorities.	Response satisfactory.	
264	Application Section 14.5.3		Land and Resource Use	16-Apr-14	Megan Watters	FLNRO		Disruption of Hunting, Fishing and Gathering Activities: In addition to potential increases in fishing due to Project personnel during construction, there is concern that improved access associated with the RoW and access roads will result in increased pressure on certain fish resources. Although this improved access may be beneficial from a social standpoint, at least in the short-term, there may be long-term detrimental effects to fish populations due to overharvesting. The proponent is asked to clarify how they intend to balance social benefits with environmental concerns in terms of fishing activities.	Coastal GasLink has committed to developing and implementing the Access Control Management Plan and Traffic Control Management Plan. These plans will include access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. Coastal GasLink will work with its contractors to ensure that personnel are aware of local concerns regarding fishing in the area.	Response satisfactory.	
265	Application Section 14.5.3		Land and Resource Use	16-Apr-14	Megan Watters	FLNRO		Reduction in Timber Supply: This section refers to a Timber Salvage Plan; when is this Plan expected to be available for review?	The Timber Salvage Plan will be developed prior to construction in consultation with the appropriate regulatory authorities.	Response satisfactory.	
266	Application Section 14.5.3		Land and Resource Use	16-Apr-14	Megan Watters	FLNRO		Residual Cumulative Effects on Herd Dome ASMZ: This area is described as a remote wilderness area with "a high degree of wilderness value"; the description of the context is inconsistent with this and appears to be general to the entire route. Please clarify.	Coastal GasLink clarifies that the context is provided for the Valued Component, Land and Resource Use, and not provided specific to the residual adverse social effect being characterized. Coastal GasLink acknowledges the wilderness values of the Herd Dome ASMZ, and has characterized the residual adverse effect accordingly.	Response satisfactory.	
267	Application Appendix 3A		n/a	16-Apr-14	Megan Watters	FLNRO		The Proponent is asked to check the location of the proposed Merrick Mainline pipeline relative to the RSA; it is believed to be in close proximity to the proposed Coastal GasLink Pipeline Project, but does not appear to be in the CEA Inclusion List.	Section 3.11.1 of the AIR references August 2013 as the key date to identify locations of known projects. A Project Description or other type of information with a reasonable level of detailed description of the NGTL Merrick Mainline was not available by August 2013. To date, a Project Description for the Merrick Mainline has not been filed.	Response satisfactory.	
268	Application Section 18		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		Fossils are considered "heritage resources" under the Heritage Conservation Act and are protected when legally designated. Fossils are also managed under the Land Act and as such, the stewardship of the fossil resource, its protection and management fall under FLNR. The fossil management framework, approved by government in 2011, recognizes government's responsibility for the: • Protection of fossils; • Management of impacts of development on fossils; and • Support to use fossils in a manner consistent with the fossil management principles.	Coastal GasLink recognizes that fossils are protected when legally designated. There are no previously legally designated fossil sites along the proposed route.	Response to comment on legally designated fossils is satisfactory. Proponent has not acknowledged the Fossil Management Framework. -WT	Coastal GasLink will comply with all applicable regulatory requirements including the <i>Heritage Conservation Act</i> and <i>Land Act</i> where appropriate.
269	Application Section 18		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		see <i>Land Act</i> regulation (2011) for official definition of fossil - no need to go back to 2004 Fossil management technical working group.	Acknowledged.	Response Satisfactory -WT	

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270	Application Section 18.4.2		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		Table 18-4 summarizes the paleo deposits located in the proposed project area. Specimens were collected but there is no info on where these specimens are, how they will be cared for and where they will be stored. When will the AIA be completed and available. FLNR would like a copy of the report.	Coastal GasLink expects to complete, and submit to the appropriate regulatory authorities, the AIA final report in early 2015, which will include the palaeontological report.	The response from the proponent is satisfactory, providing there is a strong commitment to ensure that the proponent follows through with these reports and content. -WT	
271	Application Section 18.4.2		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		Pre-construction mitigation strategies: what are they? Who is responsible for developing them and what is the plan for arranging in advance for the receipt and care of collections resulting from the project. Need to develop a recovery plan that either avoids impacts or mitigates them. It should contain strategies to obtain representative samples of what will be destroyed or rendered unavailable as result of the project. The sampling/recovery methods will depend on the nature of the exposure, the density and types of fossils found in the beds. The plan must also contain strategies for the description of the geological setting and context of the fossils sites.	Coastal GasLink will continue to follow direction from the appropriate regulatory authority. Mitigation was developed in consultation with a qualified paleontologist, and is outlined in Table 18-7 of the Application. Coastal Gas Link will continue to work with a qualified paleontologist to inform construction planning and detailed engineering design.	Response should include a commitment to include an appropriate recovery plan that provides for the avoidance, and if necessary, mitigation of fossils should they be found. -WT	Coastal GasLink will comply with all applicable regulatory requirements.
272	Application Section 18.5.4		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		section refers to a detailed report with recommended viable alternatives for mitigation that will be written - when will it be available for review? Will it include recovery plan and care and storage of specimens.	Coastal GasLink expects to complete, and submit to the appropriate regulatory authorities, the AIA final report in early 2015, which will include the palaeontological report. This report will contain viable alternatives for mitigation, recovery plan and care and storage of the specimens.	The response from the proponent is satisfactory, providing there is a strong commitment to ensure that the proponent follows through with these reports and content. -WT	
273	Application Section 18.8.1		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		state that monitoring will negate potential residual adverse effects as the area will be mitigated to professional standards before construction???? What does that mean? Need to elaborate and need to have in place sampling/recovery strategies.	Site specific mitigation will be determined prior to construction in consultation with the appropriate regulatory authorities. Heritage sites will be avoided to the extent practical. In cases where avoidance is not practical, mitigation may include removal of certain resources in advance of construction under the direction of a qualified paleontologist. Sampling and recovery strategies will be determined with the qualified paleontologist prior to construction. Coastal GasLink will implement the Heritage Resource Discovery Contingency Plan, included in Appendix C.11 of the EMP, if a heritage resource is discovered during construction.	The EMP must address fossil management, in addition to management of heritage resources.	Coastal GasLink will comply with all applicable regulatory requirements.
274	Application Section 18		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		under Mitigation: refers to contingency measures cited in the discovery contingency plan. Where is the plan? Is it only for archaeo or also for paleo resources? Also need to add a point re: arranging in advance for receipt and care of specimens collected as result of project.	The Heritage Resource Discovery Contingency Plan is included in Appendix C.11 of the EMP. Receipt and care of the specimens will be determined in consultation with a qualified paleontologist prior to construction.	Response satisfactory - WT	
275	Addendum March 2014		paleontological resources	16-Apr-14	Elisabeth Deom	FLNRO		although refer to paleo resources in intro part, the baseline info only refers to AOA and only searched archaeo related datasets. There are therefore data gaps with respect to the fossil resource and the impact of the corridor widening or route changes.	Coastal GasLink confirms that an overflight assessment of the corridor was completed by a qualified paleontologist. Should route changes occur outside of this assessed area, further paleontological studies will occur based on direction of the appropriate regulatory authority.	Response satisfactory - WT	
276	Application Section 17		Archaeology	16-Apr-14	Steven Acheson	FLNRO		The statement that decommissioning and abandonment will not have the potential to adversely effect archaeological resources is premature and cannot be supported without having first identified and evaluated the resources at risk. This can only be addressed as part of an archaeological resource management plan prepared subsequent to completion of the archaeological impact assessment.	Coastal GasLink expects that all decommissioning and abandonment activities will occur in the area disturbed by the project. Should any additional areas of disturbance be required, Coastal GasLink will follow the direction of the appropriate regulatory authorities at that future date.	Decommissioning and abandonment activities, even within the disturbed project area, may require additional study and/or permit(s). Coastal GasLink is therefore advised to determine the need for additional archaeological work, regardless of the nature of disturbance.	Coastal GasLink will comply with all applicable regulatory requirements at the time of decommissioning and abandonment,
277	Application Section 18.5		Archaeology	16-Apr-14	Steven Acheson	FLNRO		Correct the statement regarding protection status of historical heritage sites to indicate that such sites are automatically protected if proven to date to 1846 or earlier. Post-1846 historical sites can become subject to protection through designation. In addition to sites containing evidence of human activity prior to 1846 [including CMTs], burial places and rock art of any age are protected under the HCA and may not be altered without HCA permit.	Coastal GasLink confirms historic sites are those defined by the BC Archaeological Assessment Guidelines, and Architectural sites refers to modern (post-1846) sites. This explanation is provided in Section 18.0 (refer to lines 18 to 26 of page 18-1).	Arch. Branch has no further comments.	

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278	Application Section 18.5		Archaeology	16-Apr-14	Steven Acheson	FLNRO		In addition to the reporting requirements for Permit 2013-0033, HCA Permit 2013-0004 was issued to manage some of the project's earlier geotechnical testing requirements. The findings of both studies will need to be reported on.	Acknowledged.	Arch. Branch has no further comments.	
279	Application Section 18.6		Archaeology	16-Apr-14	Steven Acheson	FLNRO		Table 18-5: Potential Adverse Effects, Mitigation and Residual Adverse Environmental Effects of the Proposed Project on Archaeological Sites appears word for word for the next 17 pages of the document (pp. 18-23 to 18-39). The statement regarding potential adverse project effects with respect to "increasing access to archaeological sites" stands as an example of a "Potential Residual Adverse Effect" (see comment further below re: 18.6.2 Potential Residual Adverse Effects). Revise 3rd bullet under Mitigation removing the statement that emergency archaeological excavation will be contingent on the work not interfering with the construction schedule. If unavoidable conflicts with protected archaeological sites are encountered, such discoveries will require authorization under provincial statute in order to alter. Sites that cannot be avoided may have to be mitigated as completely as possible under a HCA section 14 permit issued by the Archaeology Branch, or at the very least require a section 12 Alteration Permit. This process will necessitate First Nations consultation as part of permit issuance, potentially extensive archaeological fieldwork, analysis and reporting, final report review, and acceptance of results by the Branch prior to alteration. The branch's statutory requirements with respect to the administration of the Heritage Conservation Act and need to consider First Nations interests cannot be ignored regardless of the negative impact it may have on the project schedule and costs. Further on this point, the statement asserting that the project will have "no potential residual adverse effects on archaeological sites" (p. 18-40) assumes all areas with archaeological potential have been identified and assessed, and any archaeological resources avoided or mitigated, prior to construction. With only a partially completed archaeological impact assessment, neither the branch nor the proponent has the ability at this time to consider or quantify potential adverse effects for project planning, or to consider residual project effects.	Coastal GasLink has provided information required for the purposes of assessment as detailed in the AIR issued by the EAO in May 2013. The AIR defines Valued Components and the associated key indicators. Table 18-5 addresses each individual KI. Coastal GasLink will comply with the Heritage Conservation Act. Accordingly, Coastal GasLink will submit an Archaeological Impact Assessment to the appropriate regulatory authorities in early 2015. Site specific mitigation will be determined prior to construction in consultation with the appropriate regulatory authorities. Heritage sites will be avoided to the extent practical. In cases where avoidance is not practical, mitigation may include removal of certain resources in advance of construction under the direction of a qualified specialist. Sampling and recovery strategies will be determined with the qualified specialist prior to construction. Coastal GasLink will implement the Heritage Resource Discovery Contingency Plan, included in Appendix C.11 of the EMP, if a heritage resource is discovered during construction.	Arch. Branch has no further comments.	
280	Addendum March 2014		Archaeology	16-Apr-14	Steven Acheson	FLNRO		To date the branch has received and reviewed interim reports for the Kitimat River Crossing and for a series of geotechnical test sites located close to or within the Application Corridor revision areas. However, in the absence of more detailed information/reporting that address the corridor itself for the other five locations, the branch cannot accept the blanket statement that these revisions will "not result in any material change to the potential adverse effects, mitigation or residual adverse effects" of the proposed project. For the Kitimat River Crossing report, some deficiencies were noted and additional information has been requested.	Coastal GasLink provided information in the addendum consistent with the AIR. Consistent with requirements of the <i>Heritage Conservation Act</i> , Coastal GasLink will continue to provide the appropriate information to FLNRO to fulfil permit requirements.	Due to the lack of reporting to date, the Archaeology Branch may request a project summary, in accordance with the pending Bulletin 24, to determine the appropriateness of the level of work to date. Additionally, Coastal GasLink's archaeologists recently agreed to provide daily information regarding newly-identified archaeological sites.	Coastal GasLink will comply with all applicable regulatory requirements.
281			Archaeology	16-Apr-14	Steven Acheson	FLNRO		Understanding that the archaeological studies commissioned by the proponent are as yet incomplete, depending on the final project design, the extent and severity of adverse effects on archaeological values could vary greatly. It may be possible to design a heritage resource management plan, as cited in Table 18-5 regarding implementation of a <i>Heritage Resources Discovery Contingency Plan</i> , whereby all areas with archaeological potential can be identified and assessed, and any heritage resources avoided or mitigated, prior to construction, so that no significant adverse effects eventually result from the proposed project. An explicit condition to this arrangement would require that the construction of the project not proceed until the Archaeology Branch's impact assessment requirements have been met and the appropriate mitigation measures have been implemented.	Coastal GasLink will comply with regulatory requirements and direction from appropriate regulatory authorities.	Arch. Branch has no further comments.	

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282	Application Multi Section		Ecological communities of concern (VC):Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		<p>Old Forest and OGMA's KI</p> <p>The information contained in the application specific to the old growth (spatial and aspatial) KI lacks the details necessary to support an effective evaluation of the impacts, residual effects and mitigation options for old growth forest from the proposed pipeline ROW across the north. The lack of detailed information in the application, specific to old forest, OGMA's and draft OGMA' (i.e. OGMA intrusion, locations, etc.) was highlighted in the 30 day screening. The Provincial standards required to be demonstrated in the application was identified in the AIR. The absence of this required information in the application, hinders the ability to deliver detailed comments on this KI and raises question on how (if at all) the provincial standards and methodologies for the management of old forest were considered by the proponent.(eg. Old growth resources presented by Ecoprovince vs. provincial standard of Landscape Unit/BEC variant , definition of old, uncertain if Table 8-5 on pg 8-24 represents all OGMA's impacted, inconsistent amounts of old forest reported in application (Table 8-5 and pg 8-49)).</p> <p>For FLNRO to provide comprehensive and site specific comments regarding the impacts to old forests, we request that the proponent provide us with the following quantitative and qualitative analysis identifying the RoW impacts to all spatial OGMA's (which includes legally designated and draft/non legal OGMA's) across the north, and aspatial OG targets within the PGA TSA:</p> <ul style="list-style-type: none"> • Location (map) of all OGMA's (legal and draft/non legal) • Table with all OGMA Ids intersected by RoW and within the LSA • Gross area (ha) of each OGMA intersected by RoW (prior to incursion) and LSA • Gross area (ha) of each incursion into each OGMA (area of RoW within OGMA) • Incursion amount (%) by each OGMA intersected in the ROW and LSA • Landscape Unit and BEC zone/variant of each impacted OGMA incursions • Details on how mitigation options were considered in routing selection and rationale for minimization of impact, and possible replacement areas (where required). <p>As the PG TSA is unique in how old forest is managed (aspatial monitoring of old forest with no spatial OGMA's), the following information is requested:</p> <ul style="list-style-type: none"> • Location of old forest and interior old forest intersected by the RoW and within LSA (need to refer to the PG TSA Biodiversity Order for the definition of old and procedure to calculate interior old forest). • Amount of old and interior old forest intersected/impacted by the RoW <p>(Request for additional information)</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in Old Growth Management Areas.	The proponent has not provided the additional information as requested to support an evaluation and review to the impacts on OGMA's and old forest in the EA process. No new information has been provided. The issue is unresolved.	Coastal GasLink submitted a technical memo to EAO June 24 2014 with additional information about estimated incursions into Old Growth Management Areas, and potential effects on the aspatial Provincial Biodiversity Orders for the Prince George TSA. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in old forest managed through aspatial biodiversity orders and forest stewardship plans.

Coastal GasLink Project: Working Group Comment Tracking Table

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283	Application Multi Section		Ecological communities of concern (VC):Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		<p>Other important values captured in OGMA's OGMA's in the Peace were established through a rigorous analysis process to balance representation of old forest for biodiversity and manage the impact to other resource sectors. Accomplishing this required the use of already constrained landbase, which included (but not limited to): Ungulate Winter Range, Wildlife Habitat Area, riparian reserves, wildlife tree retention, habitat features, rare ecosystems. Social values like visual quality and recreation, along with First Nations interests may also be included. There is a possibility that the intrusion from the pipeline ROW into the OGMA could be impacting more than old growth values. For example, if UWR is contained in an OGMA, there could be specific restrictions associated to that UWR that requires the OGMA to remain relatively undisturbed. For additional information associated to the Dawson Creek OGMA process, please refer to: http://www.ilmb.gov.bc.ca/content/plans/2010/02/02/dawson-creek-land-and-resource-management-plan-lrmp</p> <p>Table 7-1 in the Environmental Management Plan and Table 14-6 in Section 14, provides a written description of OGMA locations along the pipeline route by KP, however this information is presented in wide intervals/ranges and it is combined with WTR. The way OGMA information has been presented in the application does not support the ability to determine; 1) which OGMA's are being impacted, 2) how much area is being impacted and, 3) where the incursion is located within the OGMA. Consequently, it becomes very difficult to ascertain if other values are represented in the OGMA.</p> <p>It is requested, that the proponent provide specific information to this identified issue, including a listing and/or indication of the other values captured in the OGMA's that are within the ROW of the pipeline and LSA. Much of this information is publically available (UWR, VQO's) and/or can be collected from the TEM mapping completed on this project and resultant Vegetation Technical Data Report (know Douglas Fir stands).</p> <p>(Request for additional information)</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in Old Growth Management Areas.	CGL has stated in their response that they will be seeking clarification on expectations/direction for activities in OGMA's from FLNRO. This expectation/direction is currently being communicated now in the several issues brought forward so they can be discussed during the EA process, not at the time of permitting. The proponent has not provided the additional information as requested to support an evaluation and review to the impacts on OGMA's and old forest in the EA process. Issue is unresolved.	Coastal GasLink submitted a technical memo to EAO June 24 2014 with additional information about estimated incursions into Old Growth Management Areas, and potential effects on the aspatial Provincial Biodiversity Orders for the Prince George TSA. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in old forest managed through aspatial biodiversity orders and forest stewardship plans.
284	Application Section 8		Ecological communities of concern (VC):Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		<p>Residual Adverse Effects on Old Forest The potential residual adverse effects reported for old forest (pg 8-49) is stated as 16% of the LSA, which may not be truly representative of the actual impact to old forest across the north. Based on the information provided in the application, if 2407 ha of old forest will be disturbed by the proposed route (the actual footprint) and the total footprint area for the 650 km pipeline is 3500 ha (pg 8-47), this equates to 68% of the direct pipeline route being comprised of old forest which will be disturbed. Using the LSA as the measure to determine what the direct impact to old growth is mis-leading. Additionally, the total amount of old being impacted in Table 8-5, pg 8-24 is reporting a different number (so not certain of the actual metrics).</p> <p>The LSA boundary may provide context of the additional impact that extends beyond the footprint boundary due edge effect impact from the ROW, increasing the impact to old forest in the LSA. However, it is difficult to quantify this impact in the LSA, as all of the information is not being provided (i.e. how much old is in the LSA). This makes it difficult to measure the indirect impacts of the proposed route on old.</p> <p>The proponent is asked for clarification regarding the assumptions being made direct impact and residual adverse effects to old forest for the following: - What is the value of using the LSA area to measure the direct impact to old forest as the LSA is a measure for indirect influences of the disturbance? - if 68% of the proposed route will be impacted old forest, how is the site level mitigation identified in Table 8-7 expected to reduce the residual adverse effects?</p> <p>(Request for clarification)</p> <p>The proponent is asked to provide the total amount of old forest is in the LSA (across the north) so that the true nature of the indirect impact can be assessed to better determine the residual adverse effects.</p> <p>(Request for additional information)</p>	Coastal GasLink provides the following information: The amount of old forest that will be disturbed by the Proposed Route is 613.1 ha (shown in Table 8-5, pg 8-24) which is 9.3% of the Proposed Route. The site level mitigation identified in Table 8-7 is expected to reduce the residual adverse effects on the old forest that comprises 9.3% of the proposed route. Coastal GasLink acknowledges that the Footprint is the study area used to measure the direct impact of the Proposed Route on old forests. The amount of old forest in the LSA referencing Tables 3-5, 3-14, 3-27 and 3-41 of the Vegetation Technical Data Report, in Appendix 2J of the Application is 2,104 ha which is 10.6 % of the LSA. There are 11,964 ha of old forest in the RSA ,which is 9% of the RSA. The mention of 3,500 hectares on page 8-47 refers to undisturbed native vegetation on the Footprint that will be disturbed or cleared to construct the Project; this figure does not include cutblocks. Cutblocks are native vegetation and the assessment of vegetation includes them. This is acknowledged on page 8 13, line 26, that 97% of the proposed route traverses native vegetation. This additional information does not affect the conclusions of the assessment of	The response provided is difficult to understand as the proponent has provided conflicting and contrary information in the application and subsequent response. The intent behind this issue is to receive additional clarification on the true nature of "total impact" to old forest at two very distinct spatial scales; 1) project footprint (direct impact), 2) LSA (indirect impact). This is to ensure a mutual understanding of the actual impact from the proposed project to better inform the EA review process. The proponent did not provide additional information as per the request. Issue unresolved.	Coastal GasLink submitted a technical memo to EAO June 24 2014 with additional information about estimated incursions into Old Growth Management Areas, and potential effects on the aspatial Provincial Biodiversity Orders for the Prince George TSA. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in old forest managed through aspatial biodiversity orders and forest stewardship plans.

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									potential adverse effects presented in the Application.		
285	Application Appendix 2A Section 7.1.3		Ecological communities of concern (VC): Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		<p>Mitigation Options Considered for Old Forest</p> <p>Thank you for considering mitigation of old forest in the proposed project as identified on pg 88 of the EMP. The proponent is asked to provide more detail to clarify the following:</p> <ul style="list-style-type: none"> - Will these mitigation options be considered for implementation on all the old forest that is impacted directly by the proposed route. This is not clear in the application. - If 68% of the proposed route will directly impact old forest, please explain how the mitigation options of avoidance or minimization of impact/disturbance will be considered before automatically defaulting to the contingency mitigations (as identified in Appendix C of the EMP)? <p>(Request for clarification)</p> <p>More certainty around proactive considerations to avoid and minimize impact/disturbance to old forest is requested through additional information, which includes the mapping of all old forest within the proposed project footprint and LSA. This is especially important if the old forest is one of the seven Douglas Fir types that is mentioned on pag 8-50.</p> <p>(request for additional information)</p>	Coastal GasLink provides the following information: The amount of old forest that will be disturbed by the Proposed Route is 613.1 ha (shown in Table 8-5, pg 8-24) which is 9.3% of the Proposed Route. The site level mitigation identified in Table 8-7 is expected to reduce the residual adverse effects on the old forest that comprises 9.3% of the proposed route. Coastal GasLink continues to apply the mitigation hierarchy. Section 7 of the EMP provides resource-specific mitigation for old forest.	The response from the proponent is satisfactory, as long as it equates to a firm commitment for CGL that: 1) The application of the mitigation hierarchy (e.g. avoid) has been demonstrated to the best extent possible 2) The site level mitigation and restoration as presented in application and EMP will be applied to all old forest encountered and impacted by the route.	Coastal GasLink will comply with all applicable regulatory requirements.

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286	Application Section 8		Ecological communities of concern (VC): Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		Site specific mitigation of old forest In areas where old forest cannot be avoided, site-specific level mitigation options will be implemented as per the EMP. The proponent is asked to substantiate where these practices have come from (are they BMP's, have they been implemented on past projects, operational experience, literature/studies) and provide certainty for: 1) experience in application of practices in old forest elsewhere; 2) effectiveness of these site level practices for mitigating/reducing impact to old values. This information is requested to substantiate the various statements made in the application, including "the implementation of these mitigation tactics are expected to reduce potential residual effects of the project on ecological communities of concern (pg 8-49) and the potential residual adverse effects on old forests is not significant based on the anticipated efficacy of mitigation to reduce disturbance to old forest (pg 8-65)". If this information exists, then it needs to be referenced and present in the application. (Request for additional information)		No response was received by the proponent to this issue. Issue unresolved	The cited old forest mitigation measures was developed from existing industry accepted best practices and guidelines, reviews of projects that have used the practices in the past, operational experience and literature related to forest management and restoration of old-growth. Examples of the references (the full list is extensive) include: <ul style="list-style-type: none"> • Parks Canada. 2008. Principles and guidelines for ecological restoration in Canada's protected natural areas. Parks Canada. 108 pp. • Forest Renewal BC. 2002. Ecological restoration guidelines for British Columbia. Biodiversity Branch, Ministry of Water, Land and Air Protection. 84 pp. • BC Ministry of Environment. 2012. Develop with care. Environmental guidelines for urban and rural land development in British Columbia. Fact Sheet # 3: Linear developments. http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2012/Fact-Sheet-3-Linear.pdf • BC Ministry of Forests. 2006. Wildlife tree retention: management guidelines. http://www.for.gov.bc.ca/ftp/external/publish/web/wlt/policies/WT-Guidance-05-2006.pdf • Steeger, C. and H. Quesnel. 1998. Impacts of partial cutting on old-growth forests in the Rocky Mountain Trench: Interim report. http://www.for.gov.bc.ca/drm/Pilot/Oldgrowth/OldgrowthIndex.htm • Harris, B. 2000. Observations on the use of stubs by wild birds, a ten year update. BC Ministry of Forests. 6 pp. • Mosseler, A., I.Thompson and B.A. Pendrel. 2003. Overview of old-growth forests in Canada from a science perspective. Prepared for Natural Resource Canada Research Press. 7 pp. • Swanson, F.J. and J.F. Franklin. 1992. New forestry principles from ecosystem analysis of Pacific Northwest Forests. Ecological Applications, Vol. 2, No. 3 pp 262-274. • Ontario Ministry of Natural Resources. 1999. Restoring old-growth features to managed forests in southern Ontario. Ontario Extension Note. 8 pp.

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287	Application Section 8		Ecological communities of concern (VC): Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		<p>Natural Regeneration Mitigation of Old Forest <i>"Implementation of appropriate mitigation will increase the resilience of cleared old forest in the Vegetation RSA. Due to their structural complexity, old forests take longer to regenerate, than forests of an earlier stage". This statement is used to rationalize residual adverse effects and cumulative effects (pg 8-50, 8-76). It is also stated in the application that "the residual effects on old forest is not significant based on the efficacy of mitigation to reduce disturbance to old forest (pg 8-62)". The mitigation for impact to old forest as outlined in Table 8-7 is to "use natural recovery in areas of old forest (pg 39)". Knowing that the recovery and creation of an old forest takes longer, why is the planting of trees not a mitigation option being considered and presented in the application as a tool that will minimize the construction footprint (will get to older characteristics sooner)? This may be an option that would be even more important in old growth Douglas Fir stands.</i></p> <p>The proponent is asked to provide additional information and rationalization for the assumption that natural regeneration is the most effective option, along with why planting may or may not be a legitimate option to pursue. This information can be in the form of past projects experience, literature/studies, BMP's etc. (Request for additional Information)</p>		No response was received by the proponent to this issue. Issue unresolved	Based on TransCanada's previous project experience, the planting of trees has shown a low success rate, especially in areas where it is difficult to transport in water for the seedlings. As a result of the limited success in the past with tree planting in areas with limited access, the method is not preferred. Coastal GasLink expects that natural recovery is a viable option in this Project area due to the overall low level of weeds in the area, which reduces the competition to preferred vegetation species re-establishment. Natural recovery will not be used in areas where weeds or surface erosion are of concern. Natural recovery is more desirable than seeding a native seed mix in areas that are of concern (e.g., old forests) since the pre-disturbance species composition and biodiversity has a greater chance of success of re-establishment being allowed to develop unimpeded by the introduction and potential competition from species that were not previously present.

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288	Application Section 8		Ecological communities of concern (VC): Native vegetation communities (KI) Current Use of Land and Resources (VC)	16-Apr-14	Traci Van Spengen	FLNRO		<p>OGMA Mitigation Process Throughout the application, statements such as the following have been made by the proponent:</p> <ul style="list-style-type: none"> - The removal of timber from OGMA's will alter the forest composition and could affect the function of the feature. A provincial OGMA replacement process has been established to guide the replacement of OGMA's affected by resource development activities. During discussions with BC MFLNRO, representatives requested that Coastal GasLink participate in the replacement process when the alignment of the proposed route is finalized (pg. 8-5, EMP pg. 40, pg. 14-57,) - Coastal Gas Link has initiated the OGMA replacement process with BC MFLNRO (pg. 14-127) - The alteration of OGMA's is limited to the construction phase, assuming that the OGMA replacement process is initiated and completed within one year during the operations phase (pg. 13-128) - Coastal GasLink will work with BC MFLNRO and tenure holders in the area to identify appropriate mitigation for altering OGMA's and confirm processes and responsibilities for finding replacement areas (Table 14-30, pg. 14-103) - With the implementation of the mitigation outlined in Table 14-30, including limiting, or excluding temporary workspace from OGMA's, and initiating and ensuring the successful implementation of the OGMA replacement process, the potential adverse effects of the proposed Project on alteration of OGMA's are considered not significant. Confidence is considered to be moderate based on TransCanada's experience, the expected effectiveness of mitigation and professional judgment. The recommended monitoring program includes follow-up discussions with BC MFLNRO representatives and forest tenure holders to ensure the OGMA replacement process has been initiated (pg. 14-138) - Confirm processes and responsibilities for finding OGMA replacement areas (table 14-32, pg. 14-138) <p>Depending on the section of the application, the stage of the OGMA mitigation process, role, and commitment of the proponent varies and appears slightly contradictory. This inconsistency as demonstrated in the application introduces a level of risk and uncertainty as to how mitigation options will be implemented and monitored by the proponent. The residual adverse effects to OGMA's from the proposed project is dependent on ensuring that the proponent is committed to implementing, monitoring and ensuring the OGMA replacement process, which includes the identification of replacement areas (if required). Essentially, if the OGMA is requiring a replacement areas, then the level of impact is relatively high.</p> <p>The proponent is asked to verify what work has happened to date to initiate the OGMA replacement process, including potential replacement areas (as this information is absent in the application) and clarify with certainty the role and commitment to implement, monitor and ensure this mitigation strategy is followed. (Request for clarification)</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in Old Growth Management Areas.	No new information has been provided in the response from the proponent. Issue unresolved.	<p>Coastal GasLink submitted a technical memo to EAO June 24 2014 with additional information about estimated incursions into Old Growth Management Areas, and potential effects on the aspatial Provincial Biodiversity Orders for the Prince George TSA. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in old forest managed through aspatial biodiversity orders and forest stewardship plans.</p> <p>Coastal GasLink's route selection process has sought to avoid construction footprint in established Old Growth Management Areas (OGMA) and in old forest. While the route selection has been effective in avoiding many of these areas, the Project crosses some areas of old forest. If Coastal GasLink crosses an OGMA established in an Old Growth Order, and exceeds the threshold identified in the Order, Coastal GasLink will develop a proposal to manage the incursion in to the OGMA to the satisfaction of FLNRO. The proposal will be developed by a third party Registered Professional Forester (RPF) and will follow the Old Growth Management Area Amendment Policy (Skeena Region, 2012).</p> <p>In areas where the project crosses old forest in a non-legal OGMA, or impact non-spatial targets described in the Biodiversity Orders in the Prince George Timber Supply Area, Coastal GasLink will develop a proposal by engaging a third party RPF.</p>

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289	Application Section 14		Current Use of Land and Resources	16-Apr-14	Traci Van Spengen	FLNRO		<p>Avoidance of OGMA's Without the application providing the details to evaluate the potential impacts to OGMA, it is difficult to evaluate the true effects or appreciate the reason why specific OGMA's need to be impacted. It leads to the question "how has the proponent implemented " all OGMA's will be avoided" as the preferred mitigation option and how can MFLNRO be confident that this is a viable option for consideration, as committed to in the application? It is in the best interest of the proponent to avoid or minimize the adverse effects to OGMA's whenever possible, as it reduces the effort associated to mitigation (e.g. minor amendment process vs. major replacement process).</p> <p>Please provide a rationale of how avoidance of OGMA's was considered in the application and will continue to be the preferred option. For those OGMA's that are being impacted, please explain why it is necessary for the intrusion to occur and clarify how the consideration of avoidance and minimization was implemented, especially if the impact to the OGMA's will require the identification of replacement areas. (Request for clarification)</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in Old Growth Management Areas.</p> <p>Coastal GasLink considered a number of factors when evaluating pipeline routing options. The Application (Section 1.4) includes a description of the route evaluation criteria, which among various factors considered, includes staying adjacent or in existing disturbances, and avoiding environmentally sensitive areas.</p> <p>The location of compressor facilities along the pipeline is based on the gas hydraulic analysis for the system. Further evaluation criteria, including consideration of environmentally sensitive locations is provided in Section 1.4.14 of the Application.</p>	<p>It is acknowledged that there are several engineering and environmental factors that were considered in the route selection, as indicated in the response (i.e. Section 1.4). It is still not clear how the avoidance of OGMA's was considered when it is not mentioned in Section 1.4). This issue is seeking specific clarification for how OGMA's were considered and avoided in the route selection, and to provide some rationale as why incursion into OGMA's is required. The best form of mitigation to ensure no residual impacts is avoidance. The best opportunity to explore these options is during the EA process and not at time of permitting (when options to avoid may not be possible). The answer being provided by CGL is sending a message that the issuance of a certificate is default permission to impact OGMA's vs. making every attempt to apply the mitigation hierarchy at the EA process in a transparent manner. The proponent has not provided the additional clarification requested. The issue is unresolved.</p>	See response to #288.
290	Application Section 8			16-Apr-14	Traci Van Spengen	FLNRO		<p>Cumulative Effects The proponent has provided a general overview (type and location) of current and future disturbances to assess the impacts of cumulative effects on Vegetation VC's. The information presented in Table 8-10 and in writing for each VC (pg. 74-77) is generic and defaults to repetitive statements for all the VC's. The application presents minimal written information, broad assumptions and general statements to support the mitigation required and ultimately determines that no additional cumulative effects mitigation by this project is required. The application did not include comparative/quantitative analysis to substantiate the decision or the assumptions (e.g. how much more old forest, Douglas fir will be impacted by existing and future activities) presented.</p> <p>Based on the limited information provided in the application, it is unclear how to evaluate the true nature of cumulative effects of this proposed project to the Vegetation VC's. Without more substantive information and detailed analysis to support the assumptions and general statements being made, a true assessment of cumulative effects risk is difficult to complete. The proponent is asked to clarify how this identified issue and concern will be addressed (e.g. provide additional analysis). (Request for clarification and possible additional information)</p>		<p>No response was received by the proponent. Issue unresolved</p>	<p>The Project analysis suggests that largest potential cumulative adverse effect on old forests in the Vegetation RSA results from existing forestry operations. Additional quantitative data outlined below, further supports the conclusion that cumulative effects will be limited due to both the Project's relative contribution to the cumulative effect and the expectation that forestry operations and other oil and gas developments will follow regulatory guidance (e.g., PNOGO, LRMPs) and implement industry accepted best practices. Therefore, no additional mitigation is warranted to address cumulative effects. For both old forest and Douglas-fir forest, the Project's contribution to total cumulative disturbance is greater than the known future developments. The Project's contribution to the total cumulative disturbance to old forest is 67% (for the LSA) and 30% (for the RSA). The Project's contribution to the total cumulative disturbance to Douglas-fir forest is 10% (for the LSA) and 3% (for the RSA).</p>
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291	Application Section 8			16-Apr-14	Traci Van Spengen	FLNRO		PCM Monitoring for Old Forest and Douglas Fir Forests The recommendation of Post-Construction Monitoring (PCM) for 5 years has been made to reduce the significance of residual effects on Old Forest and Douglas Fir (pg. 8-61,62), however, it is not clear what the proponent is committing to in order to ensure this monitoring will be completed. Please clarify the following: - how MFLNRO will have the assurance that monitoring will be completed for effectiveness, implementation, effects for the duration identified in the application?- Wills a monitoring plan be developed that details and commitments (reporting frequency, framework of data collected)?- who will be receiving this information for review and comment (what agency)?- who will be ensuring the proponent is in compliance with this monitoring commitment (reporting frequency, delivery of information)? (Request for clarification)	A description of post construction monitoring is provided in Section 25.3 of the Application. Timing, type, and the description of monitoring for vegetation are outlined on page 25-10. Coastal GasLink will develop its post-construction monitoring program in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.	The response from the proponent is satisfactory, providing there is a strong commitment to ensure that the proponent follows through with monitoring obligations (as per the application) and develops and implements a post construction monitoring program that ensures an adaptive management approach.	Section 25.3.3. of the Application describes post construction monitoring to occur as part of operations and maintenance activities, and confirms that any outstanding issues remaining after the fifth year after final clean up and reclamation will be identified and addressed by Coastal GasLink through adaptive management .
292	Application Section 8		Ecological communities of concern (VC):Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		Mitigation of Douglas Fir As stated in the application, many of the LRMP's have specific guidance for the special attention, conservation and management of Douglas Fir forests. The mitigation outlines for impacts to Douglas Fir does not consider reforestation efforts in an attempt to lessen the residual effects. The proponent is asked to rationalize why active reforestation (planting) of Douglas Fir is not being offered as a mitigation option in Table 8-7 and the EMP. (Request for clarification) Additionally, the mitigation options for Douglas Fir in Table 8-7 is not clearly committing to specific mitigation measures that will be completed, but instead, defaulting to a range of activities that may or may not be implemented at the time of disturbance. The proponent is asked to clarify why details of site specific mitigation cannot be provided in the application and communicate assurance of what will be implemented. (Request for clarification)		No response was received by the proponent. Issue unresolved	Based on TransCanada's previous project experience, the planting of trees has shown a low success rate, especially in areas where it is difficult to transport in water for the seedlings. As a result of the limited success in the past with tree planting in areas with limited access, the method is not preferred. Areas of Douglas-fir forests have been identified using Terrestrial Ecosystem Mapping. Site-specific mitigation needs to be determined based on field verified information and site-specific factors. By presenting several mitigation options, the Environmental Inspector can select the mitigation that is appropriate for the site specific parameters in terms of safety and constructability. Coastal GasLink will continue engagement with regulatory authorities during construction as site-specific mitigation is implemented.
293	Application Multi Section		Ecological communities of concern (VC):Native vegetation communities (KI)	16-Apr-14	Traci Van Spengen	FLNRO		Provincial Policy to Support Significance Assessment In the application, the following statements regarding availability of information to assist with determining significance were made: <i>"Due to a lack of regulatory standards, guidelines or objectives, a significance determination based on qualitative 8 thresholds was used for all other VCs (pg 3-24) and given the lack of established environmental or regulatory standards available to assess the significance of potential residual adverse effects for native vegetation communities (including the categories of old forest, Douglas-fir forests, aspen forests, deciduous forests, alpine/subalpine areas, grasslands) and ecological communities at risk, a qualitative threshold has been developed to define a significant potential adverse effect for the proposed Project (pg 59)"</i> It is important to mention that the Province of BC has readily available information, established policy, regulations and guidance specific to the management of old forest (e.g. PG TSA Biodiversity Order, Dawson Creek OGMA orders, Provincial Old Growth Order). This information could provide the information necessary to quantitatively assess significance that was not mentioned in the application. This proponent was made aware of this provincial policy information in the AIR and screening phase of this project. (General Comment)	Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate mitigation for Old Growth Management Areas.	Issue Resolved	

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294	Application Section 14		Current Use of Land and Resources	16-Apr-14	Traci Van Spengen	FLNRO		<p>Land Use Plans Land Use Plans are identified as a KI for the VC of Land and Resources, yet the information to support an effective evaluation to the potential impacts to LRMP's is absent (besides what was presented as baseline information). Information needs to be provided in a manner to support a thorough effects assessment evaluation of this KI. Additional information and rationalization to describe potential impacts and what the proposed mitigation was considered to substantiate comments of "no conflict identified" is required to fully assess risk to these plans (pg 3-63 Social Technical Report). This is critically important in LRMP areas where the proposed project will be impacting values in zones for special management, including (but not limited to) the Anzac SMZ (Prince George LRMP) and Rivers SMZ (Dawson Creek LRMP) - these areas were omitted from the effects assessment in Table 14-30. It is difficult to evaluate if and where pipeline infrastructure (e.g. compressor stations, construction camps, increased application corridor widths) will be located with respect to the LRMP RMZ and SRMP's and if this infrastructure has the potential to be incompatible or "in conflict" with the Land Use Direction.</p> <p>(Request for Additional Information)</p>	<p>The six LRMPs crossed by the proposed route were reviewed to identify conflicts between the proposed route and the strategic management guidance for the Resource Management Zones (RMZs) crossed.</p> <p>No land use conflicts that would prevent the construction and operation of the proposed route were identified.</p> <p>Coastal GasLink recognizes the range of resource values that are being managed for in each of the RMZs. Specific mitigation to reduce the potential effects of the Project are presented throughout the EA, including Section 7.0 (Aquatic Environment), Section 8.0 (Vegetation) and Section 10 (Wildlife and Wildlife Habitat).</p>	<p>The response provided some additional information that may meet the intent of the LRMP's in the Peace and Omineca for RMZ's not zoned for Special Management consideration. This response does not provide the requested information specific to how the proposed route and ancillary sites/ infrastructure (e.g. compressor station at Mt. Bracey, temporary workspaces, stock pile sites, storage sites) will meet the intent of the Anzac and Parsnip High Elevation Special Management Zone in the Prince George LRMP area. As originally stated in my comment, these RMZ's have very high environmental values (caribou, grizzly, moose, backcountry recreation) that has guidance to conserve and manage these values with sensitivity. The response by CGL does not provide additional information on how they going to meet the intent of these SMZ's objectives to reduce risk and substantiate the response of "no conflicts". The absence of this information makes it difficult to further evaluate risk, residual effects and mitigation of the effects in this SMZ.</p>	<p>The Coastal GasLink Project Route crosses the Parsnip High Elevation-Natural Habitat Resource Management Zone (RMZ) and Anzac River Valley-Natural Habitat RMZ from KP 138.9 to KP 144.8 and KP 144.8 to KP 181.3, respectively.</p> <p>Coastal GasLink acknowledges the environmental values of these RMZs and will implement mitigation to reduce the potential effects of the Project on the values in these areas, as described in Sections 7.0 (Aquatic Environment), 8.0 (Vegetation), and 10.0 (Wildlife and Wildlife Habitat).</p> <p>Mitigation to reduce potential effects on environmental values is included in Table 10-6 of the Application. Mitigation relates to a range of values, including:</p> <ul style="list-style-type: none"> • Riparian and aquatic habitat • Caribou • Mountain goat • Moose • Migratory birds • Raptors and owls • Bears
295	Application Section 1			16-Apr-14	Traci Van Spengen	FLNRO		<p>Pipeline Routing In the application it states: "During pipeline route planning, Coastal GasLink made use of existing disturbances, where practical, including existing and proposed pipelines, railway, power line, all-season public ROWs and previously disturbed areas (1-4). However, on pg 8-49 it is states that 2407 ha of old forest will be disturbed within the 3500 ha ROW. This equates to 68% of the ROW comprised of old growth forest. So, only 32% of the ROW is able to be classified as "non-old" (e.g existing disturbance, 139 years old or less).</p> <p>Please ensure the map provided for old includes the identification of where pre-existing disturbance. (Request for additional information)</p>	<p>Coastal GasLink has provided mapping of the Application corridor and OGMA's. As construction planning and detailed engineering design advances, the incursions into OGMA's will be identified. Coastal GasLink is expecting guidance and direction from the FLNRO and OGC about the appropriate approach and required permitting to addressing temporary footprint during construction as well as pipeline routing in OGMA's.</p>	<p>The response provided by the proponent did not address the request for additional information (no new information provided). However, the issue is resolved.</p>	
296	Application Section 1		Project Overview	16-Apr-14	Traci Van Spengen	FLNRO		<p>Application Corridor Widths Table 1-16 identifies sections of the pipeline ROW that may have the potential for significance disturbance to occur (i.e. ROW width of 500 m for 2.4 km). These are large disturbances over a substantial distance that will increase the impact to specific VC's. In some cases, the proposed ROW widths surpasses the LSA's (e.g. Vegetation is 300m).</p> <p>I was stated in the application " The Application Corridor varies in width from 150 m to 2 km, depending on routing certainty. In areas where the corridor is wider, further detailed engineering studies are necessary to refine the location of the Project Footprint construction." Based on this statement, it is not clear in the application how these corridor ROW were accounted for in the impact assessment (beyond engineering), nor was it clear if the actual stated widths will be allowed to be completely disturbed for geotechnical reasons. This introduces high uncertainty as to the actual footprint of the pipeline and how these excessive ROW widths were considered in application to measure risk. Besides Table 16-1, the application is silent regarding this topic.</p> <p>Please provide additional information and rational as to how the potential widths in Table 1-16 were taken into consideration during the assessment for Vegetation and Social VC and please clarify how much of the application corridor in Table 16-1 could potentially be disturbed.</p>	<p>Coastal GasLink's proposed route is based on an Application Corridor and EA Reference Line. The application corridor varies in width depending on the site specific conditions and factors affecting construction planning and detailed engineering design.</p> <p>Quantitative analysis of the proposed route assumed a 100 m wide corridor centered on the EA Reference Line, inside the Application Corridor. The 100-m corridor width was selected for the analysis as it is expected to include the construction right of way and adjacent temporary workspace.</p> <p>Coastal GasLink confirms that sufficient information was available for the Application Corridor in order to support the assessment of potential adverse effects and the development of mitigation. Although the zone of influence upon which project effects can be detected (LSA) for vegetation is 300 m wide, information about vegetation was gathered over a 2 km wide TEM corridor.</p>	<p>Issue Resolved</p>	

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								(Request for additional information and clarification)	Thus sufficient data to assess potential adverse effects was available. Prior to construction, Coastal GasLink will obtain all necessary permits. During the permitting process for the proposed Project, Coastal GasLink will supply detailed information about the construction footprint to the OGC, pursuant to requirements of the Oil and Gas Activities Act and regulations and the Environmental Protection and Management Guide.		
297	Application Section 8		Wildlife Tree Retention	17-Apr-14	Traci Van Spengen	FLNRO		<p>The application recognizes the importance of WTR to landscape biodiversity (pg 8-28) and provides mitigation options in Table 8-7 ,pg 8-34 and in the EMP (pg 40). However, what is not provided in the application is the baseline information that inventories; 1) location of WTR in the project footprint and LAA; 2) amount (ha and %) of WTR that will be impacted directly by the proposed project footprint, 3) amount (ha and %) WTR in the LAA. To adequately assess the risk to this value and provide some certainty around where/how WTR can be avoided requires a general overview of where these values are located on the landbase and how much is at risk of disturbance in relation to the pipeline route.</p> <p>The proponent is asked to provide the above mentioned analysis information to effectively support an evaluation to the risk of WTR. (Additional Information Requirements)</p>	Coastal GasLink acknowledges that Wildlife Tree Retention Areas are important to the maintenance of stand-level biodiversity targets, associated with forestry activities. In its route selection, Coastal GasLink seeks to avoid these areas where practical. Where avoidance is not practical, Coastal GasLink will adhere to the requirements of the Oil and Gas Activities Act and regulations, and follow direction in the Oil and Gas Commission's Environmental Protection and Management Guide.	The response provided by the proponent did not address the request for additional information (no new information provided). However, the issue is resolved.	

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298	Application Section 22		Entomology	13-Feb-14 (Comments carried forward from Screening)	Robert Hodgkinson	FLNRO		<p>• First of all, delete any reference to western spruce budworm which is not found anywhere in the Omineca or Northeast Regions. • Lodgepole pine previously killed by mountain pine beetle and susceptible to fire is not a current forest health issue but a wildfire risk issue. Therefore move this particular discussion to the Fire section (22.4) • The proposed pipeline route traverses coniferous forests having endemic levels of spruce beetle and Douglas-fir beetle. When the right-of-way or road rights-of-way are harvested, all tops and slash of spruce and Douglas-fir greater than 10 cm dbh must be removed, piled and burnt, or otherwise lopped and scattered and not left in shade. Stumps must be kept as low as possible and no freshly felled logs should be left on any rights-of-way in the spring and summer. No partially-damaged conifers should be left standing. If a beetle infestation(s) commences in the vicinity of the rights-of-way, the proponent needs to specify and commit to a mitigation strategy to suppress these beetle incursions.</p>	Coastal GasLink has addressed these comments identified during the screening review of Rev. 0 in preparing Rev. 1 of the Application.	Coastal GasLink has addressed these comments identified during the screening review of Rev. 0 in preparing Rev. 1 of the Application". CGL made some minor revisions to sect. 22.7 entitled "Forest Pests and Pathogens". From this title the authors assume that "pests" are synonymous with "insects" when, in reality, forest pests include of course pathogens and other forest health agents. Therefore, if this title is to be retained anywhere, it should be "Forest Insects and Pathogens" or simply "Forest Pests". As requested earlier, they deleted an incorrect reference to western spruce budworm and added spruce beetle and Douglas-fir beetle as insects of concern. However, there are no details how they will mitigate the risk of beetles breeding up in slash (see below). Where the pipeline is being proposed, the mountain pine beetle outbreak collapsed many years ago and it is no longer a pest of concern. However, CGL left a discussion of it in here as it relates to hydrologic and wildfire risk effects. As reiterated earlier, the latter are not forest health issues and this information needs to be moved to sections dealing with hydrology and wildfire risk. Since Section 8 (pg. 8) deals with "Introduction or Spread of Forest Pests", sect. 22.7 should be deleted. On pg. 8-32 (under "Introduction or Spread of Forest Pests") (lines 24-28), the last two sentences in the first paragraph should read: "Spruce beetle, Douglas-fir beetle, and western balsam bark beetle can have serious impacts on forests in the proposed corridor route". The balance of the information in these two original sentences are incorrect and should be deleted. In the second-last parag. on pg. 8-16, include Douglas-fir in the list of tree species that the proposed route will intersect (e.g., in the Vanderhoof District). Re: pg. 8-33 on lines 6, 14, 17, & 20, when insects colonize a tree, the tree become "infested" (not "infected"). On line 8, delete "After health concerns were raised." (Note: the primary reason MSMA use was terminated was because the manufacturer opted not to get the product re-registered). Line 23: the proper common name is "spruce beetle" (not spruce bark beetle). On line 23, include Douglas-fir beetle. In Table 8-7 (pg. 8-35), 4th column, 4th bullet, and in the 2nd bullets on pages 8-36, 8-37, and 8-42 remove all references to mountain pine beetle which is no longer an issue. Edit the 4th bullet on pg. 8-35 (and	The information provided by the reviewer has been noted and will be considered in the Environmental Management Plan for construction. Changes to the Application at this stage of the Application Review are not anticipated.

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										other relevant ones) to read: All non-merchantable spruce infested with spruce beetle or Douglas-fir infested with Douglas-fir beetle encountered at permanent facility sites and along the right of way during the clearing process will be burned or mulched to eliminate any spread of beetles. Missing from the mitigation measures are references to: - not leaving uninfested spruce or Douglas-fir slash greater than 10 cm on site, particularly in the shade. - not leaving high stumps - not leaving decked logs through the beetle flight periods - a plan to mitigate a beetle infestation if it results from right-of-way activities. I assume that the proponent will address these in detail in their yet to be written "Environmental Management Plan".	
299	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		"Whitebark pine trees observed at eight locations... along the proposed route." Given the small size of many of these trees, how confident is CGPP that this is an accurate representation of the actual occurrence of WBP tree locations?	Coastal GasLink is confident that most whitebark pine locations within the proposed route have been detected since the route has been flown on three occasions and ground-based surveys have been conducted. One of the aerial surveys was conducted by rare plant botanists explicitly searching for whitebark pine along the proposed route, while the other aerial surveys were conducted by experienced plant ecologists. While some young pine would be difficult to see in aerial surveys, the patches of standing dead (or infected) trees are readily apparent. The actual area of suitable habitat that overlaps with the proposed route is a relatively discrete/limited area, and therefore, feasible to survey. Coastal GasLink will continue surveying in 2014, including ground surveys of the whitebark pine areas identified by aerial survey to inform construction planning and detailed engineering design.	Thank you for the very detailed response. This very explicitly addresses my concern.	

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300	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		Plant Species of Concern, provides an informative summary of WBP status.	Acknowledged.	No issue, just an acknowledgement of a good summary by CGL.	
301	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		In 29 did you mean "hard pine stem rusts" instead of "hard rusts"?	Confirmed.	Addresses my comment.	
302	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		no mention of western gall rust, caused by <i>Endocronartium harknessii</i> . This is the most common hard pine stem rust in BC. It lacks an alternate host, but could spread along the corridor along with the other two hard pine stem rusts and should be listed.	Coastal GasLink acknowledges that western gall rust (<i>Endocronartium harknessii</i>) is very common throughout the range of lodgepole pine and stem galls cause mortality (MOF/CFS 2001). Western gall rust does not require an alternate host, but could spread along the corridor along with the other two hard pine stem rusts. Reference: Ministry of Forests/Canadian Wildlife Service. 2001. Field Guide to Forest Damage in BC. Second Edition.	Addresses my comment.	
303	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		Noteworthy list of key mitigation tactics to address alteration or loss of alpine/subalpine areas with respect to white pine blister rust on WBP. Will the location and mitigation activity be documented for monitoring and independent verification?	Coastal GasLink confirms the mitigation identified in Table 8-16 of the Application (page 8-100 of the Application). The post-construction monitoring plan will be developed in consultation with the appropriate regulatory authorities, and carried out by qualified personnel.	Comment doesn't give me the sense that monitoring of the implementation and independent verification is part of the plan, but perhaps it is.	Coastal GasLink will comply with all applicable regulatory requirements and ensure all work is carried out by qualified personnel. Coastal GasLink also understands that regulatory authorities will monitor compliance during construction.
304	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		will there be opportunities for involvement by provincial specialists in WBP and white pine blister rust in the design and independent evaluation of the post construction monitoring of impacts on WBP?	The post-construction monitoring plan will be developed in consultation with the appropriate regulatory authorities, and carried out by qualified personnel.	Comment doesn't give me the sense that monitoring of the implementation and independent verification is part of the plan, but perhaps it is.	Coastal GasLink will comply with all applicable regulatory requirements and ensure all work is carried out by qualified personnel. Coastal GasLink also understands that regulatory authorities will monitor compliance during construction.
305	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		In 21/22 What is the source of confidence in the statement, "Forestry operations and forest pests such as MPB, will not impact alpine/subalpine areas."? Pg 8-22 In 10 says the opposite, when it correctly identifies pests such as MPB and WPBR as having an impact on WBP, within alpine and subalpine areas. Recommend revising the statement on pg 8-79 In 21/22 to include the word "significantly" if that's what was intended.	Coastal GasLink clarifies that the intent of this statement was to convey that mountain pine beetle will not substantially affect alpine/subalpine areas.	This comment addresses my question.	
306	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		Table 8-14 identifies the potential for compensation where impacts to SARA listed species such as WBP cannot be avoided. My comment is that in situations where WBP tree and or community destruction cannot be avoided, to consider, as a form of compensation, habitat restoration and rehabilitation of neighboring WBP trees and communities through tactics such as direct control of competitive species such as sub alpine fir, which may invaded WBP areas as a consequence of fire exclusion, and through the use of direct control of WPBR by pruning threatening branch infections. This approach could mitigate WBP losses through an offsetting treatment that increases the viability and continuity of local WBP communities.	Mitigation and alternative mitigation strategies will be developed in consultation with the appropriate regulatory authorities including FLNRO.	This addresses my comments.	
307	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		Table 8-14 identifies a key mitigation tactic of planting WBP seedlings on the ROW during reclamation. It also identifies monitoring these seedlings and removal of alternate hosts species. My comment is to consider cultural control of WPBR on these seedlings through pruning threatening branch infections. This technique is proven effective, is relatively fast and easy to conduct using trained crews. If the effort is being made to plant seedlings, and eradicate alternate hosts, this additional control is a relatively minor additional investment, but more importantly a sound insurance policy on the original investment. Pruning infections would not guarantee the long term survival of the seedling, but would increase its likelihood of survival, whether the seedlings come from wild seed or from an improved resistance seed source.	Coastal GasLink will continue discussions with the appropriate regulatory authorities to develop site-specific mitigation for whitebark pine.	It's good to know that CGL will continue discussions with the appropriate regulatory authorities. This addresses my comments.	
308	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		Table 8-14 concerning the mitigation tactic of salvaging and replanting WBP trees up to 75 cm tall, I recommend that candidate trees be carefully evaluated by a trained professional for lethal WPBR infections. I recommend avoiding this operation for trees that are lethally infected with stem WPBR infections on the grounds of avoiding futility. Trees that have a hope of survival through branch pruning of threatening infections can be treated and transplanted at the same time.	Coastal GasLink will continue discussions with the appropriate regulatory authorities to develop site-specific mitigation for whitebark pine.	This addresses my comments.	

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309	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		In 4 recommend eliminating the word "large", with respect to the size of the alternate host population size, since large is subjective, but more importantly, any size of alternate host population can be an effective local source of disease inoculum and should be regarded as a threat.	Coastal GasLink acknowledges that any size of alternate host population can be an effective local source of disease inoculum and should be regarded as a threat. If this mitigation is required, the specific methods (e.g., the size of the buffer to be cleared of alternative hosts) will be determined in consultation with the appropriate regulatory authorities.	This response adequately addresses my comments.	
310	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		In 2 Under post-construction monitoring the time frame for this is 5 years. Given that WPBR infections don't become visible for several years, and the particularly elevated period of risk to WPBR may be the first 10 to 15 years, my comment is to consider extending the monitoring and treatment for WPBR for a total of 10 to 15 years, which would increase the treatment and monitoring efficacy and effectiveness.	A description of post construction monitoring is provided in Section 25.3 of the Application. Timing, type, and the description of monitoring for vegetation are outlined on page 25-10. Coastal GasLink will develop its post-construction monitoring program in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.	This response adequately addresses my comments. An adaptive management approach will clearly assist if further action is needed.	
311	Application Section 8		Pathology	16-Apr-14	Richard Reich	FLNRO		In 37 My comment is that I agree that reversibility of potential residual adverse effects to WBP would take longer than 10 years and recommend considering an extended period of monitoring combined with cursory treatments if and when necessary.	A description of post construction monitoring is provided in Section 25.3 of the Application. Timing, type, and the description of monitoring for vegetation are outlined on page 25-10. Coastal GasLink will develop its post-construction monitoring program in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.	This response adequately addresses my comments. An adaptive management approach will clearly assist if further action is needed.	
312	Application Section 1			16-Apr-14	Troy Larden	FLNRO		The proponent has failed to identify that the Ministry of Environment will be responsible for issuing permits for waste discharge and management associated with construction camps and facilities for operations. They will also issue permits for discharges to the atmosphere for operations of the compressor stations.	Coastal GasLink expects direction from the various permitting authorities about requirements and process and Coastal GasLink will submit permit applications to the appropriate permitting authorities.	The proponent has provided a satisfactory response	
313	Application Section 1			16-Apr-14	Troy Larden	FLNRO		The proponent has identified an application approval width of varying widths to accommodate challenging terrain, competing pipeline footprint and stream crossing techniques based on geotechnical surveys. If this corridor is approved there is significant risk associated with resource values that have not been assessed as in many cases this request exceeds the assessed width of the project footprint and the assessed LSA. Proper assessments for all of the VC's must be completed prior to approving a corridor that has not been assessed for impact.	Coastal GasLink's proposed route is based on an Application Corridor and EA Reference Line. The application corridor varies in width depending on the site specific conditions and factors affecting construction planning and detailed engineering design. Quantitative analysis of the proposed route assumed a 100 m wide corridor centered on the EA Reference Line, inside the Application Corridor. The 100-m corridor width was selected for the analysis as it is expected to include the construction right of way and adjacent temporary workspace. Coastal GasLink confirms that sufficient information was available for the Application Corridor in order to support the assessment of potential adverse effects and the development of mitigation. Although the zone of influence upon which project effects can be detected (LSA) for vegetation is 300 m wide, information about vegetation was gathered over a 2 km wide TEM corridor. Thus sufficient data to assess potential adverse effects was available. Prior to construction, Coastal GasLink will obtain all necessary permits. During the permitting process for the proposed Project, Coastal GasLink will supply detailed information about the construction footprint to the OGC, pursuant to requirements of the Oil and Gas Activities Act and regulations and the Environmental Protection and Management Guide.	The proponent has only considered one exercise in their of assessment and that is the TEM mapping. Many of the other assessments for the other VC's did not have a ZOI assessment equivalent to the requested corridor certificate width. I would consider this missing information and difficult for a SDM to properly assess risk to the values. In some respects, the missing information can impact SAR species, (Stuart River crossing). Amendments to the certificate can be processed for areas outside of the assessed corridor width, similar to that which is being done for the PTP project.	Sufficient information was available for the Application Corridor in order to support the assessment of potential adverse effects and the development of mitigation. The width of the Application Corridor provides the opportunity to implement different mitigation approaches including avoidance, depending on the site-specific conditions identified during construction planning and detailed engineering design. For example, at some river crossings; the location of the primary watercourse crossing installation differs from the location of the contingency crossing location, and this is done in order to ensure that mitigation can be appropriately implemented in the contingency crossing location as well as the primary crossing location. Coastal GasLink continues to be subject to regulatory requirements beyond those of the BC <i>Environmental Assessment Act</i> , including permits, and will comply with applicable regulatory requirements. Coastal GasLink will also continue engagement with appropriate regulatory authorities as site construction planning and detailed engineering design advances.

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314	Application Section 7.2.4			16-Apr-14	Troy Larden	FLNRO		<p>The proponent has identified several LRMP's applicable to the project. The Morice LRMP has an area defined as the Morice Water Management Area – Map 10 Morice Land and Resource Management Plan, February 2007. There are many objectives relating to this area that the Project overlaps with that have not been addressed in the application specifically. The proponent must outline how they are going to meet the intent of these objectives to reduce the risk to the aquatic resource values. Further to this, the proponent did not collect assessment information from the field for a large part of this project area because of safety concerns. This is outlined in section 7.3.3 Technical Boundaries of the application. The assessment for this area must be completed prior to approval of the certificate to ensure that resource values are protected</p>	<p>The Social Technical Report (Page 3-67), Appendix 2M of the Application, states that the proposed route crosses the Morice River Area Specific Management Zone.</p> <p>The management intent identified for the Morice Water Management Area states: to maintain hydrological integrity, including water quality and quantity, within the Morice Water Management Area. The desired outcome is to ensure that the habitat and water quality supporting salmon and other fish is not negatively affected.</p> <p>The objective outlined in the Morice LRMP is to provide the maximum practicable water quality within the defined Morice Water Management Area.</p> <p>In Section 7.7 Surface Water Effects Assessment and Section 7.8 Groundwater Effects Assessment of the Application, Coastal GasLink has provided mitigation to the following potential effects: reduction of surface water quality and reduction in groundwater quality and quantity. Section 7.0 also includes the assessment of two valued components related to fish and fish habitat including "protection of recreationally, commercially and/or culturally important fish and fish habitat" and "species of conservation concern".</p> <p>Section 3 of the Application states that the proposed Project has a technical boundary, a potential limitation on the ability to predict and characterize potential adverse effects of the proposed Project, that resulted from a lack of access to collect field data in areas near the Morice River. To ensure worker safety, Coastal GasLink chose not to access lands within approximately 70 km of an active protest camp in the area.</p>	<p>The proponent has provided a sufficient response to meet the needs of the Morice LRMP area. The proponent has only reconfirmed that the Certificate Application is missing important assessment information. The values in this area are very high and it is requested that this information be supplied and considered prior to the certificate approval to ensure that the residual effects of the project are acceptable.</p>	<p>Coastal GasLink will comply with applicable regulatory requirements pursuant to the technical boundary described in the Application.</p>

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315	Application Appendix 21			16-Apr-14	Troy Larden	FLNRO		<p>The proponent has identified several crossings within this table that were understood to be included in a trenchless crossing method because of the anticipated risk to resource values. The following crossings should be re-evaluated for crossing type to be considered for trenchless methods to preserve the integrity of the values at risk:</p> <ul style="list-style-type: none"> • 307 Stuart River 299.37 Comments – Open cut proposed with winter construction with a summer least risk window. Inventory information includes high fish values • 403 Endako River 390.46 Comments – Isolation proposed. Not included as a high in the table and no indication on timing of construction. Trenchless recommended based on inventory information. • 575B Gosnell Creek 570.95 Comments - Isolation proposed with construction timing in summer. Very high fish and habitat values associated with site. Trenchless recommended as there is no timing window. • The entire Morice River watershed has been identified as needing special management to meet Land Use Plan Objective. The proponent has not identified mitigation to address this. High risk to resource values are associated with proposed works if not specifically addressed by mitigation. <p>The proponent has indicated in the mitigation column for S4 streams that isolate in most cases will be necessary for streams having an isolation crossing method. This seems redundant as an Isolation crossing method as outlined in the text does not include any other avenue. Contingency crossing methods are not indicated in this table. There has not been a thorough assessment of each proposed crossing completed for this project as there are a number of elements missing that would allow for this task. I was unable to find site cards for all of the inventories completed inclusive of pictures and classification for the watercourse crossings. The orthos provided in the TDR were of insufficient scale to allow for detailed analysis without the accompanying site cards. It is understood that the exact location of each individual crossing is still undetermined due to site-specific construction details and routing. However, it is thought that the proponent would be slightly more specific and disclose additional information relevant to the potential crossing locations and structures. This will need to be completed prior to an identification and evaluation of risk to this resource value.</p>	<p>Coastal GasLink has completed a comprehensive assessment in accordance with the AIR.</p> <p>Coastal GasLink's considerations for selecting pipeline watercourse crossing installation methods is described in Section 1.2.5, Pipeline Watercourse Crossing Construction Activities and Section 1.4.16 Alternative Construction Methods for Pipeline Installation at Watercourses.</p> <p>Coastal GasLink has provided the stream crossing catalogue cards to the EAO to be provided to the members of the Working Group if requested.</p>	<p>The proponent has still not alleviated concerns with respect to these crossings. With the current proposed crossing methods, and the implementation of the proposed mitigation it is still considered high risk to the aquatic resources. The Morice River and associated tributaries do not have a window of least risk which further elevates the necessity for trenchless crossing methods to be implemented.</p>	<p>Coastal GasLink will comply with applicable regulatory requirements, including those requirements specific to watercourse crossing installation in permitting under the <i>Fisheries Act</i> and the <i>Oil and Gas Activities Act</i>.</p>
316	Application Section 8			16-Apr-14	Troy Larden	FLNRO		<p>The proponent has not characterized duration correctly in many of the KI's. In instances of project footprint, they have identified the duration as short term when clearly the effects will be inclusive of operations as there is proposed vegetation management of the pipeline corridor. In these circumstances duration should be long term and the assessment of impacts should be based on this duration.</p>	<p>Coastal GasLink will use existing bridges and access to watercourse crossing locations to the extent practical.</p>	<p>The proponents response to this issue is irrelevant.</p>	<p>To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. In situations where the residual adverse effect is expected to last for more than one year, the reversibility for those effects was assessed as medium or long term.</p>
317	Application Section 8			16-Apr-14	Troy Larden	FLNRO		<p>In section 8.5.3 the proponent has characterized the potential for residual effects across all of the ecological communities of concern relatively equally with little variation. In text descriptions the proponent has identified several variances of effect but failed to account for these effects in the potential residual adverse effect characterizations therefore it is not possible to provide a complete evaluation of risk to the environmental value assessed. An example would be the failure to account for an extended duration of effect on alpine/subalpine habitats.</p>	<p>To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the <u>event</u> causing the effect, whereas reversibility is defined as the period of time over which the residual adverse <u>effect</u> extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. In situations where the residual adverse effect is expected to last for more than one year, the reversibility for those effects was assessed as medium or long</p>	<p>The proponents response to the issue is satisfactory.</p>	

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									term. For alpine/subalpine areas, the reversibility of residual adverse effect is longer (long term to permanent), whereas in other native vegetation communities, the reversibility of the residual adverse effect is medium to long term, or long term.		
318	Application Section 8			16-Apr-14	Troy Larden	FLNRO		In section 8.6.3 the proponent identifies potential residual adverse effects and key mitigation associated with reducing these effects. Primary mitigation for effects on plant species of concern is avoidance. In any circumstance where avoidance is not possible there is a measureable residual effect. In the case of whitebark pine communities, the proponent must include a component of cone collection, incubation and propagation of stock as a mitigating measure. This must also have a commitment for screening of blister rust resilience. Key contacts for these activities are available from FLNRO and available to the proponent upon request.	Coastal GasLink will continue discussions with the appropriate regulatory authorities to develop site-specific mitigation for whitebark pine.	The proponents response to the issue is satisfactory provided it equates to a commitment in the certificate of restoration and compensation for impacted whitebark pine plant communities.	Coastal GasLink will comply with all applicable regulatory requirements including requirements for restoration or compensation for adverse effects to species at risk.
319	Application Section 9			16-Apr-14	Troy Larden	FLNRO		The proponent has indicated that permanent loss of wetland ecosystems might occur during the construction of permanent facilities associated with the pipeline, such as compressor stations and meter stations as well as right-of-way construction. This permanent loss of wetland must be mitigated by a compensation plan. The proponent has indicated that a compensation plan will be developed if warranted. Given that the proponent has indicated in table 9-9 and table 9-14 that there is a high likelihood of loss or alteration of hydrologic function, habitat function and wetland biogeochemical function, the compensation plan for wetlands must be included as a commitment to mitigate the high risk to wetlands valued component.	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in the wetland at this location. The location of compressor facilities along the pipeline is based on the gas hydraulic analysis for the system. Further evaluation criteria information used in the selection of potential compressor station sites is provided in Section 1.4.14 of the Application. Where avoidance of the wetland is not practical, Coastal GasLink will continue discussions with the appropriate regulatory authorities to develop site-specific mitigation, including alternative mitigation, such as compensation or offsets.	The proponents response and commitment to this issue are satisfactory.	

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320	Application Section 10			16-Apr-14	Troy Larden	FLNRO		<p>The proponent has clearly indicated that there is going to be effects on grizzly bears. These effects are proposed to be reversible at closure and decommissioning of the project which is estimated to be 30+ years from start-up. The sustainability of populations over this time frame is unpredictable as the impacts at the population level have not been assessed. Table 10-17 outlines the Residual Adverse Effects as not significant and the confidence as being high. It is unclear as to how this assessment can be completed with the level of information used. The proponent must commit to leading, and resourcing a long term monitoring plan for grizzly bears at the population level to ascertain the impact of the project on this key indicator species. A broad statement included in the wildlife PCM program outlining the wildlife monitoring is insufficient to address this issue. It must be specifically targeted toward this key indicator species.</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR. Coastal GasLink understands that the sustainability of grizzly bear populations may be influenced by numerous factors over the life of the Project. Given the breadth and uncertainty of contributing factors that potentially influence grizzly bear population numbers and trends, as well as the complexity and uncertainty associated with accurately monitoring grizzly bear populations, long-term population monitoring is not considered an approach that Coastal GasLink can practically or effectively adopt to determine Project effects or mitigation effectiveness. The potential residual Project effects were predicted at the local scale (i.e., Wildlife LSA) and regional scale (i.e., Grizzly Bear RSA), which was defined by Grizzly Bear Population Units (GBPUs). Predicted effects at the GBU scale are relevant to the population level. Various effects pathways were considered using qualitative and quantitative analyses to inform the assessment of residual Project effects on grizzly bear populations. There is a relatively high amount of scientific information available relative to grizzly bear response to disturbances, accepted disturbance thresholds at which populations may no longer be sustainable, population size and trends. This information was used in the assessment to draw scientifically supported conclusions regarding the Project's potential residual adverse effects. Long-term monitoring of grizzly bear populations is unlikely to change the conclusions of the effects assessment provided in the Application. Coastal GasLink will continue discussions with the appropriate regulatory authorities to develop alternative mitigation, such as contributing to ongoing research and broad based resource management initiatives. As described in Section 7 of the EMP, Coastal GasLink will prepare a Human-Wildlife Conflict Management Plan, which will include measures to prevent any direct wildlife mortality associated with the construction and operation of the proposed Project. Coastal GasLink will also prepare an Access Control Management Plan, as outlined in Appendix E.3 of the EMP. A Reclamation Plan will also be prepared prior to construction in consultation with the appropriate regulatory authorities. A description of post construction monitoring is provided in Section 25.3 of the Application. Coastal GasLink will develop its post-construction monitoring program in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.</p>	<p>The baseline information is adequate and there is not enough information to allow for full consideration of mitigation options. Further discussion between FLNRO and EAO is required.</p>	<p>Coastal GasLink will comply with all applicable regulatory requirements, including requirements to provide monitoring data collected along the construction footprint and to contribute to ongoing monitoring programs.</p>

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321	Application Section 10			16-Apr-14	Troy Larden	FLNRO		The proponent has proposed route alignment that crosses the proposed Telkwa Caribou WHA. This population of caribou is at high risk from linear development (roads). Additional linear development within the Recovery area increases the risk to this population and it is not clear that the proponent has mitigated this risk to an acceptable level. The proposed mitigation has not included any compensation or offset elements to alleviate the long term impact of a new linear feature. This would be considered a high risk to this key indicator species. The information included in the application is insufficient to conclude the overlap with the proposed Telkwa Caribou WHA. A complete evaluation of risk to this key indicator species is not achievable without this information.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR. Section 10.9.1 of the Application notes Coastal GasLink's commitment to work with regulatory agencies to identify opportunities to develop an appropriate mitigation strategy that will address potential adverse effects from the proposed Project on caribou where the proposed route traverses the proposed Telkwa caribou WHA (6-333). Examples of strategies may include the development of compensation or offsets.	The proponents response to the issue is satisfactory.	
322	Application Section 10			16-Apr-14	Troy Larden	FLNRO		The project has identified access as an impact for many of the wildlife key indicators. I have not been able to find a mitigation plan strictly for access as it applies to reducing the risk to the wildlife VC. There are elements of mitigation listed for some of the key indicator species but they are specific to the species and application of mitigative measures to reduce access across as an element on its own should be applied and assessed for the project. The proponent has included a summary of access mitigation in the Environmental Management Plan but has not concluded a reduction in risk associated with their application as it applies to the development of all phases of the project.	Mitigation regarding access and line-of-sight management for wildlife is provided in Table 10-6 of Section 10.6 of the Application. An Access Control Management Plan is provided in Appendix D.3 of the EMP (Appendix 2A of the Application). Coastal GasLink will work with the appropriate regulatory authorities. The characterization of the magnitude of potential residual effects incorporates the assumptions that: mitigation and monitoring strategies will be refined (and developed where additional mitigation plans are warranted) in collaboration with the appropriate regulatory authorities; the proposed mitigation measures will be effectively implemented; and monitoring combined with adaptive management will ensure the mitigation measures effectively address the Project's residual effects.	The proponents response and commitment to this issue are satisfactory.	
323	Application Section 10			16-Apr-14	Troy Larden	FLNRO		The proponent has not included information in the application to show where the project overlaps with legally established mountain goat UWR. Many of the established UWR's are based on the application of a model with high confidence and remote sensing. Not all of the polygons have been validated in the field for occupation or proximity to high value habitat. The proponent has suggested that the project footprint will be intersecting several mountain goat UWR's and have assessed the Residual Adverse Effects as not significant and the confidence as being high (table 10-17). Any development of a mountain goat UWR polygon can and will likely render this habitat feature ineffective. A study completed in 2012 by B. Cadsand has indicated that mountain goats are not frequently displaced from Mountain Goat Winter Range as a result of disturbance but rather mortality occurs, likely as a result of expended energy reserves and less than optimal security conditions. The proponent has indicated that adherence to the general wildlife measures and timing windows will reduce the risk to this value and address the project's potential residual adverse effect and cumulative adverse effects on mountain goat, and avoid a material adverse effect on mountain goat. One of the measures consistent with the establishment of the orders is that primary forest activities will not result in the removal of forest and vegetative cover within the polygon. The proponent has not indicated that they will be using trenchless methods to traverse these polygons so it is unclear how they have concluded a residual adverse effect as not significant. A compensation/offset plan must be proposed to reduce the risk to this key indicator species.	A map showing where the Project overlaps with mountain goat UWR is provided in the Wildlife and Wildlife Habitat Technical Data Report (TDR) (Appendix 2-L of this Application). The referenced study (Cadsand 2012) investigated the effects of helisking (and the associated helicopters) on mountain goats. The mitigation described in Section 10.6 regarding helicopter flights near mountain goat habitat is based on recommendations from the Mountain Goat Management Team (2010) and is consistent with the recommendations of Cadsand (2012). As described in Section 10.6, where clearing within mountain goat UWR cannot be practically avoided Coastal GasLink will apply for exemption from the General Wildlife Measures (GWMs). The application will include a mitigation strategy for the proposed Project, developed in consultation with appropriate regulatory authorities, to address potential adverse effects of the proposed Project within mountain goat UWRs. Table 10-6 of the Application provides mitigation considerations that will be incorporated into mitigation plans for construction activities that occur in mountain goat UWRs. The characterization of the magnitude of potential residual effects incorporates the assumptions that: mitigation and monitoring strategies will be refined (and developed where additional mitigation plans are warranted) in collaboration with appropriate regulatory authorities; the proposed	The proponents response and commitment to this issue are satisfactory.	

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									<p>mitigation measures will be effectively implemented; and monitoring combined with adaptive management will ensure the mitigation measures effectively address the Project's residual effects. Specific to mountain goat, the assessment applies these assumptions to conclude that the mitigation and monitoring programs that will be developed as part of the permitting process for deviation from GWMs, will comply with regulatory direction, and will effectively reduce the residual effect of the Project to be considered not significant.</p> <p>Cadsand, B. 2012. Responses of mountain goats to helisking activity: movements and resource selection. M.Sc. Thesis., University of Northern British Columbia. Mountain Goat Management Team. 2010. Management Plan for the Mountain Goat (<i>Oreamnos americanus</i>) in British Columbia. Prepared for the B.C. Ministry of Environment, Victoria, BC. 87 pp.</p>		
324	Application Section 10			16-Apr-14	Troy Larden	FLNRO		Table 10-22: Predicted Change in Habitat for Mammal Key Indicators in the RSA shows an increase in habitat for mountain goats. It is unclear how this could be possible given that the project will be developing UWR polygons.	Coastal GasLink acknowledges a typographical error in the direction of the arrow in Table 10-22. The area (ha) of undisturbed habitat is actually decreasing, however the arrow associated with the value under the cumulative condition should represent a decrease rather than an increase (e.g., rather than 185 ↑, the undisturbed habitat for mountain goat should read 185 ↓).	The proponents response to the issue is satisfactory.	
325	Application Section 14			16-Apr-14	Troy Larden	FLNRO		Forestry, reduction in timber supply, one mitigation strategy is identified as; Reduce the amount of disturbance by using previously disturbed areas for stockpiles and temporary construction camp sites, where practical. The proponent has not identified a final list of these sites and locations. It is requested that in areas that are adjacent to standing timber that has been impacted by forest health like mountain pine beetle, that the proponent take into consideration the development of these areas of mature timber (salvage) and fully reclaim them instead of targeting a plantation area of second growth that may be healthy and have several years of established growth. Consideration first must be given to seral stage targets for the landscape unit as identified in the relevant land use plan objectives and the potential for these stands to represent co-location of another constraint on the landbase like wildlife tree patches or landscape unit corridors. This strategy may contribute to a reduction in the Potential Residual Adverse Social Effect(s). It is also requested that the proponent commit to reforestation activities in all disturbed areas of the project footprint excluding the tenured ROW. This will also contribute to a reduction of long term impact on timber supply	Section 1.4.13 of the Application, describes the evaluation criteria and site selection for temporary work spaces. Coastal GasLink expects that the types of temporary work space requirements listed on page 1-66 will be subject to review by the OGC and other regulatory agencies during permitting. Coastal GasLink will comply with the <i>Oil and Gas Activities Act</i> and the applicable sections of Environmental Protection and Management Regulation.	The proponent response does not deal with the identified issue. It is important that the proponent commit to including an additional evaluation criteria in selecting temporary workspace.	Coastal GasLink will comply with all applicable regulatory requirements
326	Application Section 14			16-Apr-14	Troy Larden	FLNRO		Under Forestry, infringement on provincially designated OGMA's, the mitigation strategy is to limit or exclude temporary work space from OGMA's and Coastal GasLink will work with BC MFLNRO and tenure holders in the area to identify appropriate mitigation for altering OGMA's and confirm processes and responsibilities for finding replacement areas. This mitigation must also apply to those OGMA's that are currently proposed for legal designation. The mitigation proposed for managing impacts to OGMA's appears to be sufficient however the proponent has not provided information that allows me to determine the extent of development within the OGMA's. The proponent must provide maps and locations of the OGMA's that will be	Coastal GasLink has provided mapping of the Application corridor and OGMA's to be provided to the members of the Working Group if requested. As construction planning and detailed engineering design advances, the incursions into OGMA's will be identified. Coastal GasLink is expecting guidance and direction from the FLNRO and OGC about the appropriate approach and required permitting to addressing temporary footprint during construction as well as pipeline	The proponents response and commitment to this issue are satisfactory.	

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								impacted and analysis of the impacts as they relate to the specific areas to function.	routing in OGMA's.		
327	Application Section 1			16-Apr-14	Troy Larden	FLNRO		I was unable to evaluate risk to resource values as they relate to the development of new and reestablishment of existing access. There are many elements to consider for this risk to be evaluated; access management, stream crossings, reclamation are a few to consider. The proponent has not provided information to show where new access will be developed for pipeline construction, maintenance or operations. This information is necessary to complete an assessment of risk to resource values. A complete access management plan that is developed with the appropriate authorities and land and resource managers must be submitted as an element of the certificate approval.	Section 1.4.16 discusses the evaluation criteria and selection of access roads. During the permitting phase, Coastal GasLink will provide detailed information about access roads, including any new access roads to be constructed, pursuant to requirements of the Oil and Gas Activities Act and the Environmental Protection and Management Regulation.	Without the requested information, an assessment of risk to resource values is not possible. The implementation of the proposed mitigation to alleviate risk is insufficient as the values and geography of the residual effect are specific to certain areas of the project.	Potential adverse effects of development of access roads were considered in the Application. Spatial definition of access roads will be provided to the Oil and Gas Commission as part of the permitting of the Project. Use of existing access roads and development of new access will meet all regulatory requirements. Coastal GasLink will develop a Traffic Control Management Plan and Access Control Management Plan in advance of construction.
328	Application Section 21				Troy Larden	FLNRO		In this section the proponent has indicated 3 scenarios as possibilities. Scenario 1 and 3 are or will be quite obvious to detect. Scenario 2 will be less obvious to detect. In order to properly assess the unmitigated consequence and the potential residual adverse effect of scenario 2 it is requested that the proponent describe the detection methods for finding a release which is not considered major. Such releases can occur for a very long time without detection as much of the footprint of the project is located outside of visual monitoring. These releases often do not amount to significant drops in pipe pressure or volume. The project is proposing initial capacity of 2-3 billion cubic feet per day (bcf/d) with expansion to 5 bcf/d. A loss of 1 million cf/d represents only 0.05% of the lowest proposed capacity but is a substantial volume of product with potentially high consequence to resource values. It is requested that the proponent supply the detection parameters and thresholds at which a release is detectable within the system and provide a complete assessment based on these minimum thresholds. It is also requested that the proponent also complete an assessment of unmitigated consequence and the potential residual adverse effect for a release that occurs below this threshold. It is only after these assessments are completed that an evaluation of risk to the VC's can be completed.	Coastal GasLink confirms that Scenario 2 described in Section 21.3.1 of the Application is an event where a relatively small amount of natural gas is released from the pipeline that would volatilize and ascend into the air, dissipating to the atmosphere with little potential to affect the surrounding environment. TransCanada's Operations Control Centre will monitor and control the pipeline using the computerized system known as Supervisory Control and Data Acquisition (SCADA). Data from remote sites is read and sent to the Control Center approximately every 30 seconds. The Gas Control is manned 24 by 7 and will respond to Abnormal Operating Conditions and send field technical personnel to respond as required. Additionally Coastal GasLink will conduct regular inspections by trained personnel of all above ground facilities where there is the greatest likelihood of small leaks occurring. Coastal GasLink will also conduct frequent fugitive emission surveys with sensitive instruments to detect small leaks. Operational surveillance, noted in Section 1.2.6 of the Application includes regular aerial monitoring to identify anomalies along the pipeline such as changes in vegetation that may be indicative of small leaks.	In order for the response to be accepted to resolve the issue the proponent must identify detection parameters and an assessment of the unmitigated consequence of an undetected leak. The Proponent must also define "regular" as a time interval to commit to aerial monitoring for undetected releases of product.	Coastal GasLink will carry out an aerial leak detection program of the Project one to four times per year using equipment similar to Boreal Laser GasFinder with a detection level for methane of (< 1 ppm). Equipment includes aircraft mounted infrared or laser leak detection system coupled with Global Positioning System (GPS) and a laptop computer to record methane readings and GPS location. All potential leaks will be verified by ground crews with sensitive monitoring equipment to determine the source of the methane. During ground based leak detection activities, portable gas detectors are used to investigate potential methane leaks identified by aerial leak detection. These units are portable, continuous sampling units capable of detecting very low levels of methane (< 1 ppm). The potential consequence of an undetected leak is the loss of natural gas, which is primarily methane, from the pipeline and dissipation of the natural gas into the atmosphere.
329	Application Section 7		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		It is not clear which of the mitigation measured outlined in this table will actually be implemented at each stream crossing. The Fish and Fish Habitat Technical Data Report (for example in Table I-1: Watercourse Crossings Ranked High using the RMF Process) seems to indicate that even at highly sensitive streams, only a few select mitigation measures from this list will be implemented at each site.	In order to ensure that mitigation is applied in an environmentally responsible and economically efficient manner, Coastal GasLink has designed a level of flexibility in its Environmental Management Plan. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties. As identified in the EMP (Appendix 2-A), resource-specific mitigation has been developed for areas that require special attention or have unique characteristics regarding the protection of environmental resources, including watercourse crossings.	Without clear, measurable commitments from the proponent describing what mitigation and monitoring will be done at fish bearing stream crossing sites, it is not possible to evaluate the projects risks to habitat values, or to estimate cumulative impacts of the project at this stage.	Site-specific mitigation will differ for individual stream crossings depending on the characteristics and conditions encountered during construction. A suite of mitigation has been provided in the Application for the purposes of environmental assessment and to be implemented during Project construction and operation, and the mitigation allows for sufficient level of flexibility to ensure that mitigation is applied in both an environmentally responsible and economically efficient manner. Coastal GasLink will continue to engage with the appropriate regulatory authorities, including

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									The determination of the appropriate site specific mitigation will be informed by the detailed description of each watercourse crossing provided by the Fish and Fish Habitat TDR and mitigation in Section 7 of the Application and Section 8.4 of the EMP.		Fisheries and Oceans Canada and the Oil and Gas Commission, to ensure compliance with regulatory requirements.
330	Application Section 7		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Please provide more clarity regarding the function of the "Environmental Inspector"; e.g. who does the Environmental Inspector report to; what are the required qualifications of the Environmental Inspector; when would the Environmental Inspector be on site to carry out the various duties (described in Table 7-8 and Table 7-30); what are the on-site decision making authorities of the Environmental Inspector, etc.	The Environmental Inspector(s) hired for the proposed Project will be required to have experience in environmental inspection or planning. The Environmental Inspector(s) will have an understanding of pipeline construction techniques and take a proactive approach to environmental issues. In addition, the Environmental Inspector(s) will be supported by appropriate Resource Specialists who have expertise in the particular issues associated with the proposed Project and who will be available on site or consulted, as necessary. Further information about the Environmental Inspection program can be found in the Environmental Management Plan – Appendix 2A of the Application (refer to page 12 of the EMP).	It is recommended that the on-site Environmental Inspector be an independent professional, who reports directly to the appropriate regulatory agencies involved in monitoring compliance with approved construction environmental management plans, and that (s)he have the authority to stop work if conditions at the site warrant it.	Coastal GasLink will carry out its activities in accordance with regulatory requirements including legislative and approval condition requirements, as well as compliance processes implemented by regulatory authorities. Coastal GasLink also understands that regulatory authorities will monitor compliance during construction.
331	Application Section 7		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		- Will there be a fisheries resource specialist on site (as indicated in the <i>Appendix 2A Environmental Management Plan</i>) to assist with identification of sensitive fish habitat features where impact must be avoided, mitigated, or values restored or offset?	Fisheries resource specialists will be available to assist the Environmental Inspectors on site. The identification of sensitive fish habitat features has been completed during baseline data collection, and site specific plans will be developed during construction planning and detailed engineering design to ensure appropriate avoidance or mitigation will be implemented.	It is recommended that the proponent commit to have the fisheries resource specialist(s) available to be on site at short notice (preferably same day) at sites where sensitive fisheries values occur, to assist the Environmental Inspector to address unforeseen environmental conditions that may put habitat values at the site at risk.	Coastal GasLink confirms its prior response.
332	Application Section 7		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		We recommend that environmental mitigation and construction management plans be developed, prior to permitting, by appropriately qualified professionals, for every project involving instream work in (or potentially affecting) fish bearing waters. Site specific habitat values and localized risks should be re-assessed at each crossing site where fish are known (or suspected) to occur. Site specific measures should be identified to avoid or minimize impacts to habitat. Riparian replanting and site restoration plans, water quality monitoring, and on site environmental monitoring, with appropriate reporting requirements should be included in environmental management plans. In stream activities in fish bearing waters should have environmental monitors on site, to help ensure no adverse effects occur, to document environmental mitigation measures (avoid, minimize, offset) that are implemented for the project.	In order to ensure that mitigation is applied in the most environmentally responsible and economically efficient manner, Coastal GasLink has designed a level of flexibility in its Environmental Management Plan. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties. As identified in the EMP (Appendix 2-A), resource-specific mitigation has been developed for areas that require special attention or have unique characteristics regarding the protection of environmental resources, including watercourse crossings. The determination of the appropriate site specific mitigation will be informed by the detailed description of each watercourse crossing provided by the Fish and Fish Habitat TDR and mitigation in Section 7 of the Application and Section 8.4 of the EMP. Fisheries resource specialists will be available to assist the Environmental Inspectors on site. The identification of	Without clear, measurable commitments from the proponent describing what will be done at sites where instream work is planned within fish habitat, it is not possible to evaluate the projects risks to habitat values, or to estimate cumulative impacts of the project at this stage.	See response to issue tracking #329.

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									<p>sensitive fish habitat features has been completed during baseline data collection, and site specific plans will be developed during construction planning and detailed engineering design to ensure appropriate avoidance or mitigation will be implemented.</p> <p>Coastal GasLink will develop a Reclamation Plan and Water Quality Monitoring Plan prior to construction, in consultation with the appropriate regulatory authorities.</p>		
333	Application Section 7.5.2		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		<p>Page 7-74 "7.5.3 Characterization of Potential Residual Effects - Alteration or Loss of Riparian Habitat Function during Construction Activities Page 7-75 Line 8 "...During construction, disturbance of riparian vegetation will be kept to a minimum, leaving as much existing riparian vegetation intact as practical..." - These kinds of statements are unmeasurable and unverifiable and should be avoided. Proponent commitments should be specific and measurable.</p>	<p>In order to ensure that mitigation is applied in an environmentally responsible and economically efficient manner, Coastal GasLink has designed a level of flexibility in its Environmental Management Plan. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties.</p> <p>The environmental monitoring program is a key component of the Coastal GasLink environmental compliance strategy and will be conducted by trained professionals (i.e., environmental inspectors and resource-specific specialists). The environmental inspectors will monitor, advise and work with Coastal GasLink construction management, as necessary, throughout all phases of the proposed Project, to ensure continuous and consistent compliance with the environmental protection and socio-economic commitments.</p> <p>Coastal GasLink expects to be subject to regulatory oversight to monitor compliance with project approvals and permits.</p>	Without clear, measurable commitments from the proponent describing what will be done at sites where riparian vegetation will be impacted adjacent to fish habitat, it is not possible to evaluate the projects risks to habitat values, or to estimate cumulative impacts of the project at this stage.	See response to issue tacking #329.
334	Application Section 7.5.2		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		<p>Page 7-76 Line 1 "The residual effect of pipeline construction etc. on riparian vegetation is considered to be well within environmental and regulatory standards (BC MOE and BC MOF 1995, CAPP et al. 2005)..." - These documents do not provide standards for riparian disturbance of pipeline crossings. o The Canadian Association of Petroleum Producers document (CAPP et al. 2005) recommends riparian restoration, enhancement and compensation for riparian impacts. Are plans for these activities being developed? o The FPC Riparian Management Area Guidebook (BC MOE and BC MOF 1995) recommends the establishment of riparian management zones including the retention of trees in the RMA for most streams. This would not be applicable to pipeline construction except for trenchless crossings. - Please explain the regulatory standards the Application is referring to. Is it referring to the Riparian Area Regulation (RAR) standards? If yes, please show that RAR assessments were carried out at proposed crossings.</p>	<p>Coastal GasLink will comply with all applicable legislation and regulatory direction. Coastal GasLink is guided by the BC Riparian Management Areas Guidebook (BC MOE and BC MOF 1995) which sets out criteria for designing and constructing temporary and permanent stream crossings through riparian areas adjacent to watercourses in BC. These standards and the industry accepted best practices outlined in CAPP et al. (2005) are the recommended mitigation to address potential adverse effects of the proposed Project on aquatic and riparian habitat. As a result, it is expected that residual effects to riparian areas will be of low magnitude, i.e., residual effects are detectable but are well within regulatory and environmental standards.</p>	It is recommended that the proponent clearly commit to following industry accepted best practices outlined in CAPP et al. (2005) to address potential adverse effects of the proposed Project on aquatic and riparian habitat. The wording of the response as currently written is not a commitment - only a recommendation - and therefore it is not measurable and enforceable.	Coastal GasLink will comply with all applicable regulatory requirements including requirements for restoration or compensation for adverse effects to species at risk and will consider the CAPP et al (2005) document in advancing construction planning and detailed engineering design.

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									Riparian Areas Regulation (RAR) standards apply to activities subject to local government authority within listed regional districts. RAR are not applicable to the Project because none of the listed regional districts include any portion of the pipeline route within their boundaries.		
335	Application Section 7.5.2		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		<p>Page 7-75 Line 4 "...and, consequently, of low magnitude." - Total "magnitude" of riparian disturbance estimated for the project seems to be over 400 ha; - Loss of riparian vegetation associated with watercourse crossing can affect all life-history stages of fish (CAPP et al. 2005) and riparian depended wildlife species; therefore magnitude of project effects of this size would appear to be high. - To effectively assess magnitude of effects on fish habitat (and its significance), the proponent should present the area of riparian vegetation to be affected by stream crossing construction, in each watershed, by stream class. If long term impacts to riparian zones are expected (or shown to persist through monitoring), offsetting options should be proposed</p>	<p>Several aspects of riparian function, such as provision of shade, nutrients, bank stability and nutrient filtration, contribute to fish habitat. Loss of riparian vegetation at any given watercourse due to clearing will be confined to the ROW and will be temporary, as disturbed areas will be allowed to revegetate naturally, grass will be seeded in disturbed areas and bank reclamation measures will be implemented to re-establish riparian vegetation. It is expected that following bank restoration and planting of vegetation, most of the riparian functions (i.e., provision of cover, sediment filtration, bank stability and nutrient provision) will be restored shortly after construction. Trees will take longer to re-establish and provide larger sections at some sites. Therefore, the effects on all life-history of fish are considered to be well within regulatory and environmental standards and thus of low magnitude. Effects on a larger scale were considered in Section 7.5.6 where cumulative impacts of the proposed Project, in combination with existing and future projects, were assessed.</p> <p>The Reclamation Plan will be developed in advance of construction of the proposed Project. The development of the Reclamation Plan will include discussions with landowners, and the appropriate regulatory authorities. As construction continues, there may be updates to the reclamation plan to reflect site specific conditions encountered during construction.</p> <p>During the permitting phase, the need for compensation will be determined by DFO under the Fisheries Act.</p>	<p>It is recommended that the proponent commit to following industry standards for mitigating riparian impacts (CAPP et al. 2005), as well as the BC Environmental Mitigation Policy (http://www.env.gov.bc.ca/emop/), including the development of offsetting measures, in order to mitigate for riparian impacts that will otherwise take years to decades to recover (e.g. shade, tree growth, etc.), especially given that ongoing inspection and maintenance requirements may prevent full recovery for the life of the project.</p>	<p>Coastal GasLink will continue to engage with the appropriate regulatory authorities, including Fisheries and Oceans Canada, FLNRO and the Oil and Gas Commission, to ensure compliance with regulatory requirements.</p>
336	Application Section 7.5.2		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		<p>Page 7-76 Line 26 "• Duration: short-term..." - The activity causing the effect is temporary, but the effect is long term: the recovery of riparian areas to their original form and function may take decades (or it may remain in an degraded ecological state indefinitely), especially given the requirements for ongoing surveillance, monitoring, and maintenance activities along the pipeline corridor.</p>	<p>As per Section 3.0 of the Application, the term 'duration' refers to the duration of the event causing the effect. Since 'reversibility' refers to the time it takes for the effect to be reversed, it has been characterized as 'medium to long-term' given that recovery of vegetation community may take longer than 10 years.</p>	<p>This issue # was a comment or question on methodology and/or terminology. No further action required.</p>	

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337	Application Section 7.5.2		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-76 line 34 "...expected revegetation plans and associated mitigation which is anticipated to reduce the potential effect ..." - It is unclear whether revegetation plans are being developed at stream crossing site. Which crossings will have these plans in place? Are there monitoring and reporting components to these plans? Who will review and implement these plans (qualifications)?	Coastal GasLink will develop the Reclamation Plan in advance of construction of the proposed Project. The development of the Reclamation Plan will include discussions with the appropriate regulatory authorities. As construction continues, there may be updates to the reclamation plan to reflect site specific conditions, such as watercourse crossing location. Coastal GasLink will develop a Post Construction Monitoring Plan in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.	Without clear, measurable commitments from the proponent at this stage of the application process, such as site specific construction environmental management plans that describe what will be done at crossing sites where riparian vegetation is impacted adjacent to fish habitat, it is not possible to evaluate the projects risks to habitat values, or to estimate cumulative impacts of the project.	See response to issue tacking #329.
338	Application Section 7.5.2		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-78 Line 7 "Likelihood: low – since clearing within the riparian area is not expected to occur during operations." - What about during ongoing surveillance, monitoring, and maintenance activities, as mentioned elsewhere in the document?	Coastal GasLink has recognized the potential limited clearing in riparian areas in certain situations during operations, as described on Page 7-77 (lines 6 to 10).	It is still not clear how "Selective clearing in riparian areas to remove trees " affects the magnitude, duration and reversibility assessment of the project's riparian impacts; however, this issue # was a comment or question on methodology and/or terminology. No further action required.	
339	Application Section 7.5.2		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-77 line 8 "...e.g., in the event of a flood event that causes scouring over the pipeline trench that would require measures to reclaim depth of cover and pipe integrity). - The highest and most risk averse engineering standards should be adopted for pipeline design, to avoid loss of cover depth and pipe integrity due to flooding or other natural events, or any other foreseeable circumstances, including the risk of climate change leading to extreme runoff and floods.	Comment noted.	Even though this comment is not measurable or enforceable, it is nonetheless recommended that this commitment be adopted by the proponent to show the intent that the highest and most risk averse engineering standards will be adopted for pipeline design to minimize the possibility of loss of cover depth and pipe integrity due to flooding or other natural events.	Comment noted. Coastal GasLink will include information about pipeline and facility design in submissions for review by OGC in compliance with the applicable engineering standards and regulatory requirements.
340	Application Section 7.5.3		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-78 "7.5.3 Characterization of Potential Residual Effects- Alteration of Instream Habitat" Page 7-81 line 3 "...TSS concentrations to remain within the CCME guidelines (CCME 2002) and 'levels of risk' identified by DFO (2000) and Birtwell (1999). - BC MOE guidelines take precedent (Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments), and should be adhered to during all phases of construction, operation and decommissioning of the project.	Monitoring and activities will be conducted according to criteria set out in the BC Approved Water Quality Guidelines (BC MOE 2001), in addition to criteria in the CCME guidelines. British Columbia Ministry of Environment. 2001. Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments: Overview Report. Website: http://www.env.gov.bc.ca/wat/wq/BCguidelines/turbidity/turbidity.html .	Accepted provided that the BC MOE Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments is the primary criteria used on site to monitor suspended sediment releases during construction and operation.	Coastal GasLink will comply with all applicable regulatory requirements.
341	Application Section 7.5.3		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Line 3 " Increases (in TSS) of less than 100 mg/L above background present low risk to fish and their habitat, while an increase of 100 to 200 mg/L present a moderate risk and an excess of 400 mg/L present an unacceptable risk."- These values do not correspond to any of the referenced guidelines. Where do they come from? (e.g. CCME 2002 says: Concentrations above 100 mg·L ⁻¹ of suspended sediments significantly reduced fish growth; etc..)- This statement also does not take into consideration the duration of the sediment pulse	The values referred to by the reviewer are presented in DFO (2000) and correspond with "levels of risk" identified by DFO. Should there be an exceedance in TSS levels based on CCME and BC MOE guidelines, DFO (2000) guidelines will be consulted to further assess the impact to fish and fish habitat. As noted by the reviewer, the values presented in DFO (2000) do not include a temporal component, however, both concentration and duration are considered in the CCME and BC MOE guidelines. Fisheries and Oceans Canada. 2000. Effects of sediment on fish and their habitat. DFO Pacific Habitat Status Report 2000/01.	Accepted provided that Issue #340 is followed. The DFO 2000 document referenced here, is primarily a discussion document and is not meant as a primary source of water quality criteria. The values referred to in DFO 2000 are under a section called "Stream-bed substrate" - the same document quotes different, more stringent values for "Suspended sediments". The BC MOE Ambient Water Quality Guidelines (Criteria) for Turbidity, Suspended and Benthic Sediments should be the primary criteria used, to assess significance of potential impacts, and for on-site monitoring of suspended sediment releases during construction and operation.	Coastal GasLink will comply with all applicable regulatory requirements.

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342	Application Section 7.5.3		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		line 3 "Suspended sediment concentrations will be monitored during instream activities." - Will a suspended sediment monitoring and reporting plan be developed at each stream crossing site? Who will review and implement it? What will their qualifications be? By turbidity or TSS laboratory methods? What sort of meters and field calibrations will be used. QA? - What are the procedure during construction if WQ guidelines are being exceeded? Who will decide on site what measures are to be implement?	Water quality monitoring plans, where warranted will be developed prior to construction in consultation with the appropriate regulatory authorities. The water quality monitoring plan will include appropriate response measures, should a harmful sedimentation event occur. Water quality monitoring will be conducted where fish are present in a watercourse at the time of construction. The scope of the monitoring program (e.g., visual monitoring, TSS/turbidity measurements) will vary according to the sensitivity of the fish species present, (e.g., species of conservation concern, species of commercial, recreational, or Aboriginal interest) season, presence of flowing water, crossing method (e.g., TSS/turbidity monitoring at HDD crossings). Determination of specific monitoring needs will be assessed on a site-specific basis by the Environmental Inspector and resource specialists.	The proponent's response does not commit to any measurable or enforceable water quality monitoring plans, or clear mitigation measures for sediment releases - even though this should be possible, given currently available information on fish bearing status of streams and proposed crossing methods/timing. As a result, we cannot currently evaluate the project's risks to habitat values, or to estimate cumulative impacts.	Coastal GasLink will comply with all applicable regulatory requirements.
343	Application Section 7.5.3		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-78 line 20 "...authorization from DFO will be applied for, where warranted, and a fish habitat compensation plan will be developed" - The criteria for developing fish habitat offsetting (compensation) plans is unclear. Will compensation plans be developed only for open cut crossing method? Are residual impacts at other types of crossings (e.g. alteration of fish habitat, reduced productivity and fish health, mortality of eggs/embryos, etc.) be offset?	Fisheries and Oceans Canada is responsible for determining if serious harm will occur from construction of watercourse crossings on the pipeline route. For any locations where DFO makes a determination of serious harm, Coastal GasLink will comply with authorizations requirements including offsetting plans, in consultation with regulatory agencies and relevant stakeholders.	It is recommended that the proponent follow the BC Environmental Mitigation Policy (http://www.env.gov.bc.ca/emop/), and develop offsetting measures, whether or not it is a DFO requirement, in order to mitigate for instream impacts of disturbed fish habitat.	Comment noted. Coastal GasLink will comply with all applicable regulatory requirements.
344	Application Section 7.5.3		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-81 line 9 "Minor releases of sediment may be associated with the use of temporary vehicle crossings." - Does this refer to the construction of a crossing (e.g. installation of a culvert or a bridge)? Or ongoing use of a ford? What time frame is meant by 'temporary vehicle crossings'?	Coastal GasLink clarifies that temporary vehicle crossings refers to the design and construction of clear span bridges or ice bridges and snowfills during frozen conditions. Section 8.4 of the Environmental Management Plan outlines mitigation for watercourse crossings. Fording at watercourses will not be permitted. Temporary vehicle crossings will be used to support activities at a stream crossing, and will be removed once the activities are complete.	This issue # was a comment or question on methodology and/or terminology. No further action required.	
345	Application Section 7.5.3		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Line 10 "...pulses of suspended solids are generally expected to settle out of the water column within the ZOI in a timeframe of less than eight hours." - (Eight hour long) sediment pulse where WQ guidelines are not met must be avoided. - Habitat impact would occur where sediment settles out, which could occur a long distance from the crossing (the ZOI is defined as "...a minimum of 300m downstream of the proposed crossing..."); impact could be significant in sensitive fish habitat (e.g. spawning sites).	Coastal GasLink clarifies that this statement is intended to characterize the maximum timeframe over which sediment may remain in suspension downstream of watercourse crossing construction sites. With the implementation of appropriate mitigation measures, the levels of suspended sediment are expected to remain within guidelines. Water quality monitoring plans, where warranted will be developed prior to construction. The water quality monitoring plan will also include appropriate response measures, should a harmful sedimentation event occur.	This issue # was a comment or question on methodology and/or terminology. No further action required.	

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346	Application Section 7.5.4		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-88 line 26 "A potential residual effect is considered significant when it is not reversible in the short-term (within one year), high magnitude (does not achieve regulatory requirements), high in likelihood, and cannot be technically or economically mitigated." - This system seems too simplistic to appropriately assess significance. It does not consider the magnitude or residual impacts to riparian and aquatic values adequately. It also requires that a number of assumptions be made, that are not fully addressed in this Application: e.g. all environmental sensitivities and risks were assessed correctly, appropriate mitigation plans will be developed and successfully applied, applicable guidelines/standards will be met (e.g. WQ standards), etc.	The system that is used for characterizing significant effects is consistent with the methodology described and accepted by BC EAO in Section 3.7 of the AIR. Coastal GasLink is confident that the methodology provides an accurate assessment of potential effects of the proposed Project.	This issue # was a comment or question on methodology and/or terminology. No further action required.	
347	Application Section 7.5.6		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-98 "Table 7-15: Characterization of the Residual Cumulative Adverse Effects - Magnitude (of Residual Cumulative Adverse Effects is) low" - Based on Table 7-13, this project by itself would increase "Instream Disturbance in the Aquatic Environment" in the regional study area by nearly 30% over the baseline condition. We would consider that magnitude of impact to be high. If other foreseeable oil and gas pipelines were built, the instream disturbance would nearly double from the current condition.	As stated in Table 7-17 the total instream area in the RSA is approximately 42,300 ha. Out of this area, the existing disturbance amounts to 0.2%. The Project contribution to instream disturbance is conservatively estimated to be 0.06%. Although this appears to represent an approximately 30% of additional instream disturbance to baseline conditions, it does not follow that the residual adverse effect of the proposed Project is of high magnitude. The residual adverse effect of the proposed Project was determined to be of low magnitude (p. 7-106) since the regulatory requirements (e.g., timing windows, reclamation and bank stabilization measures etc.) will be followed and the contribution of the Project to the total instream disturbance is not substantial.	This issue # was a comment or question on methodology and/or terminology. No further action required.	
348	Application Section 7.5.6		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-104 "Table 7-17: Estimated Existing and Future Instream Disturbance in the Aquatic Environment RSA" - Not clear how "Total Instream Area" is calculated: what percentage of this total represents fish bearing streams? Are all mapped stream reaches included (many of which may not be streams)? - Does the "Area of Instream Disturbance Attributed to the Proposed Project" include downstream effects of potential sediment releases?	The "Total Instream Area" in Table 7-17 on page 7-104 was calculated using two GIS datasets obtained through Data BC: BC Freshwater Atlas Rivers (polygonal double line rivers) and the BC Freshwater Atlas Stream Network (single line stream network layer), listed in Section 6 of the Fish and Fish Habitat TDR. All watercourses appearing on the Freshwater Atlas Stream Network were assigned a width corresponding to the mean value of all watercourse widths (excepting those rivers in the BC Freshwater Atlas River Set) measured during field site assessments. The Freshwater Atlas Rivers data set and the buffered Freshwater Atlas Stream Network were then combined to create the instream network. The area was then measured within the GIS software to provide the total instream network area within the RSA. Fish-bearing status was not available for all rivers and streams in the RSA. The total instream area in Table 7-17 represents the area of all watercourses showing in the GIS data sets, whether fish-bearing or nonfish-bearing. The "Area of Instream Disturbance Attributed to the Proposed Project" does not include downstream effects of potential sediment releases, only the direct footprint of the Project on instream habitat.	This issue # was a comment or question on methodology and/or terminology. No further action required.	
349	Application Section 7.5.6		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		7-103 line 2 "cumulative adverse effects on fish and fish habitat are most appropriately considered at the watershed scale" - The watershed scale that is considered here seems far too large assessing cumulative effects, given the uneven distribution of fish populations across the landscape and their reliance on specific habitat attributes; we recommend the scale of assessment be reduced to a third or fourth order watershed scale.	Cumulative adverse effects were assessed at the Regional Study Area scale. The RSA for the Aquatic Environment is defined in the AIR issued by EAO in May 2013.	This issue # was a comment or question on methodology and/or terminology. No further action required.	

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350	Application Section 7.5.6		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-103 line 25 "recognizing that only a limited number of existing crossings may continue to contribute to instream disturbance, the potential effect of existing activities on instream disturbance was reduced to 50% of the crossings (Harper and Quigley 2000)" - The reference provided here does not support this assumption.	The statement on line 23 acknowledges the fact that not all existing crossings continue to contribute to instream habitat loss. Harper and Quigley (2000) discuss stream habitat loss in two watersheds in BC. Continuing habitat losses due to encroachment and sediment issues following construction at stream crossings varied widely depending on site. The value of 50% is not attributed to Harper and Quigley (2000), rather the concept that not all crossings continue to contribute to habitat loss is attributed to the authors. The reference is used to explain why the potential effect of existing activities on instream habitat disturbance was reduced to 50% of crossings, a value that reflects the range of results reported in Harper and Quigley (2000).	This issue # was a comment or question on methodology and/or terminology. No further action required.	
351	Application Section 7.5.6		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 7-113 Line 3 "Combined Effects on Instream Habitat Given that the proposed Project's contribution to combined instream disturbance is 0.06% (0.03% if all trenchless.." - An estimated 24,120 m2 of instream habitat will be disturbed by the project (a 30% increase in the estimated existing disturbance in the RSA); this figure does not (appear to) include downstream areas potentially affected by sediment releases and riparian impacts; without offsetting, it is difficult to justify the impact as "low magnitude".	The analysis of combined effects on instream habitat on page 7-113 compares the direct footprint of the proposed Project on instream habitat to the direct footprint on instream habitat from other developments in the RSA. It is a relative comparison and if potential downstream habitat effects from sediment were to be included at the proposed watercourse crossings, the same approach would be required at all developments affecting instream habitat and the relative values would remain the same.	Given the large instream footprint of the project (a 30% increase in the estimated existing disturbance in the RSA), we recommended that the proponent follow the BC Environmental Mitigation Policy (http://www.env.gov.bc.ca/emop/), and develop offsetting measures, whether or not it is a DFO requirement, in order to mitigate for instream impacts of disturbed fish habitat.	Comment noted. Coastal GasLink will comply with all applicable regulatory requirements.
352	Application Appendix 2G		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Fish and Fish Habitat Technical Data Report (Appendix 2G Fish and Fish Habitat TDR_REV_1) - It is not clear who developed and signed off on this TDR report. Technical data reports, such as a fish habitat baseline information report, and the associated mitigation recommendations, are typically signed off by an independent qualified professional who is a member of a self-regulating professional association, and subject to their code of ethics. Who is taking professional responsibility for the content of this report?	Coastal GasLink has provided a listing of professional leads contributing to the assessment in the attached technical memo Professionals/Disciplines Leads.	The current structure of the Application and the Technical Data documents does not seem to allow for straight forward professional reliance and responsibility for the content of these documents. We recommend that the proponent be requested to have their QPs complete the attached document QP Sign Off Form.	Coastal GasLink will comply with all applicable regulatory requirements.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
353	Application Section 4		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Please indicate score required in the Overall Risk Assessment Results for the various risk score rankings (low risk, medium risk, high risk) i.e. what range of scores is required to be plotted in each of the colour zones on the Risk Assessment matrix (on page 41).-What are the specific construction management and permitting implications of each ranking?In the matrix, all the coloured zones are defined in terms of risk (low, medium, high) except the Red Zone which is defined as "Significant Adverse Effects" What is the definition of "Significant Adverse Effects" within the context of a risk matrix? o Are these unacceptable adverse effects? If so, please rename this category as "unacceptable high risk".o Or does the Red Zone mean that Residual Adverse Effects will occur, which require offsetting? Are there offsetting plans being developed for projects in the Red Zone?Can "Significant Adverse Effects" only occur in the red zone? Is it possible to have Significant Adverse Effects occurring for project rated outside the red zone, for example instream winter work directly in bull trout spawning habitat, which would rate as low to medium risk within this matrix? o It is unclear how residual impacts affecting fish production in a stream would be quantified.o It is not clear what level of qualified professional oversight would be in place for developing, managing and monitoring of construction plans to ensure that significant adverse effects do not occur during instream work in fish habitat? o It is unclear how residual impacts that affect fish production in a stream would be offset, or whether offsetting is proposed for any high risk projects in sensitive fish habitat.- Please clarify the objective of using this matrix. What are the construction management or permitting implications of these rankings?- In my opinion, risk is rated too low for most types of projects within this matrix, and significant adverse effects could occur at much lower scores than indicated by this approach; for example, o On the effects scale, instream work during the summer growing season scores only a 7 (out of 15); as does winter instream work that is occurring directly in sensitive fish habitat – it appears that for most species, both of these kinds of projects would be ranked "low risk" in the risk matrix.o On the sensitivity scale, sport fish rearing habitat would score as low as 7 – work in this kind of habitat this would also be ranked 'low risk' for most species.	Coastal GasLink clarifies that Figure 3-2 characterizes the risk of Significant Adverse Effects. The application of mitigation measures and best management practices reduce this risk. Activities with significant adverse effects are those in which the residual effects are so large, or the sensitivity of fish and fish habitat is of such importance that the relocate/redesign principle applies. The DFO RMF document describes the process, and mitigation is applied or activities altered to reduce risk. Higher risk crossings typically have increased permitting requirements.	The response for part of our comment is adequate, but large sections of the comment remain unanswered.	Coastal GasLink would appreciate clarification of further information requirements.
354	Application Appendix 2A		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		Page 105 of 123 Line 4 "Site-specific plans may be developed for specific locations (e.g., a major watercourse crossing)..." - What are the criteria for requiring a site specific work plans? Size of watercourse? Type of fish habitat? Specific species presence? - Are detailed habitat re-assessment part of the site specific plans, in order to avoid impacts to sensitive fish habitat features found at the crossing site? - What are professional qualifications to develop, implement and monitor these plans?	In order to ensure that mitigation is applied in the most environmentally responsible and economically efficient manner, Coastal GasLink has designed a level of flexibility in its Environmental Management Plan. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties. As identified in the EMP (Appendix 2-A), resource-specific mitigation has been developed for areas that require special attention or have unique characteristics regarding the protection of environmental resources, including watercourse crossings. The determination of the appropriate site specific mitigation will be informed by the detailed description of each watercourse crossing provided by the Fish and Fish Habitat TDR and mitigation in Section 7 of the Application and Section 8.4 of the EMP. The Environmental Inspector(s) hired for the proposed Project is required to have experience in environmental inspection or planning. The Environmental Inspector(s) will have an understanding of pipeline construction techniques and take a proactive approach to environmental issues. In addition, the Environmental Inspector(s) will	Without clear, measurable commitments from the proponent describing what mitigation and monitoring will be done at fish bearing stream crossing sites, it is not possible to evaluate the projects risks to habitat values, or to estimate cumulative impacts of the project at this stage.	See response to issue tacking #329.

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									<p>be supported by appropriate Resource Specialists who have expertise in the particular issues associated with the proposed Project and who will be available on site or consulted, as necessary.</p> <p>Further information about the Environmental Inspection program can be found in the Environmental Management Plan – Appendix 2A of the Application (refer to page 12 of the EMP).</p>		
355	Application Appendix 21		Aquatic Env.	17-Apr-14	Zsolt Sary	FLNRO		<p>Appendix F should have had <u>Stream Crossing Data Sheets</u> for every proposed crossing – however only 25 data sheets were found in the Application package</p> <ul style="list-style-type: none"> - Requested the remaining data sheets from EA, made available on April 14, 2014 (3 days before comments due); therefore there was not enough time to review very many data sheets (which contain information on Stream Class Justification, Fish Habitat Potential, etc.). - A small sample of the Data Sheets were looked at (about 10% of the 1,085 site data sheets). Of this sample: <ul style="list-style-type: none"> o ~ 13% of the sites were never visited, no justification or historical information given. o ~ 45% of the sites were visited only during the Winter Fisheries Program (WFP - January to March, 2013); when no fish sampling occurred and there was several feet of snow on ground; § Vast majority of the winter-only sites declared NCD /NVC (based on topography or on test pits in snow). § Some winter-only sites classified as non-fish bearing based on <30% gradient downstream watersheds where bull trout occur. o ~ 20% of flowing streams (visited in snow free conditions) were not sampled for fish; stream classification based on historical information, which was often (i) a one-time inventory sampling events, (ii) several decades old; (iii) not found in reference list. o Many flowing streams were sampled during high flows (May-June) without another sampling repeated during lower flows. o Stream length sampled unclear – is it the same as site length? For non fish bearing status declaration, sampling should follow standards (sample >500 m of stream length, if habitat conditions warrant it). o Some sites classified as NCD-W (wetland) even though there was flowing water at the site or a beaver dam; - All stream reaches for which non-fish-bearing status is proposed require a concise, written justification for this designation in a Non-fish-bearing status report. - It is unclear if fish habitat site assessments included the entire ZOI for each stream to preclude the presence of sensitive fish habitat that would be negatively affected by a sediment pulse. - It is unclear what the rationale was for conducting a large Winter Fisheries Program (WFP; January 29 to March 24, 2013); why were aquatic habitat values at a large proportion of the crossing sites assessed only in the winter? - Again, not clear who the qualified professional is, signing off on the accuracy and integrity of this field data program, and the content of the field data sheets. 	<p>Coastal GasLink has provided the stream crossing catalogue cards to the EAO to provide to the members of the Working Group if requested.</p>	<p>The proponent does not respond to any of the questions about baseline fish habitat data quality and compliance with provincial data collection standards for fish stream determination.</p>	<p>In addition to the data cards provided as requested, Coastal GasLink confirms that the Application, including data collection, was completed in accordance with the AIR issued by the EAO in May 2013. The AIR included identification of standards and guidelines for the assessment, as well as a description of the required methodology.</p>

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356	Application Appendix 21			17-Apr-14	Zsolt Sary	FLNRO		<p>Appendix I - Watercourse Crossings Ranked High using the RMF Process "Table I-1: Watercourse Crossings Ranked High using the RMF Process"</p> <ul style="list-style-type: none"> - It is unclear if mitigation recommendations in this table are in place of site-specific mitigation environmental management plans. - See recommendations under "Assessment Certificate - Section 7 Aquatic Environment, Subsection 7.5.1 Potential Effects, Mitigation..." - Site 307 Stuart River is just upstream of designated critical habitat for Nechako White Sturgeon. "Proposed crossing method: Open cut" does not match recommendation on Stream Crossing Data Sheets, and is not appropriate at this high value fish site. Site-specific plan will be required. 	<p>In order to ensure that mitigation is applied in and environmentally responsible and economically efficient manner, Coastal GasLink has designed a level of flexibility in its Environmental Management Plan. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties.</p> <p>Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. On page C-51 of this Appendix, the table indicates the recommended pipeline crossing method for the Stuart River is trenchless.</p> <p>Coastal GasLink submitted an Addendum to the Application identifying six revisions to the Application Corridor on March 24 2014. Section 3.0 of the Addendum discusses the alternate corridor at the Stuart River crossing location that was chosen as a result of the identification of critical habitat for white sturgeon in this section of the Stuart River at the previous crossing location.</p>	<p>The first part of the this issue # was a comment or question on methodology and/or terminology. No further action required. The second part of this issue # regarding the Stuart River crossing location, the proponent's response is accepted provided that they commit that only the proposed "trenchless" crossing method will be utilized at this location.</p>	<p>Coastal GasLink is continuing to advance its construction planning and detailed engineering design which include evaluating different crossing methods. Coastal GasLink will continue to engage with the appropriate regulatory authorities, including Fisheries and Oceans Canada, FLNRO and the Oil and Gas Commission as it develops these crossing methods.</p>
357	Application Section 9		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Page 9-1, lines 5-8; Why does this section only state that "The scope of the wetland assessments includes an assessment of the potential adverse effects... expected to be directly affected by the proposed route" and not include "indirectly" affected, as within other sections of the Application? One issue I did not see addressed in the Application is the potential indirect impact of the pipeline route being used as a recreational corridor for motorized vehicles and the associated impacts. Specifically, as it applies to post construction during the operational phase in relation to wetlands, and potential impacts of off-road vehicles. Given the sensitivity of wetlands to motorized disturbance, some consideration to this should be given.</p>	<p>Information about recreational land use is included in Section 14 of the Application. Mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access.</p> <p>Temporary access used during construction is expected to be deactivated and reclaimed following construction to discourage increased access during the operations phase. The effectiveness of access management measures will be monitored as part of the post-construction monitoring program described in Section 9 of the EMP (Appendix 3-A).</p>	<p>Response does not adequately address the issue.</p>	<p>Coastal GasLink would appreciate clarification of further information requirements.</p>
358	Application Section 9		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Page 9-6, line 14; "This allows the BC OGC to issue permits and notifications under the BC Water Act for oil and gas activities..." It is my understanding that the OGC cannot issue notifications currently, only approvals under the BC Water Act. It is currently being reviewed and options are being considered to allow notifications to be issued through the OGC, but it is not permissible at this time.</p>	<p>Coastal GasLink will follow the guidance and direction of the appropriate regulatory authorities.</p>	<p>Response does not adequately address the issue.</p>	<p>Coastal GasLink would appreciate clarification of further information requirements.</p>
359	Application Section 9		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Page 9-7, lines 8-10; "Wetland crossings for all projects in BC require either approval from or notification to the BC MOE under Section 9 of the BC Water Act." Note: it is the staff at FLNRO that issue most notifications and approvals, with the exception of approvals related to oil and gas. They are issued through the OGC. See note above.</p>	<p>Coastal GasLink will follow the guidance and direction of the appropriate regulatory authorities and Coastal GasLink will submit permit applications to the permitting authorities.</p>	<p>Response does not adequately address the issue.</p>	<p>Coastal GasLink would appreciate clarification of further information requirements.</p>

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360	Application Section 10		Wildlife	15-Apr-14	Brady Nelless	FLNRO		Within the Hart Ranges I didn't see any recognition of the Land Act Section 16, Withdraw from disposition (Lands file number: 4404314, expiry date of March 31, 2018), or the snowmobile closure areas under the Wildlife Act, Motor Vehicle Prohibition Regulation, or any discussion regarding the potential adverse effects the proposed project may have on these legal designations.	Coastal GasLink acknowledges that the BC government has identified specific areas for the purposes of wildlife management, such as areas restricting snowmobile use and new commercial recreation tenures in mountain caribou range in order to support population recovery as part of the Mountain Caribou Recovery Implementation Plan. Coastal GasLink expects guidance and direction in its continuing dialogue with the appropriate regulatory authorities as construction planning and detailed engineering design advances.	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.
361	Application Section 10		Wildlife	15-Apr-14	Brady Nelless	FLNRO		Section 10.5 Potential Adverse Effects on Wildlife and Wildlife Habitat In this section, particularly under Section 10.5.2 Movement or Section 10.5.3 Mortality Risk, there was no discussion about the potential effects of the displacement of wildlife to higher mortality risk habitats caused by disturbance. For example, during the operational phase it could be expected that a linear corridor would be used by snowmobilers in the winter. Winter snowmobile use has been shown to displace caribou from caribou habitat. This can force them in habitat, i.e. low elevation habitat, with a much higher risk of predation from wolves. The same principle could apply to the compressor station and associated activities.	The potential for displacement of wildlife to higher mortality risk habitats as a result of the proposed Project was included in the Application through discussions of habitat suitability and effectiveness. As discussed in Section 10.9 (Characterization of Potential Residual Adverse Effects on Mammals), the potential adverse effects of the proposed Project (i.e. change in habitat suitability and effectiveness, change in movement and change in mortality risk) are related and interact. For example, changes in mammal movement (e.g., ROWs create easy travel corridors for some species but cause others to divert movements to avoid openings) and increased mortality risk (e.g., access increases hunting pressure or predation) are ultimately the result of changes in habitat (i.e., clearing of vegetation to create a linear disturbance). The proposed Mount Bracey compressor station is located within the Hart Ranges caribou range. The site is tentatively located within an existing cutblock, and will be accessed from existing forestry roads. The proposed compressor station location is in low elevation habitat, outside of identified UWRs, between the two identified corridor units (P 028 and P 062) of UWR u 7 003. As discussed in Section 10.9 of the Application, noise and artificial light associated with the proposed compressors have potential to displace wildlife, including caribou, from habitat in proximity to the facility over the life of the Project (i.e., long-term). Effort was made to avoid placement of the compressor within the identified sensitive habitats (specifically UWR u 7 003), in order to minimize the Project's potential effect of displacement of caribou from high value habitat to potentially less suitable or higher risk habitats during operation of the Project. Coastal GasLink will continue consultation with appropriate regulatory authorities regarding access control measures that can be practically implemented along the proposed pipeline ROW and compressor station access. Access management will be refined through continuing construction planning and detailed engineering design, and discussed with the appropriate regulatory authorities during the permitting phase of the Project. Coastal GasLink will implement an appropriate monitoring program, developed in consultation with the appropriate regulatory authority. Should monitoring result in the need for further action, Coastal GasLink will work with the	Response does not adequately address the issue. Clarity is needed on which Regulatory authority is referenced.	Coastal GasLink has provided a list of applicable permits and the associated regulatory authority in Section 1.3 of the Application.

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									appropriate regulatory authorities to implement an appropriate adaptive management approach. As such, the assessment concludes that the mitigation will reduce the magnitude of the residual adverse effect such that environmental standards are not exceeded, and the stated conservation and management objectives for caribou are not affected.		
362	Application Section 10		Wildlife	15-Apr-14	Brady Nelles	FLNRO		Table 10-6: Mitigation and Environmental Management Strategies for Wildlife and Wildlife Habitat Page 10-41, Issue: Access and Line-of-Sight Management This section needs further discussion on winter access mitigation in regards to concerns about the potential increase in snowmobile access into sensitive closure areas and how to mitigate this. There are also possible concerns with the compressor stations in the Hart Range. How will the access be managed or controlled? Will the road be plowed in the winter? What will be the frequency of access for maintenance or other activities? What is the potential for this to be used as a snowmobile or other off-road vehicle staging area, and will it provide access into sensitive alpine habitats?	Mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. The Access Control Management Plan will be developed in advance of construction of the proposed Project. The development of the Access Control Management Plan will include discussions with the appropriate regulatory authorities. As construction continues, there may be updates to the plan to reflect site specific conditions.	Unable to provide comment prior to reviewing the Access Control Management Plan.	

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363	Application Section 10		Wildlife	15-Apr-14	Brady Nelless	FLNRO		<p>Page 10-41, Issue: Caribou Range In the Mitigation it states January 15 to May 15 (winter period) and October 15 to November 15 (fall rut) are cautionary periods for caribou. As the Hart Mountain caribou stay in the high elevation habitat year round, I would suggest that it is a cautionary period all year round for them, with a critical period during the calving and rearing period in the spring.</p> <p>It also states to limit operational access within the caribou ranges, but very little information is provided on the potential for increase in motorized recreational access and how that will be mitigated. I believe this is important given the snowmobile closure area for the Hart caribou, as mentioned above, and the ongoing compliance issues we have had with it.</p>	<p>The timing windows referenced in the Application are provided by the BC OGC which defines combined timing windows for the northern and boreal ecotypes in the Environmental Management and Protection Guide, June 2013, Version 1.9.</p> <p>Coastal GasLink acknowledges that variations may exist depending on the seasonal movements and characteristics of each herd, and activity in caribou range will require additional consultation with appropriate regulatory authorities. Mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. The Access Control Management Plan will be developed in advance of construction of the proposed Project. The development of the Access Control Management Plan will include discussions with the appropriate regulatory authorities. As construction continues, there may be updates to the plan to reflect site specific conditions.</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.
364	Application Section 10			15-Apr-14	Brady Nelless	FLNRO		<p>Page 10-69, Table 10-8: Ecological Context Summary for Mammal Key Indicators The Hart Ranges caribou do not show seasonal elevational shifts as stated in this section and throughout the Application. They generally remain in high elevation habitat and do not move to valley bottoms as part of a seasonal migration. Thus these caribou can be expected to be located in high elevation habitat any time of year.</p>	<p>Temporary access used during construction is expected to be deactivated and reclaimed following construction to discourage increased access during the operations phase. The effectiveness of access management measures will be monitored as part of the post-construction monitoring program described in Section 9 of the EMP (Appendix 3-A).</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.
365	Application Section 10			15-Apr-14	Brady Nelless	FLNRO		<p>Page 10-83, lines 11-13 "...prohibiting recreational use of snowmobiles and ATVs on the work site, will reduce the potential indirect adverse effects of the proposed Project on mammal habitat." This should be expanded beyond the worksite to sensitive mammal habitat. For example, designated ungulate winter range (UWR) for caribou.</p>	<p>Project personnel and all construction activities are restricted to the approved surveyed ROW, approved temporary workspace, existing roads and approved shoo-flies. Recreational activities on and off the ROW are not permitted. Coastal GasLink will work with its contractors to ensure that personnel are aware of local concerns regarding wildlife.</p>	No further response required.	
366	Application Section 10		Wildlife	15-Apr-14	Brady Nelless	FLNRO		<p>Page 10-83, lines 35-36 "There are no permanent above-ground facilities proposed within the Hart Ranges caribou range." This should be clarified, as the proposed compressor station is not within the legally designated UWR, but is well within the Hart Ranges Regional caribou study area as shown on Figure 10-3.</p>	<p>Coastal GasLink confirms that one compressor station location is proposed in the Hart Ranges caribou range and one compressor station location is proposed within the Telkwa caribou range.</p> <p>Section 1.4.14 of the Application describes the facility evaluation criteria considered during the selection of preferred sites.</p>	No further response required.	
367	Application Section 10		Wildlife	15-Apr-14	Brady Nelless	FLNRO		<p>Page 10-84, lines 15-16 and 33-34 It is my understanding that the OGC timing windows referenced in this Application were developed for the Peace region, and are for Northern and Boreal Caribou, not Mountain Caribou. I am not aware of any mechanism available for compensation or offsets for Mountain Caribou as stated as an option in the Application.</p>	<p>In the absence of timing windows specific to mountain caribou the timing windows for northern and boreal caribou were adopted as the best available management practices.</p> <p>Coastal GasLink will continue dialogue with the appropriate regulatory authorities to ensure effective mitigation prior to construction to mitigate potential adverse effects on mountain caribou. This discussion will also include the potential for alternative mitigation strategies, such as compensation</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.

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									or offsets.		
368	Application Section 10		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Page 10-86 and 10-87 lines 41 – 42, and 1 – 2 "Potential adverse effects from the proposed Project on caribou movement in the Hart Ranges caribou will occur during mid to late winter when caribou move from the valley bottoms and lower slopes to alpine and sub-alpine habitats, and again in spring when they move to low elevation snow-free areas." As identified above, contrary to what is stated in the Application, these caribou do not have seasonal elevational shifts to valley bottoms. The most sensitive time for caribou disturbance is during spring time while they are calving and rearing, but the potential for adverse effects can happen any time of year in high elevation habitat.</p>	<p>The timing windows referenced in the Application are provided by the BC OGC which defines combined timing windows for the northern and boreal ecotypes in the Environmental Management and Protection Guide, June 2013, Version 1.9.</p> <p>Coastal GasLink acknowledges that variations may exist depending on the seasonal movements and characteristics of each herd, and activity in caribou range will require additional consultation with appropriate regulatory authorities.</p> <p>Mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access.</p> <p>The Access Control Management Plan will be developed in advance of construction of the proposed Project. The development of the Access Control Management Plan will include discussions with the appropriate regulatory authorities. As construction continues, there may be updates to the plan to reflect site specific conditions.</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.
369	Application Section 10		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Page 10-88, lines 1-14 I think this section needs an additional qualifier that there is no hunting season on these caribou populations.</p>	Acknowledged.	No further response required.	

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370	Application Section 10.9.3		Wildlife	15-Apr-14	Brady Nelless	FLNRO		There was no mention of disturbance causing displacement to higher risk habitat. For example, caribou being displaced from high elevation habitat (relatively low risk of predation), to low elevation habitat (high risk of predation) as a result of human disturbance at the construction phase or operation phase of this project. This should have been included in Table 10-10: Summary of Effects Characterization Rational for Mammal Key Indicators	The potential for displacement of wildlife to higher mortality risk habitats as a result of the proposed Project was included in the Application through discussions of habitat suitability and effectiveness. As discussed in Section 10.9 (Characterization of Potential Residual Adverse Effects on Mammals), the potential adverse effects of the proposed Project (i.e. change in habitat suitability and effectiveness, change in movement and change in mortality risk) are related and interact. For example, changes in mammal movement (e.g., ROWs create easy travel corridors for some species but cause others to divert movements to avoid openings) and increased mortality risk (e.g., access increases hunting pressure or predation) are ultimately the result of changes in habitat (i.e., clearing of vegetation to create a linear disturbance). The proposed Mount Bracey compressor station is located within the Hart Ranges caribou range. The site is tentatively located within an existing cutblock, and will be accessed from existing forestry roads. The proposed compressor station location is in low elevation habitat, outside of identified UWRs, between the two identified corridor units (P 028 and P 062) of UWR u 7 003. As discussed in Section 10.9 of the Application, noise and artificial light associated with the proposed compressors have potential to displace wildlife, including caribou, from habitat in proximity to the facility over the life of the Project (i.e., long-term). Effort was made to avoid placement of the compressor within the identified sensitive habitats (specifically UWR u 7 003), in order to minimize the Project's potential effect of displacement of caribou from high value habitat to potentially less suitable or higher risk habitats during operation of the Project. Coastal GasLink will continue consultation with appropriate regulatory authorities regarding access control measures that can be practically implemented along the proposed pipeline ROW and compressor station access. Access management will be refined through continuing construction planning and detailed engineering design, and discussed with the appropriate regulatory authorities during the permitting phase of the Project. Coastal GasLink will implement an appropriate monitoring program, developed in consultation with the appropriate regulatory authority. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an appropriate adaptive management approach. As such, the assessment concludes that the mitigation will reduce the magnitude of the residual adverse effect such that environmental standards are not exceeded, and the stated conservation and management objectives for caribou are not affected.	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.

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371	Application Section 14		Wildlife	15-Apr-14	Brady Nelless	FLNRO		<p>Page 14-97, Table 14-30 This Table identifies some proposed mitigation for increased access during the construction phase, but not the operations phase. Most of the mitigations identified in this table don't have enough details or site specific measures to assess the effectiveness or to provide comments on.</p>	<p>Mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access.</p> <p>The Access Control Management Plan will be developed in advance of construction of the proposed Project. The development of the Access Control Management Plan will include discussions with the appropriate regulatory authorities. As construction continues, there may be updates to the plan to reflect site specific conditions.</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.
372	Application Section 7		Wildlife	15-Apr-14	Brady Nelless	FLNRO		<p>Three mineral lick locations are identified within the Application. Without further information on the licks, i.e. dry vs. wet, size, use intensity, species use, etc., and without firm commitments on the proposed mitigation, I am unable to assess the mitigation identified in the Application</p>	<p>The proposed mitigation incorporates best management practices identified in both the Environmental Protection and Management Guide (BC OGC 2013) and the Wildlife Habitat Features Summary of Management Guidelines Northern Interior Region (BC MWLAP 2004). If the minimum setback from a mineral lick (100 m) cannot be achieved, the appropriate regulatory authorities will be contacted to discuss additional mitigation measures. Table 7-1 of the EMP includes resource specific mitigation for mineral licks.</p> <p>Reference: British Columbia Ministry of Water, Land and Air Protection. 2004. Wildlife Habitat Features Summary of Management Guidelines Northern Interior Region. Victoria, BC. British Columbia Oil and Gas Commission. 2013. Environmental Protection and Management Guide. Version 1.9. June 2013. 96 pp.</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.
373	Application Appendix 2L		Wildlife	15-Apr-14	Brady Nelless	FLNRO		<p>The Application States: "The mountain pine beetle outbreak has also impacted fisher populations by exacerbating habitat loss, and increased human access has led to increased trapping pressure (Douglas and Strickland 1987)". I am unclear if this is a reference to what is currently happening in BC with fisher habitat loss and mountain pine beetle. What is commonly referred to as the mountain pine beetle outbreak in BC has only been a major issue in BC over the past 10 years or so and the reference cited is prior to that. Also, is the increased human access resulting in increased trapping pressure related to mountain pine beetle or is this a separate issue? I am not sure that the current trend with fisher trapping is increasing in the Omineca Region.</p>	<p>Coastal GasLink provides the following additional information: Douglas and Strickland (1987) refer to the issue of increased access and associated trapping pressure only, and do not issues related to mountain pine beetle. Loss of forested habitat is considered the primary limiting factor for fisher (Badry 2004; Proulx et al. 2004), and habitat loss resulting from mountain pine beetle infestation and salvage logging likely has adverse effects (Bunnell et al. 2004). In addition, increased trapper access has been linked to increased trapping pressure on fisher, and salvage logging of beetle-killed stands can improve trapper access through road creation (Bunnell et al 1997, 2004). In British Columbia, fisher populations declined during the 1970s and 1980s, but appear to have remained stable since 1994 (Badry 2004).</p> <p>References: Badry, M. 2004. Fisher Martes pennanti. In Accounts and measures for managing identified wildlife – Accounts V. British Columbia Ministry of Water, Land and Air Protection, Victoria, BC. Bunnell, F.L., L.L. Krensater, and R.W.</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									Wells. 1997. Likely consequences of forest management on terrestrial, forest-dwelling vertebrates in Oregon. Oregon Forest Resources Institute, Portland, OR. Bunnell, F.L. K.A. Squires, and I. Houde. 2004. Evaluating effects of large-scale salvage logging for mountain pine beetle on terrestrial and aquatic vertebrates. Mountain Pine Beetle Initiative Working Paper 1. Natural Resources Canada, Victoria, BC. Proulx, G., K. Aubry, J. Birks, S. Buskirk, C. Fortin, H. Frost, W. Krohn, L. Mayo, V. Monakhov, D. Payer, M. Saeki, M. Santos-Reis, R. Weir and W. Zielinski. 2004. World distribution and status of the genus Martes in 2000. In Martens in Fishers (Martes) in human-altered environments: an international perspective. D.J. Harrison, K. Angela and G. Proulx (eds.).		
374	Application Appendix 2L		Wildlife	15-Apr-14	Brady Nelless	FLNRO		In this table under "LRMP" (should this be Forest District or Natural Resource District as they are called now?) Vanderhoof UWR u-7-011 has a value of 1814 in the "Mule Deer" column and 422 in the "Mule Deer, Moose" column. I am unsure what the "Mule Deer, Moose" column is? As UWR u-7-011 is a mule deer winter range, not a moose winter range.	Coastal GasLink acknowledges that the 422 ha under the Mule Deer, Moose column in Table 4-5 of the Wildlife and Wildlife Habitat TDR should be added to the 1,814 ha in the Mule Deer column. This results in a total of 2,236 ha of Mule Deer UWR (UWR u-7-011) in the RSA.	No further response required.	
375	Application Appendix 2K		Wildlife	15-Apr-14	Brady Nelless	FLNRO		"...wetlands were considered unsuitable because of ice cover, lack of open water, or high tree or shrub cover." Why was ice cover during the spring survey used as criteria to determine unsuitable habitat to support waterfowl migration?	Coastal GasLink provides the following additional information: Ice-covered wetlands were considered unsuitable because waterfowl seldom use wetlands that are covered with ice because they provide little in the way of forage or security. Waterfowl migration and staging is strongly tied to ice-off timing, and waterfowl tend to aggregate on wetlands that are free of ice early in the season, even if only partially thawed (RIC 1999; Chaulk and Turner 2007; Oja and Pöysä 2007). As additional wetlands become ice-free as the season progresses, waterfowl densities tend to decrease as later migrant and resident breeders disperse over larger area. References: Chaulk, K.G., and B. Tunner. 2007. The timing of waterfowl arrival and dispersion during spring migration in Labrador. Northeastern Naturalists 14:375-386. Oja, H., and H. Pöysä. 2007. Spring phenology, latitude, and the timing of breeding in two migratory ducks: implications of climate change impacts. Annales Zoologici Fennici 44:475-485. Resources Inventory Committee [RIC]. 1999. Inventory methods for waterfowl and allied species: loons, grebes, swans, geese, ducks, American coot and sandhill crane. Standards for Components of Biodiversity No. 18. Ministry of Environment, Lands and Parks, Victoria, BC. 82 pp.	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
376	Common Application issues/concerns		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Caribou</p> <p>1) I do not know of any mechanism that allows for compensation or offsets for Mountain Caribou to address residual adverse effects as it is identified as an option in the Application.</p> <p>2) My understanding of the OGC best practices caribou timing windows is they were developed for Northern and Boreal Caribou in the Peace Region. This is important, as the Hart Ranges caribou are Mountain Caribou and do not seasonally migrate to low elevation habitat as suggested by the Application. Thus increasing the potential risk of development to caribou in high elevation habitat any time of year.</p> <p>3) A risk to caribou not adequately assessed in the Application is the potential for increased recreational access into caribou habitat. There is a recreational snowmobile closure area over the Hart Ranges, but there has still been a continuous compliance issue throughout the Region. This proposed project, including the compressor station and pipeline, could potentially provide more points of access into sensitive caribou habitat.</p> <p>4) No recognition of the Wildlife Act snowmobile closure areas in the Hart Ranges that this proposed project crosses.</p> <p>5) No recognition of the Section 16, Land Act designation in the Hart Ranges that this proposed project crosses.</p>	<p>1) Coastal GasLink will continue dialogue with the appropriate regulatory authorities to ensure effective mitigation prior to construction to mitigate potential adverse effects on mountain caribou. This discussion will also include the potential for alternative mitigation strategies, such as compensation or offsets.</p> <p>2) In the absence of timing windows specific to mountain caribou the timing windows for northern and boreal caribou were adopted as the best available management practices.</p> <p>3 & 4) The Access Control Management Plan will be developed in advance of construction of the proposed Project. The development of the Access Control Management Plan will include discussions with the appropriate regulatory authorities. As construction continues, there may be updates to the plan to reflect site specific conditions.</p> <p>5) Coastal GasLink acknowledges that the BC government has identified specific areas for the purposes of wildlife management, such as areas restricting snowmobile use and new commercial recreation tenures in mountain caribou range in order to support population recovery as part of the Mountain Caribou Recovery Implementation Plan. Coastal GasLink expects guidance and direction in its continuing dialogue with the appropriate regulatory authorities as construction planning and detailed engineering design advances.</p>	Response does not adequately address the issue.	Coastal GasLink would appreciate clarification of further information requirements.
377	Common Application issues/concerns		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Wetlands</p> <p>1) The potential impact of recreational motorized access into sensitive habitats during the operational phase of the project i.e. wetlands, was not fully addressed in the Application.</p>	Information about recreational land use is included in Section 14 of the Application. Mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access.		
378	Common Application issues/concerns		Wildlife	15-Apr-14	Brady Nelles	FLNRO		<p>Stuart River Important Bird Area</p> <p>1) Just above the Stuart River Crossing, is a designated Important Bird Area for Trumpeter Swans. They are known to be sensitive to hitting overhead lines/cables. Depending on the crossing design at the Stuart River crossing, this may be an issue. Not enough detail provided to assess.</p>	Coastal GasLink confirms that the pipeline will be installed beneath the Stuart River, and does not anticipate the need for overhead lines or cables.	No further response required.	
449	Application Section 5	N/A	Geophysical Environment	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Minor grammatical note: TEM, sometimes referred to in this section as "terrain ecosystem mapping", should be referenced as "terrestrial ecosystem mapping", consistent with other sections of the Application.	Acknowledged.		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
450	Application Section 5.4.1	Page 5-12	Soils	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 5.4.1, Page 5-12, indicates that approximately 96% of the proposed route (non-Agricultural Land Reserve areas) falls within moderate (50%) or high (46%) categories for erosion potential, primarily due to steep slopes and heavy rainfall in some areas. As the Interior Plateau Physiographic Division (characterized by flat to gently rolling uplands) covers approximately 56% of the proposed route (Section 5.4.2), it seems that steep slopes should represent a much smaller portion of the proposed route.	The apparent discrepancy regarding the proportions of areas rated moderate to high for erosion potential, and the proportion of the route through the Interior Plateau which has predominantly gently rolling slopes is due to two factors: 1. Although the Interior Plateau is predominantly gently rolling, steeper slopes do make up a substantial proportion of the area, for example at stream crossings or other features with steeper slopes. At the scale of the soil mapping carried out for this project, such slopes are easily delineated and rated for erosion risk based on their slopes. At the scale of mapping of the Physiographic Division, these smaller, more steeply sloping areas are not discernable. 2. Areas of high rainfall in the western part of the proposed route, soils receive a higher erosion risk rating than would be the case for soils on similar slopes in areas of lower rainfall.		
451	Application Section 5.5.5	N/A	Cumulative Adverse Effects Overview	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 5.5.5 scopes out the need for a cumulative effects assessment (CEA), with the statement that the "potential residual adverse effects, which might remain after mitigation, will be minor in nature, will be limited to the Project Footprint and are determined to be unlikely to occur." However, the paragraphs below Table 5-7 (describing potential residual effects) each suggest that residual effects, although unlikely and not significant, are unavoidable or inevitable. Despite their characterization as not significant, some residual effects (despite mitigation) were estimated, a scenario that typically triggers the requirement for inclusion in the CEA. Further, clarifying the CEA boundary will help the reader understand why effects from past projects and reasonably foreseeable future projects are assumed to have no cumulative loss or degradation interaction with the soil capability residual effects (below) estimated for this project: <ul style="list-style-type: none"> · Soil loss due to wind erosion; · Soil loss due to water erosion; · Soil compaction and rutting; · Altered landscape contours and drainage patterns; and · Topsoil loss or degradation (agricultural capability only). Similar to above comment, Page 5-46 suggests that, because residual adverse effects will not be significant, will be limited to the Project Footprint and will not interact cumulatively with other past, present or future projects, there will be no potential for cumulative effects and an CEA is not required. Clarifying the CEA boundary will help the reader understand why effects from the past projects and reasonably foreseeable future projects are assumed to have no cumulative loss or degradation influence.	The boundary used for CEA is the regional study area, which was defined for each valued component.		
452	Application Section 6.7.3	Page 6-49	Atmospheric Environment	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The Application (Page 6-49) states: "The GHG emissions from the proposed Project will contribute to global annual GHG emissions due to the exhaust from construction vehicles and the open burning of cleared debris and unsalvageable timber along the pipeline ROW." Table 6-21 identifies the following key recommendation/mitigation: "Avoid open burning of timber, tree/shrub debris and stumps – and instead mulch it for spreading on ROW and maximize timber salvaging where feasible." The Application should indicate under what conditions it would be considered not feasible to avoid open burning of cleared debris and unsalvageable timber.	Coastal GasLink considers the following factors in determining the feasibility in avoiding the burning of biomass: <ul style="list-style-type: none"> • access required for equipment required to remove the biomass from the working area; • economic considerations of retrieving the timber in remote locations; • proximity to mills and ability for mills to accept the timber; and, • assessing the amount of energy (fuel consumption) required to retrieve the timber. 		

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453	Application Section 6.7.5	Page 6-53	GHG	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>The Application states concludes that greenhouse gas (GHG) emissions from the Project will contribute to the cumulative effects of global GHG emissions, but also concludes (Page 5-63) that "...the contribution, although measurable and potentially important in comparison to provincial and national levels (6% and 0.5%, respectively) will be not significant in a global context (0.012%)". However, projected Project GHG emissions would be characterized as being of high magnitude at provincial and national scales (under CEAA 2003 guidance). The Application should present a clear explanation as to the significance of projected GHG Emissions from the Project. Is there a threshold definition (even in the global context) for what constitutes a significant effect for GHG emissions?</p> <p>The statement (Page 6-53) that "...no individual activity is responsible for global effects on climate due to GHG emissions, but instead it is the result of the multitude of activities across the globe releasing GHGs to the atmosphere" suggests that no individual project/activity can be considered to have a significant effect, despite recognition that "a scientific consensus is emerging which suggests global emissions of GHGs and consequent changes to global climate represent a significant cumulative effect (International Panel on Climate Change [IPCC] 2007)."</p> <p>The collective emissions of the proposed Project and other potential future projects (as emissions estimates become available) should be compared against the interim provincial targets set by the Natural Gas Climate Action Team (6% below 2007 levels by 2012, and 16% below 2007 levels by 2016), and the results included in the Application. Other past and reasonably foreseeable future projects that overlap or occur in close proximity to at least a portion of the proposed Coastal GasLink pipeline project include:</p> <ul style="list-style-type: none"> • Pacific Northern Gas Looping Project (Pre-Application Phase) • Pacific Trail Pipeline Project (5-Year Certificate Extension approved in 2013). <p>Other reasonably foreseeable future projects within approximately 100km of the Yekooche First Nation Reserves include:</p> <ul style="list-style-type: none"> • Prince Rupert Gas Transmission Project (Pre-Application Phase) • Westcoast Connector Gas Transmission Project (Pre-Application Phase) 	<p>Significance of the potential residual adverse effects on greenhouse gas emissions from Project emissions was determined in accordance with Section 3 of the AIR. Section 4.2.3 of the AIR provides direction on the assessment of GHGs, and was assessed at the global geographic extent. Estimated Project GHG contributions were compared to total global emissions, and the 0.012% contribution was determined to be not significant.</p> <p>Considering that the environmental effect is not bound to provincial or national jurisdictional boundaries, comparisons to these inventories were conducted to determine if the Project would be a low, medium or high contributor (as per CEAA 2003 guidance). In the absence of any thresholds, it was determined that contributions to provincial and national inventories (6% and 0.5%, respectively) would suggest the Project is a high contributor. As a result, Coastal GasLink will prepare a detailed GHG Emissions Management Plan in consultation with the appropriate regulatory authorities.</p>	<p>If residual effects cannot be completely eliminated through the application of mitigation measures (whether or not the effects are deemed minor in nature, unlikely to occur, or insignificant), then a cumulative effects assessment should be undertaken.</p>	<p>Coastal GasLink agrees with this comment, and confirms that it applied the methods for cumulative effects assessment described in Section 3.11 of the Application Information Requirements issued by the EAO in May 2013, which states that if the proposed Project is expected to result in any residual effects on VCs, the need for a cumulative effects assessment must be considered. In the case of GHG emissions, the assessment was completed using the methodology outlined in the CEAA 2003 guidance. By the nature of GHG emissions, any assessment takes into account the project contributions to overall emissions, in essence making it a cumulative effects assessment. Coastal GasLink will develop a GHG Emissions Management Plan for the Project in consultation with the appropriate regulatory authorities and will comply with all applicable regulatory requirements.</p>
454	Application Section 7.5.1	Page 7-59	Aquatic Environment	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Table 7-8 states that a potential environmental effect of the installation of watercourse crossings associated with pipelines and access roads is the "alteration or loss of instream habitat". However, under the heading, "Potential Residual Environmental Effect(s)" on Page 7-59 of the Table, only the alteration of instream habitat is listed as a potential residual environmental effect of these activities. Habitat alteration occurs when, for example, natural substrate is replaced by non-natural substrate, such as a culvert, but the overall amount of habitat available remains the same. Under this scenario a loss of habitat does not occur.</p> <p>However, the installation of watercourse crossings can also result in a loss of fish habitat. Channel infilling and associated loss of habitat occurs when the natural area of a channel is reduced from activities such as the installation of undersized culverts, or the installation of bridge abutments within the channel. Since the Project will require the installation of watercourse crossings on access roads that could result in a loss of fish habitat, YFN requests that the following text be added as a potential residual environmental effect on Page 7-59 of Table 7-8:</p> <p>"Loss of instream habitat within the ZOI due to channel infilling"</p> <p>Page 7-59 of Table 7-8 also does not include a mitigation measure essential to preventing the loss of fish habitat from the installation of watercourse crossings on access roads, i.e., "the design and installation of watercourse crossing structures, such as culverts and bridge abutments, such that the natural width of the stream channel will not be constricted". YFN requests that this mitigation measure be included in Table 7-8 as a "Key Mitigation".</p>	<p>Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel.</p> <p>Through the implementation of mitigation and confirmation that no channel infilling will take place, the assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required.</p>	<p>The proponent indicates in Table 7-8 that a potential environmental effect is a loss of fish habitat, but does not include mitigation measures under the "Key Mitigation" heading of the Table that would preclude a loss of fish habitat. For example, a key mitigation measure would be: "install permanent water crossing structures such that the natural width of the watercourse is not constricted at the crossing site, and no water crossing structure is placed within the natural channel". Since no mitigation measures have been included that would preclude a potential loss of fish habitat, there is no basis for not indicating, under the Table heading, "Potential Residual Environmental Effect(s)", that a loss of fish habitat is a potential residual effect. Section 8.4 and drawings STDS-03-ML-05-101, STDS-03-ML-05-102, and STDS-03-ML-05-104 of the EMP indicate that bridge installations will not result in the infilling of fish habitat; however, nowhere in the Application is it stated that culvert installations will not result in a loss of habitat. Yekooche reiterates that since the</p>	<p>Table 7-8 describes a number of potential adverse effects, mitigation, and residual adverse effects. For the potential adverse effect "alteration or loss of instream habitat", Coastal GasLink lists a large suite of mitigation, and on page 7-59 indicates that there are residual environmental effects including:</p> <ul style="list-style-type: none"> - Alteration of instream habitat within the ZOI at trenced crossings and during construction of vehicle crossings; and - Alteration of instream habitat within the ZOI during operations. <p>These residual effects are described and characterized in Section 7.5.3 of the Application.</p> <p>The mitigation included in Table 7-8 is based on industry accepted best practices and has been informed by previous experiences on projects of similar scale and complexity, TransCanada's extensive experience in designing, constructing and operating pipelines, and the professional experience of the assessment team.</p>

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										proponent has indicated in Table 7-8 that the project could result in a loss of fish habitat, in order for the Table to not indicate this loss as a potential residual effect, mitigation measures must be included in the Table that would indicate that such losses will not occur.	
455	Application Section 7.5.1	Page 7-72	Aquatic Environment	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Table 7-8 states that temporary blockages to fish movement may occur during construction, but fails to indicate that blockages can also occur during operations. Undersized culverts can result in velocity barriers within culverts during high-flow periods. Additionally, an undersized or improperly installed culvert can result in scouring of the streambed at the culvert outlet and the creation of a "perched" culvert, which prevents fish from entering the culvert.</p> <p>Further, even though a bridge or culvert may be designed and installed to provide fish passage, it is not unusual for unforeseen events, such as the construction of a beaver dam within a culvert, or sudden accumulations of debris within a culvert resulting from high run-off, to block fish movement during the operations phase of a project.</p> <p>Given the information presented above, YFN requests that Table 7-8 be revised as follows:</p> <ul style="list-style-type: none"> • Text under the heading, "Proposed Project Phase" on Page 7-72 should state "Construction and Operations", rather than "Construction"; • Text under the heading, "Potential Residual Environmental Effect(s)" on Page 7-72 should state "Temporary blockage of fish movements during construction and operation of isolated watercourse crossings"; and, • "Routinely inspect watercourse crossings and remove potential blockages to fish passage following BC government standards" should be added to the Table (Page 7-72) as a "Key Mitigation". 	<p>Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel.</p> <p>Through the implementation of mitigation and confirmation that no channel infilling will take place, the assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required.</p> <p>Coastal GasLink will routinely inspect watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.</p>	<p>If watercourse crossings can result in blockages to fish movement during operations - and this is a well-established fact - then Table 7-8 and relevant text throughout the Application should be revised as necessary to reflect this fact. It is inaccurate to state that blockages can only occur during construction.</p>	<p>Coastal GasLink re-confirms that the project is not expected to cause any blockages to fish movements at watercourses, beyond that which may result from the need to isolate a work area for temporary instream work required to complete maintenance on the pipeline during operations. Any such isolations would be removed after completing maintenance works, and Coastal GasLink will restore fish passage. Coastal GasLink will not implement any channel infilling.</p>
456	Application Section 7.5.2	N/A (Table 7-9)	Aquatic Environment - Potential Residual Adverse Effects	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Table 7-9 should include the following potential residual effects:</p> <p>"Loss of instream habitat within the ZOI due to channel infilling during construction activities"; and,</p> <p>"Temporary blockage of fish movements during construction and operation of isolated watercourse crossings"</p> <p>"Spatial boundary", "temporal context", "magnitude" and "likelihood" will need to be stated within the Table for both of these effects.</p>	<p>Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel.</p> <p>Through the implementation of mitigation and confirmation that no channel infilling will take place, the assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required.</p> <p>Coastal GasLink will routinely inspect</p>	<p>The effects listed opposite should be included in Table 7-9 as potential residual effects if they have been identified in Table 7-8 as potential environmental effects - which they should be - but mitigation measures have not been described within Table 7-8 that would preclude their occurrence.</p>	<p>Coastal GasLink confirms that all residual effects identified in Table 7-8 have been listed and characterized in Table 7-9 of the Application. Acknowledging that construction of the project will require the installation of watercourse crossings, and that efforts have already been made during route selection to select watercourse crossing locations that avoid sensitive areas to the extent practical, Table 7-8 outlines comprehensive mitigation approaches to avoid and reduce residual adverse effects of the Project.</p>

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									watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.		
457	Application Section 7.5.3	N/A	Aquatic Environment - Characterization of Potential Residual Effects	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The additional potential effects identified in Sec. 7.5.2 should be described within Sec. 7.5.3	Section 7.5.2 is an overview description of what is contained in Section 7.5.3.		
458	Application Section 7.5.4	N/A	Aquatic Environment - Determination of Significance and Confidence	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The potential effects identified in Sec. 7.5.2 should be included in Table 7-10 and described within Sec. 7.5.4.	The potential residual environmental effects listed in Table 7-9 are included in Table 7 10 and discussion of determination of significance and confidence is described in Section 7.5.4 following Table 7-10.		
459	Application Section 7.5.6	Page 7-102	Aquatic Environment - Cumulative Effects, Mitigation and Environmental Management Strategies	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Text under the heading "Potential Cumulative Effect", near the top of Table 7-11, makes reference to "instream habitat disturbance", which includes habitat alteration, but make no reference to a well-documented effect of the construction of watercourse crossings – habitat loss. Therefore, text under this heading should also make reference to habitat loss.</p> <p>It is also well-documented that blockages to fish movement can occur within watercourse crossing structures during operations, as described above. Therefore, the "Temporal Boundary" for potential effects associated with the blockage of fish movement should be "Construction and Operations", rather than just "Construction".</p> <p>The potential effects identified in Sec. 7.5.2 should be included in Table 7-11 and evaluated within Sec. 7.5.6.</p> <p>Page 7-102 states: "Direct habitat loss occurs where the bed or banks of waterbodies are disturbed and recovery of pre-construction conditions does not occur", and "...Urban or agricultural development...can alter the physical structure of inshore habitats, rendering them unsuitable for spawning and rearing". In fact, the above text describes habitat alteration/disturbance, rather than habitat loss. Habitat loss/destruction occurs when the amount of available fish habitat is reduced, and this should be stated in the text. YFN requests that Sec. 7.5.6 be revised to better distinguish between "habitat loss" and "habitat alteration".</p>	<p>The potential residual effects associated with the proposed Project on the protection of recreationally, commercially, and/or culturally important fish and fish habitat VC identified in Section 7.5.2 are the potential effects of the proposed Project and are evaluated in Section 7.5.3.</p> <p>The potential effects in Section 7.5.2 differ from those in Table 7-11 as this table is a presentation of the cumulative potential residual effects which includes the identification of existing activities and reasonably foreseeable developments acting in combination with the potential residual effects. The combined potential residual effects are further summarized in Section 7.5.6 following Table 7-11.</p> <p>The statement "Direct habitat loss occurs where the bed or banks of waterbodies are disturbed and recovery of pre-construction conditions does not occur" describes the loss of habitat as disturbed bed and banks without recovery of pre-construction conditions which would result in a reduction of quantity of habitat and ultimately loss. Urban or agricultural development on waterbody shores such as dykes, docks, marinas and bank modifications, as well as dewatering of watercourses, are provided as examples of a direct loss of instream habitat and not as potential effects of the proposed project.</p> <p>"Habitat alteration occurs where waterbodies are disturbed and habitat attributes such as substrate, depth and channel width are deliberately or inadvertently changed." In cases such as these, habitat will only be altered.</p>	<p>The proponent's view of the meaning of "habitat alteration" and "habitat loss" appears to differ from that of Fisheries and Oceans Canada (DFO), and how these terms are interpreted under the <i>Fisheries Act</i>.</p> <p>The proponent's statement, "Direct habitat loss occurs where the bed or banks or waterbodies are <u>disturbed</u> and recovery of pre-construction conditions does not occur" is a description of habitat alteration - not habitat loss. In situations where the bed or banks are disturbed, and recovery of pre-construction conditions does not occur, but fish are still able to use the habitat, then the habitat has been altered, not destroyed. An example would be when natural substrate within a stream is replaced by non-natural substrate, such as the metal of a culvert, but the overall amount of habitat available remains the same. Fish may not be able to spawn within the culvert, as they may have been able to do on the natural substrate, but the same <u>amount</u> of habitat, albeit degraded, is still available. Under this scenario a loss of habitat does not occur. YFN's interpretation is consistent with DFO's <i>Fisheries Protection Policy Statement</i> (2013), which identifies the destruction/loss of fish habitat as being "...of a spatial scale, duration, or intensity that fish can no longer rely on such habitats for use as spawning grounds, or as a nursery,</p>	Coastal GasLink will meet all applicable regulatory requirements, including the requirements of the <i>Fisheries Act</i> . Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any stream crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel. Coastal GasLink will not construct culvert vehicle crossings at fish bearing watercourses, and therefore, fish passage at vehicle crossings will not be obstructed.

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										rearing, or food supply areas, or as a migration corridor, <u>or any other area...</u> " Similarly, the proponent's statement, "Habitat alteration occurs where...habitat attributes such as...depth and channel width are...changed" is, in fact, a description of habitat loss. Clearly, the narrowing of a natural channel a by infilling results in a reduction in the cross-sectional area of the channel, which represents a loss of fish habitat. YFN requests that the Application be revised as necessary to reflect a correct understanding of the meaning of habitat alteration and loss, identify the potential nature and extent of habitat alteration and loss, and identify suitable mitigation measures.	
460	Application Appendix 2G	N/A	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Table I-1 indicates a proposed open cut crossing of the Stuart River, yet under the "Rationale/Comments heading lists a mitigation measure of "...isolate and fish salvage". The Application should indicate how fish salvage will be undertaken during construction of an open cut crossing.	Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. On page C-51 of this Appendix, the table indicates the recommended pipeline crossing method for the Stuart River is trenchless. Coastal GasLink submitted an Addendum to the Application identifying six revisions to the Application Corridor on March 24 2014. Section 3.0 of the Addendum discusses the alternate corridor at the Stuart River crossing location that was chosen as a result of the identification of critical habitat for white sturgeon in this section of the Stuart River at the previous crossing location.		
461	Application Appendix 2G	N/A	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Table I-1 indicates that construction of the Stuart River crossing will occur during winter, but the least risk work period is stated as being July 15 to August 15. The Application should explain why construction is proposed outside the period of least risk.	Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. On page C-51 of this Appendix, the table indicates the recommended pipeline crossing method for the Stuart River is trenchless. As the proposed crossing method is trenchless, as described in Section 1.4.16 of the Application, reduced or no disturbance to the channel banks or riparian areas is expected.	Table I-1 (Appendix I of TDR) indicates the Proposed Crossing Method as "Open-Cut" . Under the "Rationale/Comments" heading of this Table it is stated: "reduce instream duration" and "isolate and fish salvage". Further, Page 92 of the TDR states: "This high score was primarily at the Stuart River crossing <u>where an open-cut method is proposed</u> ". The Application presents conflicting information as to the crossing method planned for the Stuart River. YFN requests that the Application, including Tables C-1, I-1 and J-1, be revised as necessary to clearly indicate the preferred and contingency crossing method for the river. As stated in YFN's letter to the EAO dated April 22, 2014, YFN is strongly opposed to any open cut crossing of the Stuart River.	Coastal GasLink confirms that the proposed pipeline installation method at the Stuart River is trenchless.

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462	Application Appendix 2G	Page 92	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The Fish and Fish Habitat TDR (Page 92) indicates that the proposed open cut crossing of the Stuart River poses the greatest potential threat to fish and fish habitat of all the proposed watercourse crossings along the pipeline route. The proposed Stuart River crossing is the only crossing along the pipeline route ranked "significant" (Table G-1) in terms of potential adverse effects to fish and fish habitat. The river provides habitat for the Nechako River population of white sturgeon - red-listed under BC's Wildlife Act and the federal Species at Risk Act - and the only red-listed fish species with the potential to occur within the pipeline LSA.	Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. On page C-51 of this Appendix, the table indicates the recommended pipeline crossing method for the Stuart River is trenchless. As the proposed crossing method is trenchless, as described in Section 1.4.16 of the Application, reduced or no disturbance to the channel banks or riparian areas is expected.		
	Application Appendix 2G						Yet, inexplicably, the Application does not provide a rationale for this proposed crossing that poses such significant risks. YFN therefore requests that the Application provide a rationale that describes in detail why an open cut crossing of the Stuart River is necessary. The rationale must include a detailed explanation as to why the pipeline cannot be re-routed to enable a trenchless crossing, and include a geotechnical report that confirms that a trenchless crossing of the river is not feasible at the proposed crossing site and other potential crossing sites along the river. YFN is strongly opposed to any open cut crossing of the Stuart River.	Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. On page C-51 of this Appendix, the table indicates the recommended pipeline crossing method for the Stuart River is trenchless. Coastal GasLink submitted an Addendum to the Application identifying six revisions to the Application Corridor on March 24 2014. Section 3.0 of the Addendum discusses the alternate corridor at the Stuart River crossing location that was chosen as a result of the identification of critical habitat for white sturgeon in this section of the Stuart River at the previous crossing location.			
463	Application Appendix 2G	Surface Water Assessment	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>A common problem with gas pipelines is frost bulb formation and its hydrological impacts. This issue was not considered in the Application. For example, frost bulb formation can lead to redirection of groundwater in cold regions, which can in turn cause large icing and block streamflows. Such changes in flow patterns can have significant implications for localized floods, soil erosion and aquatic habitat. YFN requests that the possible effects of frost bulb formation be considered, particularly for cold regions. YFN further requests that Table 7-30 identify frost bulb formation as a potential environmental effect during the operations phase, and include key mitigation measures and potential remedial environmental effects in the Table. Further discussion of frost bulb formation should be included in Section 7.7.2 – "Potential Residual Adverse Effects" – as appropriate.</p> <p>Similarly, the Application did not consider the possible effects of climate change on water resources. The effects of climate change on water resources are real, with potentially significant, long-term consequences. As the proposed Project spans regions having dry (500 mm) to wet (4000 mm) climates, the associated shift of temperature and precipitation could contribute significantly to cumulative watershed effects on water resources. YFN requests that the cumulative effects assessment for the Project also consider potential climate change effects. At a minimum, data on projected future climate change should be included in the Application and their implications for water resources in the RSA discussed.</p>	<p>Frost bulb formations are not likely to occur within the environmental setting of the proposed Project as Arctic conditions which facilitate them are not typically encountered within the project area.</p> <p>Coastal GasLink recognizes that the presence of several major mountain ranges and the Pacific Ocean influence BC's climate. Climatic conditions in the area of the proposed Project during operations of the pipeline and facilities could manifest in many ways which are described in Section 22 of the EA. Coastal GasLink, through its continued ROW surveillance efforts and scheduled inspection and maintenance activities, will utilize an adaptive management approach in order to accommodate local environmental conditions that may change due to changing climatic conditions. Planning for specific adverse weather events due to climate change is not feasible due to uncertainty surrounding it.</p> <p>Coastal GasLink acknowledges the potential effects of climate change on water resources. Section 7 of the Application considers the effects of the proposed Project on the aquatic environment, and therefore does not address the effects of future climate scenarios. The effect of future climate scenarios is considered to be an effect of the environment on the project, and is addressed in Section 22 of the Application. Topics that are associated with climate change that are discussed in Section 22 of the Application include extreme weather events, fire, slope stability and mass wasting events, future climate scenarios, and forest pests and pathogens. The AIR states that the Application will provide a "baseline description of domestic water supply e.g. watersheds, municipal water sources, wells and points of diversion</p>	The effects of future climate change can be considered as an additional stressor for cumulative effect assessment rather than simply treating it as an effect of the environment on the project. It is commonly accepted that climatic variability and land use change (e.g., the proposed project) are too major drivers for future water resource. This is the important context for cumulative effect assessment.	Coastal GasLink has completed cumulative effects assessment according to the methods and scope outlined in the AIR issued by EAO in May 2013. Section 14 of the Application addresses the topic Land and Resource Use, and includes cumulative effects assessments of the valued components Current Use of Land and Resources, as well as Domestic Water Supply. Cumulative effects assessment of Surface Water and Ground Water can be found in Section 7 of the Application.

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									<p>and if available, water sources identified through available ATK".</p> <p>Section 4 of the Social TDR (Appendix 2M) provides baseline water supply information. Page 4-7 states that the Yekooche First Nation third party socio-economic report identified that Yekooche First Nation has a water utility system. However, no Project-specific domestic water supply issues were identified.</p> <p>Table 14-37 of the Application identified the potential effect, "alteration of domestic water supply quality." Mitigation to address this potential effect is provided in Table 14-37.</p> <p>The application is complete.</p>		
464	Application Appendix 2G	Surface Water Assessment	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>The proposed project crosses Endako and Savory where Yekooche First Nation asserted traditional territory from approximately KP 385 to KP 458. There are various water licenses for using surface water to support agriculture and domestic drinking. The cumulative impacts of the proposed project on water supply in the context of future climate change and other existing land use change remain unknown. Thus, Yekooche requests that a more detailed study be conducted to assess the effects of the proposed project on water supply in the watersheds from where Yekooche First Nation people draw water.</p>	<p>The AIR states that the Application will provide a "baseline description of domestic water supply e.g. watersheds, municipal water sources, wells and points of diversion and if available, water sources identified through available ATK".</p> <p>Section 4 of the Social TDR (Appendix 2M) provides baseline water supply information. Page 4-7 states that the Yekooche First Nation third party socio-economic report identified that Yekooche First Nation has a water utility system. However, no Project-specific domestic water supply issues were identified.</p> <p>Table 14-37 of the Application identified the potential effect, "alteration of domestic water supply quality." Mitigation to address this potential effect is provided in Table 14-37.</p> <p>The application is complete.</p>		
465	Application Appendix 2G	Surface Water Assessment	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>The proposed project crosses Endako and Savory where Yekooche First Nation asserted traditional territory from approximately KP 385 to KP 458. There are a few aquifers (0643, 0646 and 0668) from where Yekooche First Nation people pump water. Unfortunately, there are no any monitoring wells in the area so current water quality and its responses to the proposed project is uncertain. Yekooche requests that at least one monitoring well be established in each of those aquifers.</p>	<p>At this time, Coastal GasLink has no plans to install groundwater monitoring wells along the proposed Project.</p>		

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466	Application Section 7.7.5	Page 7-166 Lines1-3 & Page7-169	Cumulative Effects, Mitigation and Environmental Management Strategies – Potential Combined Effects on Surface Water Quality	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The Application used stream-crossing density as a positive indicator of surface water quality for CEA. As stated in the Application, stream crossing density data "... underestimate the cumulative adverse effects risk in agriculture watersheds where riparian clearing, rather than the density of water crossings, is an important source of sediment" (Page 7-166 Lines1-3). A better watershed disturbance indicator is equivalent watershed disturbance area and its percentage (EDA, %) or equivalent clear-cut area (ECA, %). EDA or ECA has been frequently used for representing cumulative and integrated watershed disturbances (e.g., road construction, urbanization, forest harvesting and agriculture activities) as it accounts for various types of disturbance and their post-disturbance hydrological recovery. Using this indicator, all small watersheds (RSA: regional assessment area) interacting with the proposed Project can be mapped and classified in terms of disturbance levels. Undertaking this improved watershed assessment would significantly enhance cumulative effects assessment and identify the most sensitive watersheds for implementation of more meaningful mitigation measures. YFN requests that a better watershed assessment be conducted using watershed disturbance indicators such as ECA or EDA. It is particularly important to identify sensitive watersheds potentially affected by the Project, given the Application's conclusion (Page7-169) that there is a high likelihood that the proposed Project will contribute to cumulative adverse effects on surface water quality.	Stream crossing density calculations were not used to assess Project-specific water quality effects but were part of the cumulative effects assessment; an assessment conducted to identify how potential adverse effects from a proposed project could interact with impacts from other developments occurring in the same region. Using a quantitative metric allows an understanding of the potential cumulative effects of the proposed Project in relation to existing and reasonably foreseeable future developments. While there are other metrics that can be used for watershed assessment, stream crossing density was used for this assessment as an indirect measure of sediment and nutrient input resulting from land use. Project-specific monitoring and mitigation measures, such as surface water quality monitoring are discussed in the environmental effects assessment (refer to Table 7-8 of Section 7.5.1). Stream crossing density is not used to guide surface water quality monitoring during construction. Coastal GasLink agrees that Equivalent Clear-cut Area (ECA), in combination with other factors, is a useful indicator of watershed disturbance (B.C. Ministry of Forests 2001). However, its applicability for cumulative effects assessment for the proposed Project is limited due to the lack of spatial data on future cutblocks. Instead, stream crossing density was used as an indicator of cumulative effects on surface water quality. As indicated in Porter et al. (2013): "Stream crossings at road intersections represent potential focal points for fine sediment input and intercepted flow delivery, as well as potential physical impediments to fish movements. In general the greater the density of road-stream crossings on forest land, the greater the potential risk to fish and their habitats." Coastal GasLink acknowledges that there is a high likelihood the proposed Project will contribute to cumulative adverse effects on surface water quality but notes that the residual cumulative increase in effects is Not significant (Table 7-37, page 7-171) and concludes that additional assessment for cumulative effects on surface water quality is not necessary. References: B.C. Ministry of Forests. 2001. Watershed assessment procedure guidebook. 2nd ed., Version 2.1 For. Prac. Br., Min. For., Victoria, B.C. Forest Practices Code of British Columbia Guidebook. Porter, M., S. Casley, Darcy Pickard, E. Snead, and K. Wiekowski. 2013. Draft Version 3.1, February 2013. Tier 1 Watershed-level fish values monitoring protocol. Draft report prepared by ESSA Technologies Ltd. For British Columbia Ministry of Forests, Lands and Natural Resource Operations and BC Ministry of the Environment (MOE), Victoria, BC. 28 p.		

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467	Application Section 7.7.7 through 7.7.8	Page 7-172 and 7-179	Conclusions for Surface Water & Groundwater (respectively)	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Using a literature review, desktop analysis, limited field work and qualitative professional judgment, the Application concludes that the proposed Project, through implementation of various mitigation measures, is not likely to result in any potential significant adverse effects on both surface water and groundwater (Page 7-172 and Page 7-179). While this conclusion is reasonable for relatively large watersheds, it may be questionable for small watersheds (<10 km ² or <100 km ²) or watercourses. As the effects of the proposed Project on water quality and quantity are likely localized, the assessment and conclusions should have been conducted and drawn at this spatial scale. Unfortunately, localized effects have not been fully and quantitatively assessed, probably due to a lack of data and resources. Without an assessment of potential effects on smaller watersheds, the above-stated conclusion is questionable.	Coastal GasLink completed a comprehensive assessment of potential adverse effects of the proposed project in accordance with the AIR issued by the EAO in May 2013. Cumulative adverse effects were assessed at the Regional Study Area scale. The RSA for the Aquatic Environment is defined in the AIR. Cumulative effects are considered at the spatial scale defined by the RSA. In determining an appropriate scale for the RSA and the cumulative effects assessment, two primary factors were considered: <ul style="list-style-type: none"> • If the spatial extent was too large, effects of the project appear relatively small (Hegmann et al. 1999; Antoniuk 2000, 2002; Magdych et al. 2002). • If the spatial scale was too small, it may exclude potentially significant development (Hegmann et al. 1999; Finley and Revel 2002). To balance these factors, the RSA was defined to include the area encompassed by all sub-basins crossed by the proposed route and the cumulative effects assessment was applied to the RSA as a whole. For further detail, assessment was also conducted at the basin level.		
468	Application Section 7.7.7 through 7.7.8	Page 7-175, Lines 14-16	Surface Water & Groundwater	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The implications of surface water and groundwater interactions have not been fully discussed in the Application. Although the quality of groundwater contributing to streamflow has been considered in the assessment of surface water quality (Page 7-175, Lines 14-16), understanding and locating areas affected by the proposed Project where surface water and groundwater interact is critical for protecting groundwater quality. Such areas often occur in springs, wetlands, mountain-front fractures, and others. YFN requests that areas where surface water and groundwater interact be identified, and that appropriate mitigation measures be identified, such as avoiding trenched crossings at sites where surface water and groundwater interact. This information should be presented in the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects of the proposed project in accordance with the AIR issued by the EAO in May 2013. Existing data about springs and groundwater inflow is limited (see p.7-174). The Application assumes that the proposed route may cross areas with natural groundwater/surface water, and outlines water quality mitigation based on industry accepted best practices accordingly. By applying the water quality mitigation summarized in Section 7 of the Application, potential adverse effects on groundwater quality will be reduced to acceptable levels.		

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469	Application Section 8	N/A	Vegetation	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Terrestrial Ecosystem Mapping (TEM) is relied upon for identifying the location of Ecological Communities of Concern. The TEM may be inaccurate and given the survey intensity level may not be precise enough to locate rare communities. No method of ground-truthing and marking the actual location of Ecological Communities of Concern is provided in the Application. It is critical that the location of the Project footprint be field checked to verify the location and nature of Ecological Communities of Concern to allow for mitigation to take place as required. YFN requests that a method for verifying and marking the location of Ecological Communities of Concern be included in the Application and that the location of these communities be verified using this method.</p> <p>While baseline field work identified locations of rare plant species, the survey did not cover the entire Project footprint area. However, rare plant surveys should be conducted during pre-construction and construction phases within all areas of the proposed Project footprint having the potential to support rare plants.</p> <p>How invasive plants are to be located for treatment beyond locations identified through baseline field work is not detailed. YFNs request that a method for mapping and marking invasive plant infestations be described in the Application and that the location of invasive plants within the proposed Project footprint be identified and marked.</p>	<p>Section 2.4 of the Vegetation Technical Data Report identifies the limitations of the study pertaining to ecological communities at risk. Notwithstanding the identified limitations, the standards and methods used for Terrestrial Ecosystem Mapping (TEM) for the Project, including scale and survey intensity level, were identified in section 3.4.1 of the AIR. These standards, guidelines, and methods were reviewed by working group members and the BCEAO and have been adhered to. The method used for ground truthing ecological communities of concern is described in Section 2.3 of the Vegetation Technical Data report. Field Survey effort for TEM plots targeted ecological communities of concern within the Proposed route. Additional fieldwork is planned to assess the location of particular ecological communities of concern within the project footprint. Section 7.1 of the Environmental Management Plan contains resource-specific protection measures pertaining to ecological communities of concern and Appendix C.9 of the Environmental Management Plan is an Ecological Community of Concern and Species of Concern Contingency Plan, both sections of the Environmental Management Plan identify methods for marking communities at risk and mitigating potential effects to these communities.</p> <p>Appendix C.9 of the Environmental Management Plan is a Plant Species of Concern Contingency Plan that includes provisions for mitigating potential effects to plant species at risk that might not have been detected during baseline surveys.</p> <p>Invasive plants will be located and marked during construction activities, and dealt with according to the Provincial Regulation. Coastal GasLink will develop an Invasive Plant Management Plan in advance of construction, in consultation with the appropriate regulatory authorities.</p>	<p>While it is suggested that additional field work is planned to assess the location of ecological communities of concern, how this will be done has not been described. Will fieldwork be designed to verify the already mapped locations or to discover previously unmapped occurrences (i.e., targeted, more detailed assessment / surveys for rare plant or ecological communities within footprint during pre-construction phase)? Given the precision of the mapping (1:20K), and that TEM polygons are typically too coarse for reliable identification of rare plant habitat and ecological communities of concern, it is likely that numerous occurrences may have been missed. The EMP contingency plan details how occurrences will be treated if found but there is no indication of what measures will be taken to locate/assess these prior to construction.</p>	<p>Coastal GasLink has committed to undertaking pre-construction surveys to identify locations with rare plants or ecological communities. This information will continue to inform construction planning and detailed engineering design of the project, and Coastal GasLink will continue to apply the mitigation hierarchy in an effort to avoid areas with rare plants or ecological communities where practical, and otherwise mitigate and reclaim on site if disturbance cannot be avoided.</p>
470	Application Section 8.5.1	Page 8-29, Lines 21 and 22	Vegetation	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Lines 21 and 22 on Page 8-29 state: "The proposed route was selected to reduce clearing of mature vegetation wherever practical". However, the Application does not indicate specifically how this as accomplished. As noted in the Application, maximizing the retention of mature trees in areas affected by mountain pine beetles is extremely important. The Application does not indicate that effort was expended to route the pipeline to avoid remnant areas of mature forest within areas where mountain pine beetle impacts had been significant. YFN requests that an analysis be performed to identify areas where the retention of late seral forest is critical, such as areas that have been heavily affected by mountain pine beetle or areas of high levels of timber harvest where little late seral forest remains.</p>	<p>Coastal GasLink considered a number of factors when evaluating pipeline routing options. The Application (Section 1.4) includes a description of the route evaluation criteria, which among various factors considered, includes staying adjacent or in existing disturbances, and avoiding environmentally sensitive areas.</p> <p>Coastal GasLink acknowledges the ecological importance of mature and old forest. Locations where old forest could not be avoided are described on Page 8-16 of the Application. Potential adverse effects on old forest and other ecological communities of concern are described and mitigation provided in Section 8 of the Application.</p>		

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471	Application Section 8.5.1	Page 8-29, Lines 30, 31 and 32.	Vegetation	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Lines 30, 31 and 32 on Page 8-29 state: "A small portion of the Project Footprint will be retained as an early seral, low-growing plant community". This implies a large portion of the Project footprint will be allowed to reach later seral status, with an attendant increase in diversity of habitats. It is unclear how this will occur as the Application states that the Project footprint will be subject to periodic clearing. YFN requests that the Application clarify how vegetation and seral stages will be managed within the Project footprint.	Section 1 of the Application outlines activities with the various phases of the proposed Project. Vegetation management activities are described in Table 1-14 of the Application. Coastal GasLink will implement TransCanada's existing vegetation management procedures during operations to effectively control the growth of vegetation on the permanent ROW, using the most environmentally appropriate and economical vegetation management methods. The only areas where removal of forest is required for the life of the facility are the compressor and meter station sites and the approximately 10m wide area above the operating pipeline. Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will include allowing for natural reforestation. Vegetation control (including weeds) will be conducted in accordance with requirements from the appropriate regulatory authority on an as-needed basis and will comply with the British Columbia Weed Control Act.		
472	Application Section 8.5.1	Page 8-31, Lines 34-37	Vegetation	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Page 8-31, lines 34-37 state that management actions will include "pre-disturbance control of existing invasive plant infestations, reducing soil disturbance, ensuring Project vehicles and equipment are free of weed seeds and plant fragments, seeding bare soils, controlling the spread of new invasive plants and maintaining healthy plant communities". The Application should include clear procedures as to how this will be accomplished.	Section 7 of the Environmental Management Plan addresses the plans to manage the potential for the introduction or spread of invasive plants. In addition, Coastal GasLink will prepare an Invasive Plant Management Plan before construction, in consultation with the appropriate regulatory authorities.		
473	Application Section 9.4.3	Wetland Area Estimation	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The Wetlands Technical Data Report (TDR), Section 1.3.4 - Regional Study Area states: "The wetlands regional study area (RSA) was established to contextualize potential effects of the proposed Project on wetlands at a landscape scale". The Local Study Area (LSA) was mapped using TEM or aerial photo interpretation, but the RSA was not similarly mapped. However, the relative percentage of wetlands within the RSA and LSA was assumed to be the same. This assumption may not be accurate and needs to be verified within the Application. The RSA cannot fulfill its contextual purpose if its characteristics are not accurately described in a manner that allows reliable comparison to the LSA. YFN requests that the RSA be assessed using the same aerial photography methodology conducted for the LSA, and that the results of these assessments be included in the Application.	Coastal GasLink's assessment of potential adverse effects on wetlands was completed in accordance to the requirements in the AIR, issued by EAO in May 2013. The Wetlands LSA was mapped at a finer resolution to reflect that effects on wetlands are most likely to occur within 1 km of the construction footprint. The mapping of the Wetlands RSA uses an accepted BC government database, the BC Freshwater Atlas wetlands layer, which is considered an authoritative source for mapping freshwater resources in BC (ILMB 2010). Using provincial databases is an accepted methodology for assessing effects on a regional scale. The BC Freshwater Atlas is the best known data source currently available for mapping wetlands on a watershed scale; the Wetland RSA covers more than 6,000,000 hectares. Integrated Land Management Bureau. 2010. Freshwater Water Atlas User Guide. GeoBC Integrated Land Management Bureau. Victoria, BC. iv + 70 pp.	The Freshwater Atlas data concentrates on open water features and hence underestimates the occurrence of bogs and fens and other vegetated wetlands. This underestimate is significant (over 200% more wetlands identified in LSA by more accurate photo interpretation method). The area of wetlands in the RSA is estimated by assuming that the same proportion of wetlands will be found in the RSA as in the LSA and then extrapolating from the more accurate TEM and aerial photo interpreted areas for the LSA. This assumption has not been tested. Are there good reasons why the RSA should have the same proportion as the LSA-similar topography?, similar BGC units. The assumption should be examined.	Coastal GasLink acknowledges that projection of the percentage of wetland area in the Wetland LSA to the RSA may not reflect the exact distribution of wetlands in the Wetland RSA (due to topographical considerations such as mountainous terrain and other factors). Recognizing that the BC Freshwater Atlas (FWA) wetlands layer underestimates wetland area, the projection of wetland area in the Wetland RSA is provided as a conservative estimate of the potential wetland area; an accurate estimate is expected to be between a projection and the BC FWA. The requirement for a spatial data set for the cumulative effects assessment necessitates use of the BC FWA wetlands layer for spatial analysis since it is currently the best available dataset for mapping in a regional context.
474	Application Section 9.5.1	Loss of Wetland Hydrologic, Habitat and Biogeochemical Function	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Compressor and meter stations construction have a more profound effect on wetlands than upland areas. YFN requests that the Application indicate that compressor and meter stations will be located to avoid disturbance to wetlands.	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in the wetland. Further evaluation criteria information used in the selection of potential compressor and meter station sites is provided in Section 1.4.14 of the Application.		
475	Application Section 9.5.1	Page 9-37, Lines 8-10 (Ancillary Sites)	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Lines 8-10 on Page 9-37 state: "Because roads and pipelines are linear features, the potential adverse effects associated with access roads are expected to be similar to the effects described for pipelines". However, as roads require continued severe compaction and do not allow for re-vegetation, roads clearly have greater negative effects on vegetation and wildlife than do pipelines. YFN requests that road	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in wetlands. Section 1.4.15 of the Application outlines access road evaluation criteria.	Section 1.4.15 does not specifically mention that wetlands are to be avoided. This should be done.	Coastal GasLink will continue to implement the mitigation hierarchy in an interactive fashion as construction planning and detailed engineering design proceed. Where practical, Coastal GasLink will avoid wetlands.

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								construction be kept to a minimum within wetlands.			In cases where wetlands cannot be avoided, appropriate mitigation and reclamation will be implemented to meet applicable regulatory requirements.
476	Application Section 9.5.1	Ancillary Sites (Table 9-8)	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The mitigation measures provided in Table 9-8 are inadequate and not described in sufficient detail. At a minimum, mitigation should be specified for each major wetland type (bogs, fens, marshes and swamps). Section 9.5.1 suggests using woody mulch in peat bogs and recreating micro-topography to maintain hydrological function and micro-habitats. These mitigation measures should be included in Table 9-8.	The mitigation measures identified in Table 9-8 are applied to all wetland classes. All wetland mitigation identified in the Environmental Management Plan ([EMP] Appendix 3-A) will be applied to all wetlands encountered during construction of the proposed Project. For example, key mitigation such as re-establishing preconstruction contours to restore natural flow patterns will be implemented in all wetlands to ensure that hydrological function is maintained. Mitigation identified in the EMP (Appendix 3-A) include measures to reduce erosion by spreading mulch, which will be implemented in wetlands, where applicable; applying mulch is a practice recommended in Fisheries and Oceans Canada documents for riparian areas to reduce erosion and promote vegetation re-establishment (EMP; Appendix 3-A). The mitigation in Table 9-8 specify re-establishment of pre-construction contours to restore hydrological function and proper soil handling help to promote the re-establishment of vegetation communities and microtopography associated with those vegetation communities.	There is potential for mis-interpretation of scale for re-establishing pre-construction contours. In particular, bogs can exhibit hummocky terrain at scales of 1m in height which can provide critical habitat. The Application should clearly indicate whether or not that this scale of micro-topography will be re-established.	The mitigation in Table 9-8 of the Application specifies re-establishment of preconstruction contours to a stable conditions to restore hydrological function, protection of vegetation through reduced grubbing and grading in wetland areas, protection of the ground surface in wetlands and appropriate soil handling. Implementation of this mitigation is expected to promote the reestablishment of vegetation communities. Microtopography is expected to recover with the reestablishment of wetland vegetation communities. Mitigation specified in the EMP includes the following to encourage natural topography on the reclaimed construction ROW:• Prevent ground disturbance by using a protective layer such as frost packing, snow, ice or matting, or biodegradable geotextile and clay ramps between the wetland root bed and seed bed and construction equipment. When wetlands are being crossed, limit the use of extra temporary workspace, limit grubbing to the ditch line, build a log corduroy or implement other measures alongside the wetlands to reduce potential adverse effects from heavy machinery traffic, keep soil salvage of peat and mineral soils separate in shallow peat wetlands, and replace mineral soils prior to replacing peat and wetland substrate. • Replace trench material as soon as practical, and re-establish preconstruction contours within the wetland boundary to maintain cross ROW drainage. • Use natural recovery in wetland areas unless invasive species or noxious/restricted weeds are a concern, unless otherwise specified by the appropriate regulatory authority• Undertake all grading with the understanding that original contours and drainage patterns will be re-established during cleanup unless otherwise authorized by the Environmental Inspector(s) or designate. Where grading is not required, cut, mow, or walk down shrubs and small diameter deciduous trees at ground level to facilitate rapid regeneration.

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477	Application Section 9.5.2	Page 9-46, Line 18	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Line 18 on Page 9-46 indicates the percentage of wetlands within the RSA likely to be disturbed. As previously mentioned, wetlands within the RSA were not assessed using a reliable or comparable methodology, such as TEM or aerial photo interpretation. Since wetlands within the RSA were assessed using methodologies that do not provide an accurate accounting of wetlands present, such as Broad Ecosystem Inventory (BEI) and the BC Freshwater Atlas, only a qualitative conclusion, rather than a quantitative one, may be drawn regarding relative amounts of wetlands within the Project footprint and RSA.	The mapping of the Wetlands RSA uses an accepted BC government database, the BC Freshwater Atlas wetlands layer, which is considered an authoritative source for mapping freshwater resources in BC (ILMB 2010). Using provincial databases is an accepted methodology for assessing effects on a regional scale. The percentage of wetlands likely to be disturbed in the RSA is provided to contextualize the area disturbed on a landscape scale. The percentage of wetlands likely to be disturbed in the RSA is a quantitative estimate that informs qualitative conclusions.		
478	Application Section 9.5.3	Potential Residual Adverse Effects – Determination of Significance and Confidence	Wetlands	21-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		While residual impacts may be insignificant at the overall project scale, there may be numerous instances of significant adverse impacts at a local scale, for example, when trees within a wetland in a landscape already heavily impacted by harvesting are removed, eliminating some of the last critical habitat for a particular species of wildlife within an area. YFN requests that previously severely impacted landscapes in the vicinity of the LSA be identified, and that the Application indicate how these areas will be avoided by the pipeline or describe special mitigation measures that will be applied within these areas.	Coastal GasLink applied the methods for assessing potential adverse effects of the proposed project outlined in the AIR, issued by EAO in May 2013. Information on the potential adverse effects of the proposed Project on wildlife and wildlife habitat is provided in Section 10 of the Application. Existing disturbances were spatially accounted for in the habitat models (as described in the Wildlife and Wildlife Habitat Technical Data Report in Appendix 2-L of the Application). Section 10.6 of the Application identifies mitigation to reduce the potential adverse effects of the proposed Project on wildlife habitat.		
479	Application Section 9.5.5	Page 9-57, Line 4-6	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Lines 4-6 of Page 9-57 state: "Assessment of more potential local adverse effects in the Wetlands LSA also informs the cumulative effects assessment, as spatial and temporal crowding can occur at a local scale". The Application, however, does not identify where local adverse effects are significant, and unless the locations of these sites are provided, adverse effects on these sites cannot be mitigated. YFN requests that the Application identify the location of wetlands – particularly bogs and treed wetlands – that may be locally significant and impacted by the Project, and identify the mitigation measures that will be applied within these areas.	The specific locations of treed bogs and swamps that are crossed by the proposed route are identified in the wetland line of the Resource Information Section on the Environmental Work Sheets (Appendix 3 C). Wetland mitigation will be applied in all wetlands affected by the proposed Project. Though tree growth will be restricted along an approximately 10 m wide area over the operating pipeline, all wetland types provide habitat function in different ways, so there is not expected to be an overall loss of habitat function with a change from a treed to shrub or graminoid-dominated wetlands.		
480	Application Section 9.5.6	Page 9-58, Lines 6-8	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Page 9-58 lines 6-8 state "As the BC FWA underestimates wetland area, the wetland delineation and BC FWA were merged for the purpose of calculating potential cumulative adverse effects in the RSA". The meaning of this statement is unclear. YFN requests that the method for quantifying wetlands in the RSA be clearly detailed within the Application.	The Wetlands RSA is defined in Table 9.2 of the Application, and also in Section 4.5.1 of the AIR, issued by EAO in May 2013. The detailed wetland delineation undertaken within the Wetland LSA was combined with the BC Freshwater Atlas wetlands layer to create a dataset on the watershed scale appropriate for calculating cumulative effects. Cumulative effects assessment that identifies where existing and future disturbance affects wetlands requires a spatial dataset that has coverage on a regional level, such as the BC Freshwater Atlas. The Wetland LSA is embedded within the Wetlands RSA; consequently, the higher resolution data in the LSA forms a part of the dataset used to calculate cumulative effects in the Wetland RSA.		
481	Application Section 9.5.7	Table 9-15	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Table 9-15 addresses only regional effects. However, there may be significant potential effects at a local level that require analysis. YFN requests that local areas that could be significantly impacted by the Project be mapped, and that the Application include the location of these areas and the mitigation measures that will be applied to reduce impacts.	The locations of wetlands crossed by the proposed route, have been mapped and are identified in the Environmental Work Sheets (Appendix 3-C). Wetland mitigation identified in the Environmental Management Plan ([EMP] Appendix 3-A) will be applied to all wetlands encountered during construction of the proposed Project.	Where high degrees of existing, local disturbance of wetlands exist, YFN recommends that the pipeline avoid wetlands, rather than passing through them and triggering the requirement to implement mitigation measures.	Coastal GasLink will continue to implement the mitigation hierarchy in an interactive fashion as construction planning and detailed engineering design proceed. Where practical, Coastal GasLink will avoid wetlands. In cases where wetlands cannot be avoided, appropriate mitigation and reclamation will be implemented to

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											meet applicable regulatory requirements.
482	Application Appendix 2K	Project Setting	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The Wetlands TDR outlines three means of dividing the study area into distinct areas with respect to wetlands: wetland regions of Canada (project crosses 3); ecoprovinces (4 crossed) and BEC (6 zones crossed). How these biophysical subdivisions are used for analyzing the data should be explained within the TDR. Wetland statistics and the significance of adverse effects for all described study area subdivisions should be provided, as wetlands will have differing importance within each subdivision.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The Wetlands TDR described wetlands according to ecoprovinces and BEC zones in order to give the reader a better understanding of what wetland types are common across these different regions. Section 3.2 (Wetlands in the LSA) describes the wetlands in each of the four ecoprovinces, and includes information on the BEC zones that the wetlands fall into and if they are red- or blue-listed.		
483	Application Appendix 2K	Wetland Mapping	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		This section does not mention the wetland aerial photo imagery that was mapped at a 1:6,000 scale that was referenced in Section 9.4.3 of the Application. YFN requests that the methods and results of the aerial photo interpretation be included in the Wetlands TDR.	The wetland aerial imagery interpretation at a 1:6,000 scale was undertaken as part of the Effects Assessment, and the methodology and results are included in Section 9.4.3 of the Application.		
484	Application Appendix 2K	Limitations of Study	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>This section does not mention the large discrepancy between BEI and BC Watershed Atlas data and TEM and aerial photo interpretation data.</p> <p>BEI and BC Watershed Atlas data are unreliable for accurate wetland assessment at scales that the mapping is presented. The wetland area within the RSA was estimated from TEM and aerial photo data that were collected for the LSA. A wetland assessment of the RSA was not conducted using appropriate methods, and this should be stated in the Wetlands TDR and Assessment report. BEI and BC Watershed Atlas data significantly underestimated the wetland area within the RSA by a magnitude of roughly 2-5 times. Why report on this data if they are so inaccurate? This issue must be discussed.</p> <p>Fifteen to 25% of wetlands were visited according to the TEM field sampling intensity level adopted. YFN requests an explanation in the TDR as to how potential red-listed communities or plant species can be identified if 75-85% of wetlands present are not visited. Mitigation cannot be effectively prescribed if the bulk of the occurrences of rare communities are not verified. YFN requests that a method for ground truthing the presence of potential red-listed communities and species and other communities and species of concern be described in the Wetlands TDR, that proper ground truthing be undertaken, and that the results of this work be presented in the TDR and Application.</p>	<p>The wetland aerial imagery interpretation at a 1:6,000 scale was undertaken as part of the Effects Assessment, and the methodology and results are included in Section 9.4.3 of the Application. The mapping of the Wetlands RSA uses an accepted BC government database, the BC Freshwater Atlas wetlands layer, which is considered an authoritative source for mapping freshwater resources in BC (ILMB 2010). Using provincial databases is an accepted methodology for assessing effects on a regional scale. The percentage of wetlands likely to be disturbed in the RSA is provided to contextualize the area disturbed on a landscape scale. The percentage of wetlands likely to be disturbed in the RSA is a quantitative estimate that informs qualitative conclusions.</p> <p>Differences in methodology of TEM versus aerial imagery interpretation does not change the estimation of the effects identified in Section 9 of the Application. Based on a review of literature and experience on previous projects, the effects of pipeline construction are considered predictable.</p> <p>Section 2.6 (Limitations of Study) discusses the use and limitations of TEM for the Coastal GasLink project. As it was not feasible to map the entire Wetlands RSA, surrogates in the form of BEI and FWA data were used to give an approximate area of the wetlands within the larger region.</p> <p>Section 2.6 of the Wetlands Technical Data Report fully identifies the limitations of the study pertaining to ecological communities at risk. Notwithstanding the identified limitations, the standards and methods used for Terrestrial Ecosystem Mapping (TEM) for the Project, including scale and survey intensity level, were identified in section 3.4.1 of the AIR.</p> <p>The methods used for ground truthing ecological communities of concern and detecting plant species at risk are described in Section 2.3 of the Vegetation Technical</p>		

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									Data report. Field Survey effort for TEM plots targeted ecological communities of concern within the proposed route. Section 7.1 of the Environmental Management Plan contains resource-specific protection measures pertaining to ecological communities of concern and Appendix C.9 of the Environmental Management Plan is an Ecological Community of Concern and Species of Concern Contingency Plan, both sections of the Environmental Management Plan identify methods for marking communities at risk and mitigating potential effects to these communities.		
485	Application Appendix 2K	Wetlands in the LSA	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		While results from TEM are provided, the Wetlands TDR does not include results derived from aerial photo interpretation at the 1:6,000 scale. The TDR should either report these results in the TDR and Application or provide an explanation as to why they are not included. Table 3-6 shows that there are significantly less wetlands within the Sub-Boreal Interior ecoprovince in the LSA than in other ecoprovinces within the LSA (6% vs 12-17%). Does this imply that, within the LSA, wetlands within the Sub-Boreal Interior are more important to retain than wetlands in other ecoprovinces, because they are a more uncommon element? This should be discussed.	The wetland aerial imagery interpretation at a 1:6,000 scale was undertaken as part of the Effects Assessment, and the methodology and results are included in Section 9.4.3 of the Application. TEM is a standard method for vegetation mapping in BC, however, by allowing complex polygons, TEM does not necessarily identify the specific location of small wetlands (e.g. wetlands less than 2 ha) within a larger upland polygon, as a small wetland may only be indicated a percentage of a larger polygon. Identifying the specific locations of small wetlands in the Wetlands LSA enhances the data quality used for the wetlands effects assessment. Table 3-6 of the Wetlands TDR identifies that the percentage of wetland in the SBI Ecoprovince is 6%. MacKenzie and Shaw (2000) indicate that wetlands are relatively common in the "Sub-boreal/Boreal Interior", so it is not expected that 6% wetland area identified in the Wetland LSA is an indication that wetlands are especially uncommon in the SBI Ecoprovince. The Wetlands LSA in the SBI Ecoprovince crosses mountainous areas with relatively few wetlands, which will lower the percentage of wetlands identified in the Wetlands LSA. Reference: MacKenzie, W. and J. Shaw. 2000. Wetland classification and habitats at risk in British Columbia. In: Proceedings of a Conference on the Biology and Management of Species at Risk: Vol. 2. 15-19 February, 1999. Kamloops, BC. BC Ministry of Environment, Lands and Parks and University College of the Cariboo. Victoria, BC and Kamloops, BC.		

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486	Application Appendix 2K	Wetlands of the Central Interior	Wetlands	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Table 3-12 lists two wetland types that, as stated above, are found in greater proportion in the Project footprint than in the LSA – the SBSmc2/Ws02 and SBSmc2/Ws07 wetland types. Opportunities to re-route the pipeline around these wetlands should be considered.</p> <p>YFN requests that the pipeline be re-routed to avoid wetlands at the following locations:</p> <ul style="list-style-type: none"> • Map sheet 56 KP 350.5-351.7 • Map sheet 68 KP 426.5-427.7 • Map sheet 71 KP 447.2-448 • Map sheet 72 KP 453.2-453.8 • Map sheet 73 KP 455-455.8 • Map sheet 75 KP 471.7-472.2 	<p>The reviewer cross-references to wetlands that were identified using TEM data. Because TEM delineates polygons that are a complex of habitats, it is inherently limited in its ability to delineate the boundaries of wetlands. Because of this limitation, Coastal GasLink also completed wetland aerial imagery interpretation.</p> <p>During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical. Further evaluation criteria information used for pipeline route selection is provided in Section 1.4.4 of the Application.</p> <p>Avoidance of construction footprint in all of the wetlands listed is not practical, due to terrain features, overlapping footprint with other projects, and constructability challenges. Where a wetland cannot be avoided, Coastal GasLink seeks to reduce the footprint in the wetland through detailed construction planning and engineering design by limiting extra temporary workspace and minimizing construction footprint.</p>		
488	Application Appendix 2K	Wildlife and Wildlife Habitat	Wildlife Tree Patches	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Section 10.2.2 states that several Wildlife Tree Patches (WTPs) designated for wildlife, biodiversity and other values will be intersected by the Project. The Application should identify where WTPs will be removed or negatively impacted and identify appropriate mitigation measures (e.g., replacement, timing restrictions and avoidance). The location, size, and values associated with replacement WTPs should be included in the Application. Otherwise, potential impacts to WTPs and the acceptability of mitigation measures cannot be assessed.</p>	<p>Coastal GasLink acknowledges that Wildlife Tree Retention Areas are important to the maintenance of stand-level biodiversity targets, associated with forestry activities. In its route selection, Coastal GasLink seeks to avoid these areas where practical. Where avoidance is not practical, Coastal GasLink will adhere to the requirements of the Oil and Gas Activities Act and regulations, and follow direction in the Oil and Gas Commission's Environmental Protection and Management Guide.</p>	<p>YFN requests that specific wording addressing Section 6(c) of the EMPR be incorporated into the Application. Wildlife Tree Retention Areas that will be impacted by the proposed Project can and should be assessed within the Application in order to conform with the mitigation pathway and address adverse impacts with as much accuracy as possible.</p>	<p>Coastal GasLink acknowledges that Wildlife Tree Retention Areas are important to the maintenance of stand-level biodiversity targets, associated with forestry activities. In its route selection, Coastal GasLink seeks to avoid these areas where practical. Where avoidance is not practical, Coastal GasLink will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and the Environmental Protection and Management Regulation and follow direction in the Oil and Gas Commission's Environmental Protection and Management Guide.</p>

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489	Application Appendix 2K	Wildlife and Wildlife Habitat Mitigation and Environmental Management Strategies	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 10.6 lists mitigation strategies to manage potential adverse effects of the Project. Most of the strategies that are crucial for mitigation are tempered with language designed to avoid committing to particular mitigation measures. For example, phrases like "at selected locations", "where practical", "as appropriate", "where warranted", "consider" and "recommend" are used. In order to be clear about where and when mitigation will be applied, these phrases should be replaced with text that will ensure that particular mitigation measures will be undertaken and necessary consultation with stakeholders, including YFN, will take place.	In order to ensure that mitigation is applied in and environmentally responsible and economically efficient manner, Coastal GasLink has designed a level of flexibility in its Environmental Management Plan. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties.	YFN acknowledges that some flexibility should be afforded to site-specific conditions. This approach places considerable reliance on the environmental inspector (EI) who, according to the EMP, is not required to have any professional accreditation. YFN requests that the Application indicate that the EI must belong to an appropriate professional body as part of the required qualifications. YFN also requests that defined timeframes be incorporated into the consultation and notification activities of the Els responsibilities.	The Environmental Monitoring Program is a key component of the Coastal GasLink environmental compliance strategy and will be conducted by trained professionals (i.e., environmental inspectors and resource-specific specialists). The qualified environmental inspectors will monitor, advise and work with Coastal GasLink construction management, as necessary, throughout all phases of the proposed Project, to ensure continuous and consistent compliance with the environmental protection and socio-economic commitments and applicable regulatory requirements.
490	Application Appendix 2K	Wildlife and Wildlife Habitat Mitigation and Environmental Management Strategies	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Mitigation strategies include adherence to timing restrictions and least risk work windows for migratory nesting birds, bat hibernacula or breeding colonies, bald eagle nests, ungulate winter range, and elk. Clearly, construction will take place outside of least-risk work windows, resulting in adverse effects to wildlife. The Application should acknowledge this conflict and estimate the actual effects of construction.	Coastal GasLink will continue to reference restricted activity periods as construction planning and detailed engineering design advances. If site-specific situations arise where Project activities may be a concern with respect to restricted activity periods, Coastal GasLink will work with the appropriate regulatory authorities to develop a practical approach.	YFN requests a draft construction schedule be included within the EMP in order to screen for potential conflicts when work will occur within sensitive wildlife timing windows. If any conflicts occur, these should be appropriately addressed within the residual effects determination.	Coastal GasLink will meet all regulatory requirements, including those associated with the <i>Migratory Birds Convention Act</i> , and the <i>BC Wildlife Act</i> identifying timing windows. Coastal GasLink will implement the mitigation outlined in the Application. Coastal GasLink completed a comprehensive application in accordance with the AIR issued by the EAO in March 2013, and residual adverse effects have been characterized appropriately. The preliminary construction schedule provided in Section 1.2.5 of the Application provided a planning basis for the EMP presented in the Application. Coastal GasLink will continue to engage with the appropriate regulatory agencies in the continued development of the Environmental Management Plan in accordance with the advancing refinement of the construction schedule.
491	Application Appendix 2K	Wildlife and Wildlife Habitat Mitigation and Environmental Management Strategies	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 10.6 lists mitigation strategies to manage potential adverse effects of the Project. Many of the mitigation strategies include timing restrictions include least risk windows for migratory nesting birds, for bat hibernacula or breeding colonies, and for bald eagle nests. Timing restriction commitments are also made for construction in ungulate winter range outside of winter conditions. Together with aquatic timing windows, there would be areas with no construction period. For example, around the Stuart River there will be timing windows for: <ul style="list-style-type: none"> • breeding birds (no construction from May 1 to July 31); • bald eagle known nest site (construction window is September 1 to December 31); • bats - have not been surveyed even though the river crossing may remove up to 108 hectares of riparian forest. The "no disturbance" periods for hibernacula and maternity roosts are October 1 to April 30 and May 1 to August 31, respectively; and, • fish – the least-risk period is July 15 to August 15. 	Coastal GasLink will continue to reference restricted activity periods as construction planning and detailed engineering design advances. If site-specific situations arise where Project activities may be a concern with respect to restricted activity periods, Coastal GasLink will work with the appropriate regulatory authorities to develop a practical approach.	There is an apparent conflict with work timing windows around the Stuart River area. As this has already been identified, mitigation measures can be prescribed specifically for this conflict and YFN requests that mitigative prescriptions be incorporated into the Application.	Coastal GasLink maintains its original response.
492	Application Appendix 2K	Wildlife and Wildlife Habitat Mitigation and Environmental Management Strategies	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		YFN recommends that work timing restrictions also be implemented for deer, elk and moose winter range located within the Stuart River corridor. YFN further requests that specific commitments be made by the Proponent regarding the timing of construction around the wetlands identified in the Wildlife TDR Section 4.4 - Field Surveys, Subsection 4.4.2 - Spring Migration and Breeding Waterfowl Surveys, and around bald eagle and osprey nests identified in the Subsection 4.4.3 - Bald Eagle, Osprey, Trumpeter Swan and Great Blue Heron surveys. These commitments should be included in the Application.	Coastal GasLink will continue to reference restricted activity periods as construction planning and detailed engineering design advances. If site-specific situations arise where Project activities may be a concern with respect to restricted activity periods, Coastal GasLink will work with the appropriate regulatory authorities to develop a practical approach.	YFN requests that work timing windows be incorporated into a construction schedule within the EMP in order to avoid potential adverse effects on identified sensitive features.	Coastal GasLink will meet all regulatory requirements, including those associated with the <i>Migratory Birds Convention Act</i> , and the <i>BC Wildlife Act</i> identifying timing windows. Coastal GasLink will implement the mitigation outlined in the Application. Coastal GasLink completed a comprehensive application in accordance with the AIR issued by the EAO in March 2013, and residual adverse effects have been characterized appropriately. The

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											preliminary construction schedule provided in Section 1.2.5 of the Application provided a planning basis for the EMP presented in the Application. Coastal GasLink will continue to engage with the appropriate regulatory agencies in the continued development of the Environmental Management Plan in accordance with the advancing refinement of the construction schedule.
493	Application Appendix 2K	page 10-137	Wildlife	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Section 10.12 discusses the determination of significance and confidence regarding potential residual adverse effects on wildlife key indicators (KIs). Since significance thresholds were not available for most indicators (only two are used within YFN's scope of concern, both in the cumulative effects assessment), qualitative significance thresholds were adopted. On page 10-137 it is stated that potential residual adverse effects were not considered significant if they were reversible. The Project was considered reversible over the 'long-term'; therefore, it has been concluded that there will be no significant effect on wildlife. Long-term in the case of this project could be well over one hundred years, when regenerating forests would reach maturity after operations are complete. In some locations within YFN's traditional area, Douglas fir trees will be removed that will likely never be replaced. This project should therefore not automatically be considered reversible with respect to vegetation or wildlife KIs.</p>	<p>The referenced section of the application states: "Potential residual adverse effects are considered not significant when they: • do not exceed accepted biological thresholds or standards • are not predicted to affect the indicator population to a degree such that stated management and conservation objectives might not be attainable • are reversible When a long-term or irreversible potential residual adverse effect with a magnitude that is predicted to exceed an accepted biological threshold or standard, or is predicted to affect the indicator population such that stated management or conservation objectives might not be attainable, it is considered significant."</p> <p>As outlined in Section 3 of the Application, significance determination is not made based on only one of the assessment criteria used to characterize the residual adverse effect. Consideration of all of the assessment criteria presented in Table 3-5 of the Application, including reversibility, characterizes the residual adverse effect and leads to the conclusion about significance.</p>	<p>YFN recognizes that level of significance determination is based on a number of variables; however, the rationale for non-significant determination where biological thresholds have low or moderate reliability, ecological context is high, and reversibility is long-term has not been provided in the Application. An accurate residual effects determination cannot be made when threshold information on which the determination is based is not reliable. YFN questions how magnitude can be accurately determined when there is a significant degree of uncertainty surrounding the extent of project impacts on sensitive features such as WTRAs. Typically, when there is low confidence in measurable parameters, an abundance of caution is applied, but in this case, it appears that the low to moderate confidence is acceptable despite high ecological context. This uncertainty should be addressed with additional studies that incorporate life history requirements within the project areas and zones of influence.</p>	<p>Coastal GasLink applied the effects assessment methodology outlined in the AIR issued by EAO in May 2013. In March 2014, EAO accepted the Application for review. Coastal GasLink has committed to undertaking pre-construction surveys to ensure updated information about numerous valued components. This information will continue to inform construction planning and detailed engineering design, and Coastal GasLink will continue to apply the mitigation hierarchy in an effort to avoid and otherwise mitigate, reclaim on site, or explore additional means of mitigation if disturbance cannot be avoided. Coastal GasLink acknowledges that Wildlife Tree Retention Areas are important to the maintenance of stand-level biodiversity targets, associated with forestry activities. During route selection and construction footprint planning, Coastal GasLink seeks to avoid these areas where practical. Where avoidance is not practical, Coastal GasLink will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and the Environmental Protection and Management Regulation and follow direction in the Oil and Gas Commission's Environmental Protection and Management Guide.</p>
494	Application Appendix 2K	page 10-137?	Wildlife	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Confidence levels associated with predicted impacts to wildlife KIs of concern to YFN were all rated as "high" except for bats (low), pond-dwelling amphibians (low) and western toad (low). However, confidence ratings associated with these KIs should be considered "low", due to inadequate field studies and lack of data necessary to predict impacts with greater certainty (see comments regarding remote cameras and bird surveys).</p>	<p>The high confidence rating for certain wildlife key indicators (KIs) reflects a strong understanding of cause-effect relationships and data pertinent to the proposed Project area in alignment with the methodology described in Section 3.7 of the Application. The low confidence rating for bats reflects a more limited understanding of cause-effect relationships (i.e., limited research and literature is available) and incomplete data relevant to the proposed Project area. The low confidence rating for pond-dwelling amphibians and western toad is primarily related to uncertainty regarding potential Project effects on hibernation habitat during winter construction.</p>	<p>YFN requests that further field studies for those species with "low" confidence ratings be conducted to allow for a more accurate assessment of the effects of the Project on these KIs.</p>	<p>See response to issue tracking #493</p>

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495	Application Appendix 2K	page 10-137?	Wildlife	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Residual adverse effects for all KIs of concern to YFN concern were considered "not significant" due to conclusions in the Application regarding mitigation and reversibility. Due to a lack of data and inaccurate conclusions regarding long-term reversibility, YFN considers this conclusion to be inaccurate for grizzly bear, moose, marten, fisher, bats, pond-dwelling amphibians, western toad, mature/old forest bird community, early seral forest bird community, wetland bird community, and northern goshawk. YFN agrees with the determinations for grassland/shrubland bird community, rusty blackbird and common nighthawk.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	While the Application has been found to meet the conditions of the AIR, the evaluation of significance of project effects on VCs has not been accepted by EAO. YFN requests that the proponent respond to the low and moderate confidence in biological thresholds of KIs by conducting further studies to develop better understandings of project effects on these wildlife species.	See response to issue tracking #493.
496	Application Appendix 2K	Page 10-149	Wildlife - Cumulative Adverse Effects Assessment	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The Application (Page 10-149) indicates that effects associated with mountain pine beetle (MPB) infestations (clearcuts, roads, etc.) were considered in the CEA; however, disturbances associated with the harvest of MPB-infested stands have not been included in Table 10-20, which quantifies existing and future areal disturbance in the Wildlife RSA. This Table should be revised to include these disturbances. Further, because the CEA covers the entire Project area, potential cumulative effects exclusive to YFNs traditional area have not been described. YFN requests that cumulative effects to wildlife within YFNs area be assessed, and suggests that Land and Resource Management Plan information could be used for this purpose.	Coastal GasLink included disturbances, such as clearings and road, associated with MPB infestation in its quantitative analysis of cumulative adverse effects. It is outside of the scope of the cumulative effects assessment to distinguish between cutblocks and roads generated from the salvage harvest of MPB-infested stands and those resulting from other forestry activities.		
497	Application Appendix 2K	N/A	Characterization of Incremental Cumulative Adverse Effects on Mammals	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The CEA for grizzly bear is based on "core" habitats of 10 km ² or more having no motorized access. Twenty-four core grizzly bear habitats will be intersected by the Project. The locations of these core habitats are not provided and should be included in the Application to enable potentially-affected stakeholders to provide meaningful review and comment.	Coastal GasLink has provided mapping of core grizzly bear habitat to the EAO.	Is this information accessible to YFN for review?	Coastal GasLink understands the EAO will make the information available to its Working Group members.
498	Application Appendix 2K	Page 10-179	Characterization of Incremental Cumulative Adverse Effects on Mammals	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		For grizzly bear, baseline conditions for open road density already exceed the threshold of 0.6 km/km ² . The project will further increase open road density and therefore mitigation is proposed. Page 10-179 states that the proponent will develop an appropriate mitigation plan in consultation with regulators to reduce potential cumulative adverse effects on grizzly bear resulting from the Project. The proposed mitigation plan should be included in the Application, perhaps as a management plan included within Appendix D of the Environmental Management Plan.	Coastal GasLink will develop an appropriate mitigation plan in consultation with the appropriate regulatory agencies to reduce potential cumulative adverse effects on grizzly bear resulting from the Project.	YFN requests that mitigative prescriptions for identified cumulative effects on grizzly bear be provided within the EMP, to allow for an evaluation of the adequacy of mitigation measures proposed. YFN understands that the appropriate plans will be written by CGL; however, YFN's request is for the provision of these prescriptions within the Application, to provide adequate time for review.	Coastal GasLink will develop a Grizzly Bear Monitoring and Mitigation Plan in consultation with the appropriate regulatory agencies. Coastal GasLink will also continue to implement the Aboriginal Consultation Plan. The Aboriginal Consultation Plan approved by the EAO outlines the phases of engagement including a commitment to continue engagement during construction and operations.
499	Application Appendix 2K	N/A	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The significance and confidence of potential residual adverse effects and residual cumulative adverse effects on wildlife and wildlife habitat is presented in Sections 10.12 and 10.17 of the Application, respectively. It was determined that for bats, pond-dwelling amphibians and western toad, impacts were not significant, with a low degree of confidence. YFN requests that, given the low level of confidence in the conclusion regarding potential impacts to these species, plans to increase confidence in the assessment, through further inventory and monitoring, should be presented in the Application. These plans could be included in Appendix D of the Environmental Management Plan.	Please refer to Section 10.12.3 regarding monitoring and follow-up programs to address uncertainty in the affects assessment conclusions and effectiveness of mitigation. Monitoring programs will be developed in consultation with the appropriate regulatory authorities during the permitting phase of the Project. Uncertainty will be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.	Monitoring is very important; however, it is important to know what you are monitoring and this should be based on additional surveying efforts to gain higher confidence in the accuracy of the inventory, and cause-effect relationships. Increasing the level of confidence will result in the acquisition of more accurate information. This should result in a reduction in reactionary actions and an increase in the application of avoidance mitigation measures.	Coastal GasLink maintains its original response.

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500	Application Appendix 2L	Physical Setting	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Table 2.1 is out of date and will be more outdated as time progresses. For example, the California gull and Caspian tern are blue-listed by the BC Data Conservation Centre and could potentially occur in the Project area, but this is not indicated in the Table.</p> <p>The Application should indicate how it will be updated to reflect current information, and the extent to which additional inventory, mitigation, and monitoring may be required to ensure that the Application achieves this goal. It is particularly important that the Application be updated as required until operations commence.</p>	<p>Table 2-1 is based upon best available information at the time of the assessment. California Gull and Caspian Tern were both considered for inclusion in the table. California Gull was identified as a coastal migrant and unlikely to interact with the Project, and in the interior it was considered very unlikely to occur. Similarly, Caspian Tern was also identified as very unlikely to interact or overlap with the Project.</p>	<p>YFN requests that current information be incorporated into the adaptive management component of the EMP through incorporation of incidental observations of wildlife and comments on any changes in species conservation status.</p>	<p>Coastal GasLink confirms that the Environmental Management Plan will continue to be refined and updated to contain the most current information, and to reflect the outcome of this EAO Review Process, and to reflect ongoing discussion with appropriate regulatory authorities to ensure compliance with applicable regulatory requirements.</p>
501	Application Appendix 2L	Field Surveys	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Remote cameras were used to "...measure medium and large-size mammal use of at specific locations along the proposed route". No other field studies were undertaken to obtain mammal presence or movement data. Only 20 cameras were deployed over the entire pipeline route, with two being subsequently removed due to route changes. Within YFN's area of concern, it appears that only one camera was used to obtain field data. It is YFN's view that this approach was entirely inadequate to obtain information on mammal presence. There is general agreement among wildlife researchers that remote cameras should be used as a complimentary technique to other field studies, such as winter track counts, and should not be used as the primary or sole source of field information. Stationary cameras placed many kilometres apart fail to detect significant wildlife presence or movement that may occur out of camera range. Clearly, more field work is needed within YFN's area of concern to obtain seasonal information on grizzly bear, moose, marten, fisher and bats. Winter field work is especially required to validate the moose, marten and fisher models. This fieldwork should be undertaken and the results provided in the Application.</p>	<p>Remote cameras are being used with increasing frequency due to their ability to remain in selected locations and potentially collect photo data over lengthy timeframes (several months at a time). Coastal GasLink recognizes that this survey method is not exhaustive or necessarily specific to a given species, however the technique can reveal unique information that would otherwise be rarely obtained (e.g., wolverine photographs), and further supports individual species information known to the area as collected through desktop literature reviews and the development of individual species accounts and habitat models. Remote camera data is intended to aid in the baseline characterization of wildlife and wildlife habitat, and is used along with other information to prepare detailed species accounts for the Project. Because of the duration that remote cameras are in operation (i.e., 24 hours a day for as many days as they are deployed), remote camera data improves confidence in detection (i.e., reduce false negatives) and occupancy (i.e., how often the site is used) estimates; this can be much more challenging with conventional winter track surveys. Furthermore, the likelihood that a species occupies a site can be related to habitat types and surrounding features and differences in detection probability can be attributed to these factors.</p>	<p>YFN is concerned regarding the nature of information that can be obtained through remote cameras placed many kilometers apart. As previously noted, only two cameras were placed over the entirety of YFN territory. Information obtained from these cameras would be of extremely limited and possibly misleading value. YFN notes that wildlife winter track surveys were conducted for the proposed Westcoast Connector pipeline. Such track surveys are invaluable in detecting important patterns of wildlife presence and movement. If track surveys were deemed important for a similar proposed pipeline, why weren't they considered important for the Coastal GasLink project? YFN reiterates that more field work is needed within YFN's area of concern to obtain seasonal information on grizzly bear, moose, marten, fisher and bats. Winter field work is especially required to validate the moose, marten and fisher models. More fieldwork should be undertaken to obtain information on wildlife important to YFN, the results of which should be included in the Application.</p>	<p>Coastal GasLink based its assessment of project effects on a range of information, including from third-party data, peer-reviewed scientific and technical literature, government reports, project-specific field surveys, and the combined and accumulated professional experience and judgment of the assessment team from working on similar effects assessments. Coastal GasLink is confident that the information it has obtained, and the assessment it has completed, comprehensive, and meets the requirements of the AIR. Coastal GasLink will continue to conduct field surveys as outlined in the EMP and mitigation included in the Application, and looks forward to the participation of Yekooche First Nation as construction planning and detailed engineering design advances.</p>
502	Application Appendix 2L	Model Reliability and Confidence	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>The Application states: "The reliability of a habitat suitability model reflects the level of information available on a species' life requisites and species-habitat relationships". Habitat models for moose, grizzly bear, marten, fisher, western toad, pond-dwelling amphibians, northern goshawk, common nighthawk and rusty blackbird were considered by the Proponent to be of moderate reliability, indicating that source information for these models was from within BC, but not necessarily from ecosystems within the area of the proposed Project. Therefore, the Application should include a plan to increase the reliability of these models through additional field studies, especially in YFNs area of concern.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. A 'moderate' reliability qualifier indicates that ratings assumptions and adjustments within the model were based on information from similar ecosystems as those occurring in the wildlife and wildlife habitat LSA. The 'moderate' reliability qualifier can also include validation (RIC 1999), which for Coastal GasLink included the use of field data (see Section 4.5.2 of the Wildlife and Wildlife Habitat TDR). Field-based wildlife habitat assessments were completed in 2013 as part of the TEM field program. A total of 293 TEM survey plots were visited by wildlife biologists, and habitat suitability was assessed for several of the bird and mammal indicators. These plots were used to validate the bird and mammal office-derived models. Histograms of these comparisons are generally symmetrical, indicating that variability was not overly biased (i.e., models are unlikely to severely underestimate or</p>	<p>The comparative histograms presented represent in general a symmetrical distribution; however, the range of error is more important in indicating that there is high variability of suitability classification between the office determination and the field determination. This translates into lower confidence in the office application of habitat suitability modelling. YFN recommends that the habitat suitability models be adjusted to reflect the TEM survey plot information in order to more accurately represent suitable habitat within the project LSA and RSA.</p>	<p>Coastal GasLink confirms that field ratings were used to adjust its models. The models developed for the Project are used as an estimator of potential project effects on wildlife habitat. No model can perfectly explain all variation, and thus a certain amount of variation is expected. Coastal GasLink believes that the variation provided in the histograms is acceptable for planning purposes, and that the models provide a reasonable and conservative prediction of project effects on wildlife habitat. The associated reliability and confidence determinations provided with each model were taken into consideration when characterizing Project effects.</p>

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									overestimate the availability of habitat). The results of habitat models for this assessment are not expected to be exact characterizations of habitat effectiveness for every wildlife species potentially occurring in the Wildlife LSA, but are considered appropriate for assessing changes in habitat, evaluating the significance of these changes and identifying appropriate mitigation measures.		
503	Application Appendix 2L	Birds	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 3.6.6 of the Wildlife TDR describes the wildlife habitat suitability models for bird KIs. The wetland bird community model had ratings adjustments for elevation. YFN potential for wetland bird community habitat will be underestimated since 'high' elevation sites over 800m (which would cover most of YFNs area of concern) could only be rated moderate at best. YFN requests that this rating adjustment be removed for the YFN area of concern between the Stuart River and Highway 35.	Habitat suitability models were completed following provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. All habitat rated as 'high' or 'moderate' in the wetland songbird community model was considered 'effective habitat', and thus included in the assessment of potential effects of the Project. As stated in the Application (see Page 68, Section 3.6.4 of the Wildlife and Wildlife Habitat TDR), 'high' and 'moderate' suitability habitat represent the top 75th percentile of the range in suitability, and therefore is considered a conservative approach to in identifying important habitat for the wetland songbird community .		
504	Application Appendix 2L	Mammals	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 3.6.7 of the Wildlife TDR describes the wildlife habitat suitability models used for mammal KIs. Winter foraging and winter shelters were modeled for moose. Habitat ratings were inappropriately reduced for disturbance, e.g., habitat suitability within 200 m of high-intensity disturbance such as primary roads was reduced by two classes and habitat suitability within 100m of moderate-intensity disturbance such as tertiary roads was reduced decreased by one class. These ratings underestimate the value of moose habitat in these locations, e.g., any south-facing or flat terrain with a shrub layer is likely used by moose in winter within YFN territory. YFN requests that habitat ratings for moose be properly assigned and habitat values properly determined, and that this information be included in the Application.	Habitat suitability models were completed following provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. Provincial standards recommend considering anthropogenic effects (e.g., sensory disturbance from roads) that may alter habitat suitability by adjusting ratings based on information from scientific literature and professional expertise (RIC 1999). Literature suggests that sensory disturbance from traffic cause moose to avoid using habitat adjacent to roads (Yost and Wright 2001; Laurian et al. 2008). Suitable habitat adjacent to busy primary roads (i.e., high intensity disturbance features) was downgraded by two classes to a minimum of (5) 'very low', and habitat suitable adjacent to less-busy tertiary roads (moderate intensity disturbance features) was downgraded by one class to a minimum of (5) 'very low'. It is acknowledged that moose may make use of habitat adjacent to roads and that this is captured within the models. However, the models are adjusted to provide results in alignment with known moose habitat preferences (i.e., literature suggests that habitat next to roads is not high in suitability). References: Laurian, C., C. Dussault, J.-P. Ouellet, R.	If habitat has been downgraded because of proximity to disturbance, YFN would like to know whether this downgraded habitat has been included in the cumulative effects assessment, and how. YFN would also like to know how anecdotal information such as the local knowledge being provided by YFN is being incorporated or weighted into habitat suitability assessment as compared to moderately reliable modelling information. This information should be included in the Application.	Coastal GasLink confirms that to ensure a meaningful comparison and evaluation of change, sensory effects associated with disturbance features are included in base case, project case, and future case model scenarios as described in Section 3.6 of the Wildlife and Wildlife Habitat Technical Data Report. Available TEK was considered in the assessment of potential adverse effects on wildlife and wildlife habitat, as described in Section 10.5 of the Application.

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									<p>Courtois, M. Poulin and L. Breton. 2008. Behavior of moose relative to a road network. <i>The Journal of Wildlife Management</i> 72:1550-1557.</p> <p>Resource Inventory Committee (RIC). 1999. <i>Wildlife Habitat Rating Standards, Version 2</i>. Ministry of Environment, Lands and Parks. Victoria, BC. 98 pp.</p> <p>Yost, A.C. and R.G. Wright. 2001. Moose, caribou and grizzly bear distribution in relation to road traffic in Denali National Park, Alaska. <i>Arctic</i> 54:41-48.</p>		
505	Application Appendix 2L	Mammals	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>The high value of marten habitat within YFN territory was not stated in the Application, likely due to the incorporation of incorrect ratings in the habitat suitability model. The clarification of contiguous areas with ratings of 1, 2 or 3, and mapping, is required to fully assess the appropriateness of the marten habitat model as it applies within YFN territory.</p>	<p>Ratings for year round living habitat for marten were based on a comprehensive literature review of marten habitat preferences. This review identified the importance of coniferous leading mature and old growth forest stands with a complex structure for year round living (Thompson and Harestad 1994). These habitats were rated as high (1). Younger forest stands and stands that were deciduous dominated or mixed wood were rated lower (2-3). These lower ratings accounted for the potentially lower value of these stands for marten year round living owing to a lack of preferred forest structure characteristics. Model outputs were dependent on rating assumptions and the availability of spatial data.</p> <p>Reference: Thompson, I.D., and A.S. Harestad. 1994. Effects of logging on American martens, and Models for Habitat Management. Pages 355 - 367 in <i>Martens, Sables and Fishers: Biology and Conservation</i>. Cornell University Press, Ithaca, New York, USA</p>	<p>It appears that additional habitat conditions could be incorporated into the habitat suitability ratings for marten such as BGC zone, site series, stand association, and coarse woody debris.</p>	<p>Coastal GasLink maintains its original response.</p>
506	Application Appendix 2L	Amphibians	Wildlife and Wildlife Habitat	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Section 3.6.8 of the Wildlife TDR describes the wildlife habitat suitability models used for amphibian KIs. In the case of western toad, it is likely that the suitability of toad habitat as predicted by the habitat model differs substantially from the actual value of toad habitat located within YFN territory, as the model did not incorporate the value of roadside ditches as toad habitat. Roadside ditches may contribute more to local western toad populations than natural breeding sites, even if breeding success within ditches may vary substantially from year to year, depending on factors such as water level. YFN considers the reliability of the model for toads to be low. YFN requests that a procedure be developed to inventory roadside breeding sites along existing roads during summer construction, that mitigation measures be developed to protect western toads during construction, and that this information be included in the Application.</p>	<p>Coastal GasLink has committed to undertaking pre-construction surveys to identify wildlife habitat features which warrant site-specific mitigation (Table 10-6 of the Application). All western toad breeding sites, including roadside ditches, detected during pre-construction surveys will be recorded and mitigation will be implemented.</p>		

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507	Application Appendix 2L	Review of Existing Data Sources and Literature	Ungulate Winter Ranges	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>This Section includes Tables of Ungulate Winter Ranges (UWRs). No UWRs for moose have been legally designated in the Ft St James, Vanderhoof or Lakes Land and Resource Management Plan (LRMP) regions. However, moose winter range has been managed as part of landscape-level forest development planning in these regions for decades. For example, Figure 1 shows a map of moose winter range (orange) and deer winter range (pink) used in the Lakes District 2005 Timber Supply Area review that corresponds with the Coastal GasLink route. The background information used by Coastal GasLink to identify UWR in YFNs area of concern is deficient. UWR should be recognized whether it has been legally designated or not.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p> <p>Potential effects of the Project on moose (and other ungulates) were assessed using provincially designated UWR and Project-specific quantitative habitat suitability models for winter forage and winter shelter habitats. Habitat suitability models produced for the Project differ from the moose winter range delineated in the Lakes District 2005 Timber Supply Area in three key ways:</p> <ul style="list-style-type: none"> • Disturbances used in the habitat suitability modelling for the Project is current; the Lakes District 2005 Timber Supply Area winter range model is at least 9 years old and does not currently represent baseline conditions (i.e., it does not take into account new cut-blocks or roads) • Winter forage and winter shelter habitat was modelled separately for the Project and results are provided for both habitat types independently. In some cases, certain ecosystems provide both winter forage and shelter habitat. • The habitat suitability model for the Project took into account the proximity between winter forage and shelter habitat by downgrading the suitability of winter shelter habitat by one class if it was more than 100 m from forage habitat. This adjustment does not appear to have been taken into account in the delineation of winter moose habitat in the Lakes District 2005 Timber Supply Area. <p>Coastal GasLink considered potential adverse effects of the proposed Project in relation to the output of habitat models.</p>	<p>YFN would like to know whether this lost UWR within the Lakes District TSA 2005 model has been integrated into the cumulative effects assessment, and how.</p>	<p>Coastal GasLink maintains its original response. Coastal GasLink completed a habitat suitability assessment for moose winter feeding and winter shelter habitat for both the LSA to understand potential adverse effects of the Project and RSA to understand potential cumulative effects. These areas overlap with a portion of the moose winter range for the Lakes Timber Supply Area.</p>
508	Application Appendix 2L	Review of Existing Data Sources and Literature	Ungulate Winter Ranges	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>This Section also includes Tables of designated Wildlife Habitat Areas (WHAs). There are no WHAs listed for the Ft St James, Vanderhoof or Lakes LRMP regions, likely indicative of a lack of existing inventory data for these regions. Wildlife habitat surveys should be conducted within these regions prior to construction, and mitigation plans developed in the event that construction activities could negatively impact important wildlife habitat areas.</p>	<p>The WHAs summarized in the Tables in Section 4.1 are designated by the Province. Coastal GasLink recognizes that non-designated areas can also be important for wildlife. Coastal GasLink will implement the mitigation to address potential adverse effects on wildlife outlined in the Environmental Management Plan (for example see Section 7.1.3 and Table 7-1 of the EMP).</p>	<p>YFN is concerned that the mitigation measures in these areas will occur during project construction and operation when it should also be addressed pre-construction. YFN requests that additional information be collected for wildlife in these areas to identify potentially sensitive wildlife habitat areas, and that surveys to be conducted be described within the Application.</p>	<p>Coastal GasLink maintains its original response.</p>

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
509	Application Appendix 2L	Traditional Ecological Knowledge	Traditional Ecological Knowledge	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Table 4-10 documents Wildlife and Wildlife Habitat Traditional Ecological Knowledge (TEK) and related issues of concern for the Vanderhoof LRMP Region. Few concerns related to TEK were identified, and for identified concerns, the Application does not indicate how these concerns will be addressed or mitigated. In particular, the Application should describe follow-up and mitigation activities that will be undertaken within the following YFN areas:</p> <ul style="list-style-type: none"> • 12.5m north of KP298.2 "wildlife watering hole" (no concern); • 15.6m northeast of KP328.4 "stick nest" (no concern); • 70.1m northeast of KP338.3 "moose bed and browse and well-used game trail" (no concern); • 39m north of KP341.5 "migratory waterbird stick nest" (no concern); and • 8.9m south of KP351 "salt lick and moose habitat" with the issue/concern stated as "effects of construction on moose habitat". <p>Table 4-11 Wildlife and Wildlife Habitat TEK Recorded in the Lakes LRMP Region lists locations of findings and issues or concerns. At KP444, "Columbian Spotted Frogs" were noted with no concern and should be followed up to determine if there are associated wildlife habitat features.</p>	<p>In Section 3.2.1 of the Application, Coastal GasLink describes how available Aboriginal Traditional Knowledge will inform the assessment.</p> <p>Coastal GasLink acknowledges the participation of local Aboriginal representatives in the field data collection program to share Traditional Ecological Knowledge.</p> <p>Coastal GasLink will continue dialogue with Aboriginal groups about site specific issues and mitigation to inform construction planning and detailed engineering design.</p>		
510	Application Appendix 2L	Page 247	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Subsection 4.4.7, Page 247 states that the Sub-Boreal Spruce (SBS) zone (YFN territory is within the SBS zone) was under-represented in bird point count surveys, with 28 expected surveys in the dk and 21 actual, and with 41 expected surveys in the mc2 and 14 actual. These subzones represent YFNs area of concern. More field work is warranted for songbirds in the SBS zone, the results of which should be included in the Application.</p>	<p>Coastal GasLink has completed a comprehensive assessment of the potential adverse effects of the Project in accordance with the AIR, issued by EAO in May 2013. Coastal GasLink believes the 147 point count surveys are sufficient (from a statistical analysis perspective) to provide a precise estimate of songbird density within the SBS zone (see standard error estimates in Table 4-32, pg. 250 of the TDR). Although Coastal GasLink did not complete bird point counts in proportion to the amount of SBS zone crossed by the proposed route, the majority (147 of 269; 55%) of songbird point count surveys were completed within the SBS zone.</p>		
511	Application Appendix 2L	Model Results	Wildlife Habitat Suitability	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Table 4-49 shows the amount and quality of baseline winter foraging moose habitat present in the Wildlife and Wildlife Habitat LSA for a number of LRMP regions. The Application indicates that the LSA within the Lakes LRMP region totals 14,375 ha, of which 67 ha (0.5%) represents high-value habitat, 374 ha (2.6%) represents moderate-high value habitat, and 1,669 ha represents moderate-value habitat, for a total effective habitat area of 15% of the LSA. The LSA within the Vanderhoof LRMP region totals 20,594 ha, of which 86 ha (0.4%) represents high-value habitat, 116 ha (0.5%) represents moderate-high value habitat, and 4,103 ha (19.9%) represents moderate value habitat, for a total area of effective moose habitat of approximately 21% of the LSA. Therefore, 85% of the LSA within the Lakes LRMP region and 79% of the LSA within Vanderhoof LRMP region is considered to be of low, very low or nil moose winter foraging habitat value. YFN feels that the Proponent has undervalued moose habitat within these LRMP regions. For example, the proposed pipeline will be routed through well-known moose winter range especially along and Highway 16 and nearby transmission corridor. This conclusion is mainly the result of incorrect habitat ratings adjustments for disturbances and a lack of field data to verify assumptions. Therefore, YFN considers the habitat suitability model adopted by the Proponent for moose to be invalid, and further fieldwork is necessary to validate the model. If, in fact, there is currently very little high and moderately-high value moose winter foraging habitat in the Vanderhoof and Lakes LRMP regions, this habitat should be protected from further development.</p>	<p>Habitat suitability model results do not represent actual wildlife use of habitats, but provide a characterization of habitats in the LSA most likely to be used by a given species based on habitat attributes that have been demonstrated or deemed likely to affect the suitability of a given habitat. Wildlife habitat ratings field work followed provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. Suitability ratings from the field were used to validate the accuracy of the models, as ratings were based on species habitat requirements, ecosystem attributes, and presence of animal sign. Based on this, the habitat suitability modeling provided in the Application for moose winter habitat is considered appropriate for the assessment.</p> <p>Resource Inventory Committee (RIC). 1999. Wildlife Habitat Rating Standards, Version 2. Ministry of Environment, Lands and Parks. Victoria, BC. 98 pp.</p>	<p>Section 4.5.1. demonstrates significant differences in wildlife habitat ratings obtained from office and field wildlife habitat investigations. Model reliability is considered moderate, which indicates that there is little to no information on representative ecosystems. Based on differences in habitat ratings obtained from office and field habitat suitability assessments for moose, YFN requests that the Application indicate that additional efforts will be undertaken by the proponent to increase the accuracy and confidence in the habitat suitability modelling.</p>	<p>Section 4.5 of the Wildlife and Wildlife Habitat Technical Data Report, notes that there were 293 wildlife habitat suitability field assessment plots completed and used for model development. These field assessment ratings were completed following Provincial standards, and subsequently used to compare against desktop ratings. Adjustments were made to the final model ratings using field data to increase confidence in model predictions. Additional details on model development, including the incorporation of peer-reviewed scientific and technical literature and a good understanding of species-habitat relationships, are provided in Section 3.6 of the Wildlife and Wildlife Habitat Technical Data Report. Coastal GasLink believes that the Application provides a comprehensive assessment of potential adverse effects related to the Project in accordance with the AIR issued by the EAO.</p>

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
512	Application Appendix 2L	Model Results	Wildlife Habitat Suitability	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Table 4-50 shows the amount and quality of baseline winter shelter habitat for moose present in the Wildlife and Wildlife Habitat LSA within a number of LRMP regions. The Application indicates that the LSA within the Lakes LRMP region totals 14,375 ha, of which 2 ha (0.01%) represents high-value habitat, 1,476 ha (10.3%) represents moderate-high value habitat, and 1,293 ha (9%) represents moderate-value habitat, for a total effective habitat area of 19% of the LSA. The LSA within the Vanderhoof LRMP region totals 20,594 ha, of which 178 ha (0.8%) represents high-value habitat, 2,614 ha (12.7%) represents moderate-high value habitat, and 1,468 ha (7.1%) represents moderate value habitat, for a total area of effective moose habitat of approximately 21% of the LSA. Therefore, 85% of the LSA within the Lakes LRMP region and 79% of the LSA within Vanderhoof LRMP region is considered to be of low, very low or nil moose winter foraging habitat value. Within the LSA of the Lakes District, 2 hectares of high value moose winter shelter is not reflective of actual value, after considering habitat ratings adjustments and actual use. If, in fact, high, effective winter shelter habitat is as scarce as the models suggest for the Vanderhoof and Lakes LRMP regions, then all effective moose winter shelter habitat within these regions should be protected from development. Further field work to verify the value of moose winter range values is required.	Habitat suitability model results do not represent actual wildlife use of habitats, but provide a characterization of habitats in the LSA most likely to be used by a given species based on habitat attributes that have been demonstrated or deemed likely to affect the suitability of a given habitat. Wildlife habitat ratings field work followed provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. Suitability ratings from the field were used to validate the accuracy of the models, as ratings were based on species habitat requirements, ecosystem attributes, and presence of animal sign. Based on this, the habitat suitability modeling provided in the Application for moose winter habitat is considered appropriate for the assessment. Resource Inventory Committee (RIC).1999. Wildlife Habitat Rating Standards, Version 2. Ministry of Environment, Lands and Parks. Victoria, BC. 98 pp.	Similar response as for issue tracking #511.	see response to issue tracking #511
513	Application Appendix 2L	Model Results	Wildlife Habitat Suitability	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Table 4-53 – "Baseline Fall Foraging Habitat for Grizzly Bear in the Wildlife and Wildlife Habitat LSA" - shows no high value habitat in the Fort St James, Vanderhoof or Lakes LRMP regions despite the presence of high-value fall foraging habitat in the vicinity of the proposed Stuart River crossing. YFN requests mapping of all wildlife model results and a rationale for the assignment of habitat value in the vicinity of the Stuart River.	The ratings assumptions and adjustments used in the development of the grizzly bear fall foraging model are described in Section 3.6.7 of the Wildlife and Wildlife Habitat TDR. These ratings are applied consistently to the entire route at the 1:20,000 scale (see Vegetation TDR), and so some small or narrow habitat patches in localized areas, such as near the proposed Stuart River crossing, may not be identified specifically as 'high suitability' in the model output. Adjustments for sensory effects related to baseline disturbances (see page 136, TDR) were included in the fall foraging model, and would reduce habitat suitability. All habitat rated as 'high', 'moderate-high', and 'moderate' in the grizzly bear fall forage model was considered 'effective habitat', and was included in the assessment of potential effects of the Project. As stated on Page 68, Section 3.6.4 of the Wildlife and Wildlife Habitat TDR, 'high', 'moderately-high', and 'moderate' suitability habitat represent the top 75th percentile of the range in suitability, and therefore is considered a conservative approach to identifying habitat.	YFN is still requesting the results (spatially if possible) of grizzly bear habitat modelling in the vicinity of the Stuart River, as YFN has identified this area as an environmentally-sensitive, and the coarse scale of modelling conducted might not adequately identify the mitigative requirements for this area.	Coastal GasLink will provide a map of grizzly bear habitat to the EAO by July 21 2014.

Coastal GasLink Project: Working Group Comment Tracking Table

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514	Application Appendix 2L	Model Results	Wildlife Habitat Suitability	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Section 4.5.1 –“Model Reliability” - describes how models were assigned reliability qualifiers based on available information used to develop the models (existing information and field studies). The moose, grizzly bear, marten, fisher, western toad, pond-dwelling amphibians, northern goshawk, common nighthawk and rusty blackbird habitat models are rated as being moderately reliability. The Application should include a plan to increase the reliability of these models through additional field studies, especially in YFNs area of concern.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. A 'moderate' reliability qualifier indicates that ratings assumptions and adjustments within the model were based on information from similar ecosystems as those occurring in the wildlife and wildlife habitat LSA. The 'moderate' reliability qualifier can also include validation (RIC 1999), which for Coastal GasLink included the use of field data (see Section 4.5.2 of the Wildlife and Wildlife Habitat TDR). Field-based wildlife habitat assessments were completed in 2013 as part of the TEM field program. A total of 293 TEM survey plots were visited by wildlife biologists, and habitat suitability was assessed for several of the bird and mammal indicators. These plots were used to validate the bird and mammal office-derived models. Histograms of these comparisons are generally symmetrical, indicating that variability was not overly biased (i.e., models are unlikely to severely underestimate or overestimate the availability of habitat).</p> <p>The results of habitat models for this assessment are not expected to be exact characterizations of habitat effectiveness for every wildlife species potentially occurring in the Wildlife LSA, but are considered appropriate for assessing changes in habitat, evaluating the significance of these changes and identifying appropriate mitigation measures.</p>	<p>The Application indicates that a model would be deemed "Moderately" reliable would be based on information sourced mainly from within BC, but not necessarily from ecosystems represented within the study area. (p.69, Section 3.6.5. Wand WH).</p> <p>However, the Application indicates a different approach, stated as follows: "A 'moderate' reliability qualifier indicates that the ratings assumptions and adjustments within the model were based on information from similar ecosystems as those occurring in the wildlife and wildlife habitat LSA."</p> <p>The Application should be clear on which methodology was followed.</p> <p>As the proponent stated, the histograms represent in general a symmetrical distribution; however, the range of error is most important, as it indicates that there are significant differences in suitability classifications derived from office determinations and field determinations. This means that there is lower confidence in office applications of habitat suitability modelling.</p> <p>YFN recommends additional habitat suitability inventory to increase confidence in wildlife habitat ratings for those species where there is greater variability in differences in ratings, including Old Forest Breeding birds, marten, young forest breeding birds, grizzly bear, and moose</p>	<p>The Application uses Provincial standards to describe reliability. A determination of moderate reliability is based on previous studies, reports and expertise on the species-habitat relationships applicable to BC.</p> <p>Section 4.5 of the Wildlife and Wildlife Habitat Technical Data Report notes that there were 293 wildlife habitat suitability field assessment plots completed and used for model development. These field assessment ratings were completed following Provincial standards, and subsequently used to compare against desktop ratings. Adjustments were made to the final model ratings using field data to increase confidence in model predictions. Additional details on model development, including the incorporation of peer-reviewed scientific and technical literature and a good understanding of species-habitat relationships, are provided in Section 3.6 to the Wildlife and Wildlife Habitat Technical Data Report. Coastal GasLink believes that the Application provides a comprehensive assessment of potential adverse effects related to the Project in accordance with the AIR issued by the EAO.</p>
515	Application Appendix 2L	Incidental Observations of Wildlife of Conservation Concern	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>There were 1877 incidental observations of wildlife, including wildlife sign, during field studies conducted by the Proponent. Of these, there were 250 observations of moose or moose sign and 133 observations of wildlife habitat features including nests, dens, wildlife trails, and mineral licks. The Application indicates that all wildlife features noted were considered for mitigation, but it is unclear as to how these features will be tracked for mitigation. YFN requests that the Application include a Table showing the location of these features and a plan to mitigate potential impacts to these features.</p>	<p>Section 7 of the Environmental Management Plan states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species. Alignment sheets that will be developed for construction will also indicate locations of wildlife habitat features that may be subject to site specific mitigation.</p>	<p>Since specific wildlife habitat features are known to be potentially subject to site-specific mitigation, YFN requests that the Application include a Table showing the location of these features and a plan to mitigate potential impacts to them.</p>	<p>Coastal GasLink maintains its original response.</p>
516	Application Appendix 2L	Page 295	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		<p>Subsection 5.1.1, Page 295 shows there were 5 known observations of American bittern, 6 known observations of sharp-tailed grouse and 8 known observations of short-eared owl. The locations of these observations and any field follow-up or proposed mitigation are not stated. These records warrant follow-up or a rationale if no further related field work is recommended.</p>	<p>The sightings referred to are historical observations from the North American Breeding Bird Survey (Table 4-2), the British Columbia Breeding Bird Atlas (Table 4-3), and the Christmas Bird Count (Table 4-4). These data do not include specific location information (e.g., UTM or latitude/longitude coordinates), and thus additional information cannot be provided.</p> <p>No American bittern or short-eared owl detections occurred during project-specific field surveys (see Section 4.4.5 and 4.4.6), and no incidental observations were made (see Section 4.7). In addition, no sharp-tailed grouse detections occurred during project-</p>		

Coastal GasLink Project: Working Group Comment Tracking Table

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									specific field surveys (see Section 4.4.4.), and no incidental observations were made (see Section 4.7). Therefore, no follow-up programs are proposed for these species.		
517	Application Appendix 2L	Page 295	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		This Section (Page 295) refers to a Mitigation Management Table which contains data on wildlife habitat features observed and confirmed breeding locations for designated species. This Table will be continue to be updated as new information becomes available and is to be used during construction and final alignment planning. This table should be included in the Application to allow for a review of the appropriateness of proposed mitigation measures.	All proposed mitigation for the Coastal GasLink Project is listed in Section 26 of the Application.		
518	Application Appendix 2L	N/A	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The following documents that are referenced in the EA are not provided but are necessary for adequate characterization of potential adverse effects to YFN: <ul style="list-style-type: none"> · Access Management Plan · Mitigation Management Table · Grizzly Bear Mitigation Plan 	Coastal GasLink will develop additional management plans in advance of constructing the proposed Project, and in consultation with the appropriate regulatory authorities.	As the mitigation measures are not fully described within the management plan, YFN is unclear as to how residual impacts can be determined when there is still information that should be incorporated into the project determination. YFN is concerned that the details for such important plans, which provide the basis for a meaningful review of potential effects and mitigation success, are not available until after the review period has passed.	Coastal GasLink will develop the management plans in consultation with the appropriate regulatory agencies. Coastal GasLink will also continue to implement the Aboriginal Consultation Plan. The Aboriginal Consultation Plan approved by the EAO outlines the phases of engagement including a commitment to continue engagement during construction and operations. The understanding and characterization of residual adverse effects described in the Application in relation to these plans is based on previous experience that demonstrated the effective development of detailed mitigation and management plans. Effects assessments are prepared with the assumption that mitigation will be implemented, effective, and monitored for effectiveness. The management plans will also be adapted on an ongoing basis to refine mitigation and to address the potential for changing conditions.

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519	Application Appendix 2L	Conclusions	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		YFN requests that the following information be included in the Assessment Report to be prepared by the EAO: 1. YFN was not involved in the Selection of Indicators or in any wildlife-related field work. 2. Wildlife in the YFN consultation area has already been heavily impacted by development, especially through loss of habitat. 3. YFNs primary means of subsistence has traditionally been and continues to be moose, salmon and fur-bearing animals for income. Local moose population decreases have been well documented, 2013 was a catastrophic year for Skeena salmon returns and 2014 winter was extremely poor for YFN trappers. 4. The application acknowledges adverse effects of the project on each wildlife KI but then goes on to make determinations of 'not significant' for each. 5. Habitat models were the primary platform for assessing effects on wildlife KIs. Some of the models had 'adjustments' made that resulted in habitat values being much lower than in reality. YFN expected high habitat values to be recognized for moose and marten within YFNs portion of the Coastal GasLink project. However, these were not reflected in the assessments. Therefore, either the models are wrong (due to ratings adjustments to downgrade values and lack of field verification), or there is very little effective habitat left for moose and marten at baseline conditions and so any effective habitat should be protected. 6. Mitigation overlaps are not feasible for construction as discussed in the application review. For example, construction will have to take place outside of timing windows so there will be adverse effects to wildlife KIs that are not recognized and carried through to determination in the application. 7. Little field work was done in YFN area, there is no existing protection for resources (UWRs and WHAs have not been designated) and few features have been identified. The confidence values associated with wildlife KIs should all be considered low. 8. Wildlife of importance to YFN do not have accepted thresholds to determine significance of effects. The criteria used for the qualitative significance threshold, especially with respect to reversibility, makes the Coastal GasLink application impossible to show a significant effect on wildlife and puts wildlife populations in YFNs area of concern at risk. 9. The extensive mitigation section of the wildlife section of the application is full of language that effectively deletes any commitments to implementing the mitigation measures. 10. It is impossible to assess the potential effects of the Project for a portion of the proposed route without access to the information used in the Application, particularly the Geographic Information Systems (GIS) information. Mapping and GIS data utilized in the preparation of the Application should be made available to YFN for review.	EAO to respond		
520	Application Appendix 2L	Current Use of Land and Resource	Land and Resource Use	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 14.4.3 – "Current Use of Land and Resource" - Table 14-6, "Old Growth Management Areas Crossed by the Proposed Route" shows an Old Growth Management Area (OGMA) crossed for 1 km within YFN's area of concern at KP404.4 to KP405.4. The values of the OGMA are not described but expected to possibly include Douglas-fir and ungulate winter range values. Replacement of OGMA is not an acceptable mitigation strategy and in this area there would be no suitable candidates. The pipeline should be re-routed to avoid this OGMA.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in Old Growth Management Areas.		
521	Application Appendix 2L	Visual Quality and Aesthetics	Land and Resource Use	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 14.4.5 – "Visual Quality and Aesthetics", Table 14-26 (and 14-27), "Visual Quality Objectives Crossed by the Proposed Route in the Vanderhoof (and Lakes) LRMP", show 16 Visual Quality Objective polygons in YFN's area of concern. Appropriate viewscape impact assessments should be submitted in the Application as they would for forest development planning applications.	The information provided in the Application meets the requirements of the AIR. Section 14.4.5 provides information on Visual Quality and Aesthetics. The potential effect "alteration of visually sensitive viewscape" is assessed in the Application on Page 14-104.		
522	Application Appendix 2L	Baseline Information and Project Setting	Heritage Resources	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		There are 82 archaeological sites within 1000 metres of the proposed pipeline route, but the location of these sites has not been provided in the Application. The location of these sites should be shown in the Application so that First Nations can determine which are within their areas of interest.	Coastal GasLink understands its obligations under the BC Heritage Conservation Act includes avoiding the publication of details, including the location of archaeological sites in publically available documents.		

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523	Application Appendix 2L	Baseline Information and Project Setting	Heritage Resources	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The archaeology baseline inventory is incomplete because field work necessary to complete the inventory has not been completed. Areas where the archaeology inventory is incomplete should be shown in the Application.	Coastal GasLink has completed a comprehensive assessment of the potential adverse effects of the Project in accordance with the AIR, issued by the EAO in May 2013. Coastal GasLink expects to complete and submit to the appropriate regulatory authorities, the AIA final report in early 2015.		
524	Application Appendix 2L	Methods	Heritage Resources	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Archaeological impact assessment (AIA) fieldwork conducted in 2013 resulted in the discovery of 30 previously unrecorded archaeological sites and five previously unrecorded historic sites within the proposed Project footprint, but the location of these sites was not shown in the Application. YFN requests that these locations be shown in the Application so that First Nations can determine which sites are in their areas of interest.	Coastal GasLink understands its obligations under the BC Heritage Conservation Act includes avoiding the publication of details, including the location of archaeological sites in publicly available documents.		
525	Application Appendix 2L	Archaeological Sites Effects Assessment	Heritage Resources	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Table 18-5 provides proposed mitigation strategies in the event that archaeological sites are discovered during construction. However, no mitigation strategies are presented for known archaeological sites, such as site avoidance, site excavation, or project alteration. YFN requests that mitigation measures pertaining to known archaeological sites be provided in the Application.	Coastal GasLink understands its obligations under the BC Heritage Conservation Act includes avoiding the publication of details, including the location of archaeological sites in publicly available documents. Coastal GasLink expects to complete and submit to the appropriate regulatory authorities, the AIA final report in early 2015. In the event that archaeological sites are discovered during construction, Coastal GasLink will implement the Heritage Resource Discovery Contingency Plan, outlined in Appendix C of the EMP.		
526	Application Appendix 2A	Page 31	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Page 31 of the Environmental Management Plan states that an Invasive Plant Management Plan will be implemented during the Project, and Table 8-7 of Section 8 of the Application references such a plan. However, an Invasive Plant Management Plan has not been included within the Environmental Management Plan. YFN requests that an Invasive Plant Management Plan be included within Appendix D of the Environmental Management Plan. Additionally, an Access Management Plan, Mitigation Management Table, and Grizzly Bear Mitigation Plan are referenced in the Application but have not been included. In order to properly assess potential impacts to resources that are highly valued by YFN and evaluate the adequacy of proposed mitigation measures, it is essential that the plans and table identified above be included in the Application.	All proposed mitigation for the Coastal GasLink Project is listed in Section 26 of the Application. Coastal GasLink will develop additional management plans in advance of constructing the proposed Project, and in consultation with the appropriate regulatory authorities.		
527	Application Appendix 2A Section 8.4.2	Objectives	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The following additional bulleted objective should be inserted below the objective, "maintain habitat quality at crossing locations" "Avoid a loss of fish habitat at crossing locations" It must be recognized that "habitat quality" and "habitat quantity" are different entities, and it is important to maintain both habitat quality and quantity.	EMP Section 8.4.2 (pp. 60 of 88) –bullet 7 & 8- Habitat quantity is addressed in the following objectives: • comply with the habitat protection provisions of the Fisheries Act and the principle of "no net loss" of productive fish habitat of DFO's Policy for the Management of Fish Habitat; and • protect riparian areas in proximity to watercourse crossings In addition, Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings, which will prevent loss of instream habitat.		
528	Application Appendix 2A Section 8.4.3	Specific Measures	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The following text should be added as a bulleted mitigation under the "Vehicle Crossings: General" Activity/Concern: "Design and construct watercourse crossing structures, such as culverts and bridge abutments, such that the natural width of the stream channel will not be constricted and the natural hydraulic capacity of the channel will be maintained at the crossing site".	Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel. Through the implementation of mitigation and confirmation that no channel infilling will take place, the assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									Coastal GasLink will routinely inspect watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.		
529	Application Appendix 2A Section 9	Post Construction Monitoring	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		Section 9 has not been written in sufficient detail to guide post-construction monitoring that will be required for the Project.	Coastal GasLink provides an outline of the Post-construction Monitoring Plan in Section 25.3 of the Application. Coastal GasLink will complete its Post-construction Monitoring Plan in advance of construction, in consultation with the appropriate regulatory authorities.	More detail will help clarify the potential effectiveness of proposed monitoring. Using the "Vegetation" Biophysical Element as an example from Table 25-2, duration is described as '5 years' after cleanup and reclamation. Within the 5 year window, will vegetation monitoring take place once a year, 3 times a year, or more? Ground reconnaissance activity is described as being based on results of an aerial overview, but without more detail it is not clear what time / season of year the surveys are proposed, or how many aerial flights would be conducted. Although detailed vegetation assessments may be conducted 'if warranted', there is not the detail to understand what types of conditions would warrant a detailed survey, nor to which standards / BMPs a detailed veg survey would be based upon, or which regulatory agencies would be involved. Again, the high-level approach at this time results in a plan that cannot be well assessed until after the review period has passed.	Coastal GasLink maintains its original response.
530	Application Appendix 2A Section 9.2	Process	N/A	22-Apr-14	Ecora Resource Group	Chief Allan Joseph, Yekooche First Nation		The following text should be added to Section 9.2 "Stream crossings on access roads will be monitored regularly for the life of the pipeline to ensure that they are functioning as intended, and remedial work will be undertaken as required. Potential blockages to fish movement will be removed following DFO's "Culvert Maintenance" and "Bridge Maintenance" operational statements and the government of BC's "Standards and Best Practices for Instream Works".	Coastal GasLink will routinely inspect watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.		
531	N/A	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There is considerable reliance throughout the Application on professional opinion. In virtually every instance where definitive quantitative effects thresholds are absent, the opinion of expert practitioners is referred to as a stand-alone rationale for conclusions. While we do not disagree with this approach in general, there are relatively few instances where the rationale behind the subjective interpretations are well explained, and we find no instances where the accredited professionals have signed off on the work. Please provide a list of study authors, CVs and professional sign-off by discipline leads.	Coastal GasLink will provide a list of professionals involved with the preparation of the Application to the EAO.		

Coastal GasLink Project: Working Group Comment Tracking Table

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532	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The importance of the Access Management Plan has been raised with Coastal GasLink since the first discussions, and is of considerable importance. It has not yet been developed. The Plan in the Application amounts to a commitment to make a plan. We request that no project approvals be granted prior to the development of a comprehensive Access Management Plan, and an opportunity to review and comment on it for our communities.	Appropriate measures will be implemented to reduce access along the pipeline ROW following construction (i.e., during final cleanup). Mitigation is described in Section 7.5.1 of the Application. Coastal GasLink will also develop its Access Control Management Plan as described in Appendix D of the EMP in consultation with the appropriate regulatory authorities.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: -These issues highlight the critical importance of having a comprehensive Access Management plan developed for the project. This issue needs to be explored in greater detail before conclusions can be drawn regarding adverse effects on a variety of VCs.	The outline and intent of the Access Control Management Plan is described in the Environmental Management Plan, contained in Appendix 2A of the Application. Coastal GasLink will prepare the Access Control Management Plan in advance of construction in consultation with regulatory agencies. Coastal GasLink will also continue to implement the Aboriginal Consultation Plan, approved by the EAO in March 2013. Coastal GasLink's parent company TransCanada also has experience developing and implementing Access Control Management Plans in a safe and environmentally responsible manner to meet local land management objectives.
533	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The "Ecological Community and Species of Concern Discovery Contingency Plan" identifies a Vegetation Resource Specialist which should have some additional definition of this role. Presumably the same as the "Vegetation Specialist", which is referenced elsewhere in Appendix C.9, but what are the qualifications required, how many VRS's will be on staff, and what will their capacity be? The project will have multiple construction sites moving forward concurrently, which may have multiple management issues requiring immediate attention in order to a) ensure appropriate mitigation/best practices are being implemented, and b) to avoid delays in construction progress. How will this role accommodate the demands of both construction planning and the stated conditions of approval?	The Environmental Inspector(s) hired for the proposed Project is required to have experience in environmental inspection or planning. The Environmental Inspector(s) will have an understanding of pipeline construction techniques and take a proactive approach to environmental issues. In addition, the Environmental Inspector(s) will be supported by appropriate Resource Specialists who have expertise in the particular issues associated with the proposed Project and who will be available on site or consulted, as necessary. Further information about the Environmental Inspection program can be found in the Environmental Management Plan – Appendix 2A of the Application (refer to page 12 of the EMP).		
534	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		We collectively would like to be added to the notification list of spills within Treaty 8 boundaries.	As noted in the EMP (Appendix 2-A), Section C.1 (Spill Contingency Plan), if a spill incident is reportable the appropriate regulatory agency will be immediately notified. During construction planning and detailed engineering design, Coastal GasLink will confirm the appropriate parties to be notified should a reportable spill occur. For these spill reporting situations, Coastal GasLink will also notify West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation of reportable spills that occur within Treaty 8 boundaries. As notification lists are finalized prior to construction, Coastal GasLink will gather the contact information from each party.		
535	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Wet Soils Contingency Plan does not in general appear to realistically account for normal conditions in much of the route, particularly coastal sections.	The Wet Soils Contingency Plan, described in Appendix C of the EMP identifies the potential adverse effects from working on wet soils and recommends measures to avoid or mitigate those effects. These measures will continue to be updated during construction planning and detailed engineering design, and will continue to be modified should conditions warrant during construction.		

Coastal GasLink Project: Working Group Comment Tracking Table

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536	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 23-24: "before allowing filtered water to enter the watercourse, ensure the TSS level is within 10 mg/L of the background TSS level". Would like some clarification on this item, as TSS requires laboratory measurements - which makes for a highly impractical field method. This is perhaps confusing TSS with turbidity?	<p>Turbidity monitoring at watercourse construction sites will provide early warning of any sediment releases, assess the magnitude, duration and extent of any sediment releases and provide insight into possible effects on aquatic resources downstream, should such an event occur. TSS/turbidity monitoring will provide an indication of sediment effects from crossing construction and allow adjustments to construction activities to maintain TSS/turbidity within accepted guidelines.</p> <p>Maintaining suspended sediment levels within accepted standards will reduce amounts and potential effects of depositing sediment on streambed. As such, streambed composition is not included in construction monitoring activities.</p> <p>If an exceedance of accepted guidelines occurs and impacts to fish habitat within the ZOI is suspected, additional monitoring and investigation will be conducted and required action taken, in consultation with the appropriate regulatory authorities.</p>	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: The proponent response to the TWSS/turbidity comment actually doesn't address the issue at all, and we remain unsure of how a monitoring threshold of 10mg/L Total Suspended Solids can be implemented during active field work. This IR is readily resolved: for instance, pre-project development of an NTU-vs-TSS calibration at each watercourse crossing. But the inclusion of the measure as-is and the response that was provided are not practically implementable. Examples like this generate concern over general vigilance for water quality during construction.	Coastal GasLink will continue consultation with the appropriate regulatory authorities to develop plans that comply with all applicable regulatory requirements including requirements about water quality.
537	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		This section commits to responding appropriately if historical resource sites or traditional land use sites are discovered during construction. We are not confident that historical sites or resources or "traditional land use sites" will be adequately detectable without a proper monitoring strategy. We would like to see Heritage Resources Monitors hired, from Treaty 8 membership, for all earthworks in Treaty 8 territory. These persons can work directly with Coastal GasLink's Heritage Resource Specialist to develop monitoring protocols.	The Aboriginal Consultation Plan approved by the EAO outlines the phases of engagement including a commitment to continue engagement during construction and operations. Consistent with this plan, Coastal GasLink is currently developing a monitoring program to consider the need for specific resource or activity monitoring, such as heritage resources during the construction phase of the proposed Project. The monitoring program will be developed prior to construction and will be focused on the effective implementation of the Environmental Management Plan (presented in Appendix 2-A of the Application). Coastal GasLink will continue to engage with Aboriginal groups as it develops its monitoring program.		
538	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The adverse weather contingency plan and flood/excessive flow contingency plan imply an enormous amount of subjective discretionary authority on the part of the Environmental Inspector - which is fine, subject to appropriate qualification. But it is concerning that terms like "major storms" or "adverse weather" or "excessive flow" are so vaguely described, particularly given some of the terrain and coastal weather systems that will be encountered. Line 2-3 of page C-8 states that in the event of a "major storm", "qualified personnel will inspect all watercourse crossings where construction is in progress or has been completed". This is admirable but feasibility is suspect. These are the sort of vaguely defined and unenforceable conditions that were identified in the BC Auditor General's 2011 critique of EAO project compliance.	Coastal GasLink will employ qualified individuals to manage and inspect all construction activities. These individuals are expected to have the necessary experience and qualifications to contribute to the implementation of contingency plans such as the Adverse Weather Contingency Plans. The contingency plans found in Appendix C of the EMP (Appendix 2-A) identify roles, responsibilities and mitigation to guide activities should conditions such as adverse weather or flood/excessive flow occur. These contingency plans and the protocol associated with implementation of the plans will be further defined by construction management staff before and during construction based on site specific knowledge and conditions.		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
539	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Under section D.2.2, Coastal GasLink has committed to notifying rural road users of construction disturbances via local and regional newspapers. This is not an adequate means of communicating with many First Nation citizens within Treaty 8 territory, particularly elders or those who travel on the land extensively. Please commit to having door-to-door communication services. This can be arranged through the administrative offices of our respective communities. Please also be mindful of the advance notice that is required when our members are out on the land.	The Aboriginal Consultation Plan approved by the EAO outlines the phases of engagement including a description of engagement, and notes that Coastal GasLink will continue to engage with Aboriginal Communities during construction and operations. Section 5.3 of the EMP provides details about the notification of concerned parties, including Aboriginal groups.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: We would like our request in IR #539 captured in any proposed Table of Commitments	Comment not directed to Coastal GasLink.
540	Application Appendix 2A	Mitigation, Monitoring and Management	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		EA Section 3 identifies that watercourses are classified with specific Riparian Management Zones (RMZ), Riparian Reserve Zones (RRZ) and Riparian Management Areas (RMA), yet Section 8.4 of the EMP only describes a mandatory 10m buffer, or a 100m buffer at "select locations" based on a result of preconstruction surveys. The 100m buffer at select locations requires more specific accounting of which locations this applies to. Every crossing location has now been field-assessed so there should be reasonable certainty on this. And the use of RMZs, RRZs and RMAs versus a 10m riparian buffer does not make any sense at all, please clarify how these are applied to effective riparian habitat protection.	Coastal GasLink will adhere to the requirements of the Oil and Gas Activities Act, including the Environmental Management and Protection Regulation. Coastal GasLink is guided by the Environmental Management and Protection Guideline issued by the Oil and Gas Commission, which outlines expectations for activities in the Riparian Management Areas, including the RMZ and RRZ. To construct the proposed Project, Coastal GasLink crosses a number of watercourses, and therefore crosses the RMA. When installing a trenched crossing, a 10 m riparian buffer is maintained until the watercourse crossing is installed. Section 8.4.3 of the EMP also includes specific measures to protect riparian buffers.		
541	Application Appendix 2E	Page 15	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Ambient air monitoring data was collected from five existing Ministry of Environment monitoring stations to evaluate baseline conditions. With the exception of Kitimat Rail, all remaining stations are located outside of the Local Study Area and the Regional Study Area (Burns Lake Fire Centre is located within the RSA but outside of the LSA). The majority of the data were collected outside of the proposed project's spatial boundaries and no monitoring data specific to the study area was collected to confirm that the MOE data is reflective of the study area's atmospheric environment. This is an error in methodology that undermines the credibility of the conclusions. Please address with more complete data, or a credible rationale as to why this approach is adequate.	Coastal GasLink completed a comprehensive assessment of potential adverse effects of the Project in accordance with the AIR, issued by the EAO in May 2013. As described in 10.1 of the "Guidelines for Air Quality Dispersion Modelling in British Columbia", there are few ambient air monitoring stations in the Project area. In such instances it is accepted practice to characterize baseline air quality using data from a nearby station that conservatively (or over) represents existing or baseline conditions		
542	Application Appendix 2E	Page 15	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Ambient air monitoring data were collected from five existing Ministry of Environment monitoring stations, four of which do not share the same topography and landscape characteristics as the majority of the study area. The majority of the proposed project routing occurs overland while the monitoring stations are all located within broad river valleys. Please explain how this was addressed in the assessment of effects, particularly regarding confidence and uncertainty.	Coastal GasLink completed a comprehensive assessment of potential adverse effects of the Project in accordance with the AIR, issued by the EAO in May 2013. As described in 10.1 of the "Guidelines for Air Quality Dispersion Modelling in British Columbia", there are few ambient air monitoring stations in the Project area. In such instances it is accepted practice to characterize baseline air quality using data from a nearby station that conservatively (or over) represents existing or baseline conditions. The MOE monitoring stations referred to are located in or near urban centres that are located in lower levels of the valleys. The air contaminant levels in the lower levels of the valleys are higher than the same at higher elevations. Using the monitoring data collected at valley bottoms provides a conservative approach.		

Coastal GasLink Project: Working Group Comment Tracking Table

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543	Application Appendix 2E	Page 18	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		No climate data were collected from the project's air quality spatial boundaries, nor for the project footprint. Meteorological data collected to characterize the project's footprint and for modelling purposes do not necessarily reflect the project's conditions. This uncertainty is neither acknowledged in the discussion, and presumably was not accounted for in any quantitative analyses. Please provide a sensitivity analysis that can demonstrate the uncertainty is not influential on predicted outcomes.	Coastal GasLink completed a comprehensive assessment of potential adverse effects of the Project in accordance with the AIR, issued by the EAO in May 2013. As described in 10.1 of the "Guidelines for Air Quality Dispersion Modelling in British Columbia", there are few ambient air monitoring stations in the Project area. In such instances it is accepted practice to characterize baseline air quality using data from a nearby station that conservatively (or over) represents existing or baseline conditions		
544	Application Appendix 2E	Page 9	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		PM10 should be considered as an additional key indicator due to the potential for generation of fugitive dust emissions during construction activities.	PM10 was considered as an indicator of fugitive dust. See Appendix C in the TDR (particularly Section C7 "Fugitive Dust Emissions").		
545	Application Appendix 2G	Appendix A - page C-8	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Highhat River has many important fish species and contributes directly to Sukunka River. Rationale for proposing isolation vs. trenchless crossing is warranted.	Section 1.4.16 of the Application describes the considerations in determining the pipeline installation method.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: Industry best practices / standard BMPs are leaned upon heavily throughout the Application as a basis for no adverse effects, with high confidence. The proponent has not included any description of how these best practices differ from those in place for existing pipelines, which do not meet the picture painted by CGL for this proposed project. In September 2013, SFN provided the proponent with an account of how existing pipelines have led to extensive back country access, and habitat degradation and poaching ¹ . In October 2013, West Moberly FN provided CGL with an account ² of pipeline exposure and remedial works (with consequent unplanned impacts) in Angusmac Creek, with an added reference to the previous devastation on Pine River. o Further to this concern over water stewardship, we have repeatedly asked for trenchless crossing methods to be used wherever possible. Examples are illustrated in IR#545 and #546 – and in the scores of other culturally sensitive locations identified for CGL in other correspondence – but the proponent response to these IR comments indicates a dismissive attitude to these issues.	Throughout the Application, Coastal GasLink acknowledges the potential for adverse effects to all of the valued components assessed, and provides comprehensive mitigation to address these potential adverse effects. The mitigation presented has been compiled using industry accepted best practices that have been tested and monitored on previous projects of similar scale or complexity, and has also been prepared with the technical expertise and experience of Coastal GasLink and its consultants. The Application also outlines residual adverse effects after mitigation for a large proportion of the potential adverse effects described, in order to transparently characterize the residual adverse effects that may remain after the application of mitigation. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are fully described.

Coastal GasLink Project: Working Group Comment Tracking Table

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546	Application Appendix 2G	Appendix A, p. C-11	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Burnt River is proposed for possible winter isolation crossing for pipeline. We have significant concerns about crossing of any sort for this watercourse given the cultural and practical importance, but certainly do not support any in-stream construction in Burnt River.	Section 1.4.16 of the Application describes the considerations in determining the pipeline installation method.	see comment #545	See response to issue tracking #545.
547	Application Appendix 2G	Appendix B - general	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Stream classification often has letter suffix D. (eg. S3D). This isn't defined anywhere. Is it "default" for fish bearing status?	Coastal GasLink confirms that the letter "D" implies the default classification of fish bearing.		
548	Application Appendix 2G	Appendix B - general	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The "NS" abbreviation isn't included in the Acronym (Appendix A). "Not sampled"?	Coastal GasLink clarifies that NS implies Not Sampled.		
549	Application Appendix 2G	Appendix B - general	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Orthophotos lack UTM grids, makes it difficult to cross-reference to other map databases.	Comment noted.		
550	Application Appendix 2G	Appendix B - general	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Creek crossings do not indicate fish species present unless actually sampled and caught by Coastal GasLink (which was very infrequent). While Appendix C (Master Table of watercourse crossings) does include those species in the summary box, it creates an effect on the map of suggesting no fish present at most crossing locations, if one were to review this at a high level (e.g. public comments where individuals may be very time constrained).	Comment noted.		

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551	Application Appendix 2G	Appendix B - sheet 12	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Historic data points / FISS records show longnose dace in Dickebusch Creek and rainbow trout, mountain whitefish, slimy sculpin, and longnose sucker in Sukunka River near the crossing location. Provincial records also include arctic grayling, rainbow trout, longnose dace, burbot, bull trout, slimy sculpin, mountain whitefish, northern pikeminnow, redbreast shiner, Dolly Varden, longnose sucker, finescale dace, largescale sucker at the Dickebusch / Sukunka confluence (point not shown on map). Similarly, for the point that is shown at the Highhat River confluence with Sukunka, burbot, rainbow trout, white sucker, round whitefish, arctic grayling, slimy sculpin, mountain whitefish are all shown as present, whereas the application map only shows sub-set of known species. (source: iMapBC). Other historic points (Hatfield) that are shown on the map further upstream in Highhat do acknowledge MW, BB, GR, CCG, LNC, WSU, RB. Fish species are better summarized in Appendix A of the TDR (crossing master table), which shows 9 species present in Sukunka at this location, but iMapBC shows 11. This has potential implications for the timing window.	Comment noted. Coastal GasLink will continue to use all available information to inform its construction planning and detailed engineering design.		
552	Application Appendix 2G	Appendix B - sheet 17 and 18	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		ROW is in Sukunka Valley, along west side of creek, from km 89 to km 97 and again from 118 - 120. This is an area raised as very sensitive to Treaty 8 Nations' interests many times in discussion for this project and others. This is also the area where it crosses the Burnt River (km 96.5). Extraordinary mitigation is expected here. Cross-referencing the ROW stream crossing in this area to the Master Table recommendations in Appendix A (of Appendix 2G) and Section 8.4 of the EMP (Appendix 2A) for watercourse crossing mitigation, this section of ROW appears to have stock recommendations as opposed to specific prescriptions in light of the sensitivity of the area. We request site-specific crossings plans for all watercourses in these kilometre post ranges, and a cultural monitor from Treaty 8 membership to observe the work.	Coastal GasLink will develop site specific crossing plans during construction planning and detailed engineering design. The Aboriginal Consultation Plan approved by the EAO outlines the phases of engagement including a commitment to continue engagement during construction and operations. Consistent with this plan, Coastal GasLink is currently developing a monitoring program to consider the need for specific resource or activity monitoring, such as heritage resources during the construction phase of the proposed Project. The monitoring program will be developed prior to construction and will be focused on the effective implementation of the Environmental Management Plan (presented in Appendix 2-A of the Application). Coastal GasLink will continue to engage with Aboriginal groups as it develops its monitoring program.		
553	Application Appendix 2G	Appendix B, sheet 20	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Many of the sampling zones are well off of the proposed route alignment in this section, (upstream and downstream), whereas others were assessed directly at the crossing point. Does this reflect route uncertainty or previous alignments?	Coastal GasLink will continue to use all available information to inform its construction planning and detailed engineering design. The data presented in the TDR is reflective of the aquatic field program that was completed as the project advanced from Study Corridor to Application Corridor (Section 1.4 of the Application).		
554	Application Appendix 2G	Appendix B, sheet 27	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Provincial records show DV/BT present around crossings 134 - 140, but this is not shown on the maps. This is relevant as streams classified as potentially fish bearing via field assessment have least-risk timing windows but the species column of Appendix A shows nothing of potential species for these crossings.	Default fish bearing streams in this section are assumed to have bull trout present, as an inventory conducted by Lheidli T'enneh band has documented their presence in the mainstream. The recommended timing window also assumes rainbow trout could be present (the window is the MOE Region 7A recommendation for streams with both spring and fall spawners).		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
555	Application Appendix 2G	Appendix B, sheet 28	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Crossing 42C was not sampled, and is classified as S5 (nonfish-bearing). Presumably this is based on the mapped falls downstream of the crossing location? But, it is very close to confirmed bull trout presence. Bull trout are very often found above barriers in resident fluvial stocks. So the ROW is either in direct bull trout habitat or is immediately upstream of bull trout habitat. Given the nature of the most likely crossing effects (near-field downstream sedimentation), and that bull trout are within the stated zone of influence for the project, should have timing window for works here.	Coastal GasLink is aware of the close proximity of this crossing to downstream bull trout habitat. Timing windows are generally designed to avoid direct impacts to sensitive life stages of fish (for example, when eggs may be incubating or when spawning migrations are occurring). Construction planning and detailed engineering design will consider the management of flow volumes and mitigation to reduce the potential for erosion and sedimentation of the identified downstream area.		
556	Application Appendix 2G	Appendix D - general	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Date of document is January 2014, but it is the "Field Crews Technical Orientation -Inventory Standards and Procedures" document. Field work was done in 2012 and 2013. The orientation document cannot therefore post-date the work.	The date January 2014 reflects the date of the Application submission to the EAO.		
557	Application Appendix 2G	Appendix D - general	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Figures and large sections of text are copied verbatim from reports copyrighted by Province of BC and authored by industry professionals, without acknowledgement.	Section 4 of Appendix D of the Fish and Fish Habitat TDR provides the list of references. The standards adopted by the field crews are acknowledged within the TDR itself.		
558	Application Appendix 2G	Appendix D, page 1-2.	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Instructions for field assessments at creeks states a downstream assessment minimum of 100m for creeks 1.5m wide or less and minimum 300m downstream for creek greater than 1.5m wide. This is inconsistent with page 4 of the TDR and also page 20 of the TDR. So in total there are three different versions of field methods.	Coastal GasLink confirms that a site length should be a minimum of 150 m long (100 m d/s and 50 m u/s), however, Coastal GasLink typically used a site length of approximately 400 m (300 m d/s and 100 m u/s, consistent with the LSA). Section 3.5.1 of the Fish and Fish Habitat TDR provides further information about the recommended site length.		
559	Application Appendix 2G	Appendix F, crossing 28B1	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		We opted to pick a random portion of the Appendix F datasheets for review, as it is not feasible to do so for each of the hundreds of creek crossings. Crossing 28B1 is purported as non fish bearing in the TDR, but is very close to Pine River (<2km). A 5m waterfalls exist downstream of the site, electrofishing was done (607s), no fish were caught... but the sheet gives no information on the date and conditions of the fishing effort. Site is described as having "unstable, highly erodible banks, numerous slumps impacting the channel". Carry this over to Appendix C for list of recommended mitigation: "standard for non-fish bearing stream", and no timing window necessary. Numerous problems here: (1) we do not consider the sampling sufficient to conclude non-fish bearing here; (2) even if fish are absent, the work is in close proximity to fish downstream; (3) highly erodible banks and numerous slumps, given the location, seems to warrant more specific	The site was sampled June 14, 2013, over a length of 150 m in the best habitat, for 607 EF seconds upstream of an impassable barrier. The site was visited twice, but no fish sampling was conducted on the first visit on Feb 24, 2013. The site was recommended for second sampling because wetted (i.e. not dry / frozen) habitat was observed. Fish habitat was rated as "good" for rearing at the centreline where the sampling was conducted. The available watershed upstream of the falls contains no lakes, ponds, or significant wetlands. Sampling at other nearby mapped drainages indicates the		

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								mitigation than "standard for non fish bearing". Please revise, or explain rationale here.	vast majority of drainages in the area north of Mt. Wartenbe do not exist or are NCD. All three tributaries to this system that were assessed and found to be NCD or NVC. It was identified by the crews that the mainstream should be sampled to confirm non-fish presence.		
560	Application Appendix 2G	Appendix F	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Why only 25 stream crossing forms when the TDR refers to this Appendix as having field assessment forms for all the crossings?	Stream Crossing Data Sheets have been provided to the EAO.		
561	Application Appendix 2G	Appendix G and H	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Risk Management Framework for assessing impacts on fish includes "limiting habitat or cultural, ceremonial, recreational or commercial importance". SFN, WMFN, MLIB and DRFN have been vocal about the cultural importance of many areas, mostly notably major rivers. However there are many other areas throughout the Treaty 8 territory of cultural or ceremonial importance. It is not at all clear how this aspect of species dependence was incorporated, it is not described in the methods at all. Fortunately, Coastal GasLink has been proactive in facilitating Traditional Use Studies for the project area with Treaty 8 communities. Unfortunately the EA was submitted before the incorporation of that information. This risk-assessment framework needs to be redone, using species dependence codes that take into account cultural and ceremonial significance. At present only the big main rivers get scores of 5.	The RMF takes into account the presence of all fish species, and therefore any species of identified as culturally important were considered during the process.		
562	Application Appendix 2G	page 4	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Local study area of 300m downstream is OK for field-based planning but we do not support that this is the downstream extent of "zone of influence"; spills and sedimentation effects can be carried well downstream of 300m. Further, it is not clear why the LSA boundaries and the field survey boundaries are different (LSA = 300m downstream, field surveys extended "at least 100m downstream").	Coastal GasLink confirms that the LSA for the assessment of potential adverse effects on Fish and Fish habitat was defined in the AIR, issued by the EAO in May 2013.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: it is true that the comments were directed at the scoping level decisions in the Application. We accept that the VC and AIR documents were approved by EAO in 2013. We have also pointed out that none of our four communities were able to submit meaningful comments on those documents. In some cases this was due to workload burdens, and the absence of capacity funding at that time. In the case of DRFN, our community was not even invited to comment as we were not then recognized as a Schedule B First Nation. We are willing to entertain rationale that the content that is included in the Application can address these issues through reinterpretation, but we are not satisfied to have technical consultation curtailed on the basis the AIR was approved without input	Coastal GasLink confirms that it has been engaged in dialogue with DRFN, MLIB, SFN and WMFN since project announcement in 2012. Information about this activity in provided in Aboriginal Consultation Reports 1, 2 and 3. Coastal GasLink appreciates input received to date from these Aboriginal groups and looks forward to continued dialogue about site-specific mitigation as construction planning and detailed engineering design advances.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
										from our communities. We also note that it appears there are numerous provisions in the BC Environmental Assessment Act, 2002 that would enable the Executive Director to require supplemental or retro-fitted assessment on a discretionary basis, which calls into question how strict the timelines and AIR may in fact be.	
563	Application Appendix 2G	Section 2.2.3	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Setting the RSA to include the combined watersheds of Peace, Skeena, Kitimat and Fraser Rivers is appropriate at a mapping level. It implies - and rightly so- that the context of individual sub-component species must be communicated separately for each watershed. However to do so at such large spatial scope as these watersheds overlooks the direct and important relevance of fish species and habitat status as the sub-basin level, when considering potential effects on Treaty Rights and on Traditional Use. Seasonal rounds and habitual harvest areas by individual families has always been and must always be possible at spatial scales relevant to these groups. Thus it is impossible to perform an effects assessment of Traditional Use or Treaty Rights by evaluating biophysical impacts within the context of such large spatial area as the Peace River basin. At minimum, the RSA for interpreting effects in the context of these VCs must be done at each large sub-basin to the four listed watersheds. For example, Sukunka Rive , Murray River, Pine River, Burnt River, Anzac River, Pack River, Crooked River, etc.	The RSA used for the assessment of potential adverse effects on Fish and Fish habitat satisfies the requirements of the AIR. The assessment carried out for the Project also satisfies Part C of the AIR by providing an assessment of likely Project effects on Aboriginal Interests after the application of appropriate and effective mitigation (see Section 23). This has included consideration of available Aboriginal ATK, information from scientific research, literature review, as well as from consultations with potentially affected Aboriginal communities. Coastal GasLink is also committed to considering additional TK/TLU information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate. Additionally, Aboriginal groups can provide feedback concerning specific sites and planned mitigation in the context of the EAO working group.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: it is true that the comments were directed at the scoping level decisions in the Application. We accept that the VC and AIR documents were approved by EAO in 2013. We have also pointed out that none of our four communities were able to submit meaningful comments on those documents. In some cases this was due to workload burdens, and the absence of capacity funding at that time. In the case of DRFN, our community was not even invited to comment as we were not then recognized as a Schedule B First Nation. We are willing to entertain rationale that the content that is included in the Application can address these issues through reinterpretation, but we are not satisfied to have technical consultation curtailed on the basis the AIR was approved without input from our communities. We also note that it appears there are numerous provisions in the BC Environmental Assessment Act, 2002 that would enable the Executive Director to require supplemental or retro-fitted assessment on a discretionary basis, which calls into question how strict the timelines and AIR may in fact be.	See response to issue tracking # 562.
564	Application Appendix 2G	Section 2.3.2	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Please change description of Williston Lake to Williston Reservoir.	The waterbody is officially named Williston Lake in the BC Geographical Names Index, available on GeoBC's website: http://geobc.gov.bc.ca/base-mapping/atlas/bcnames/ . Coastal GasLink acknowledges that the waterbody is a reservoir.		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
565	Application Appendix 2G	Section 3.1	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		"Protection of recreationally, commercially, and/or culturally important fish and fish habitat" is not an indicator, it is a sub component. In fact, the species and habitat are a subcomponent, protection of them is an objective. This is in keeping with the BC EAO guideline document from 2013.	Coastal GasLink confirms that the "Protection of recreationally, commercially, and/or culturally important fish and fish habitat" is a valued component as defined in the AIR issued by EAO in May 2013.		
566	Application Appendix 2G	section 3.1	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Key indicators are actually missing here - they would be some proposed means to measure and communicate the status of these sub-component species.	Coastal GasLink confirms that Table 3-1 of the Fish and Fish Habitat TDR reflects the direction provided in the AIR issued by the EAO in May 2013.		
567	Application Appendix 2G	Section 3.2.3	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Aboriginal Traditional Knowledge is presented as being a thorough process of preliminary information followed by groundtruthing with First Nations field staff. This section has to acknowledge that the comprehensive ATK is not possible without inclusion of the Traditional Use Studies carried out by the respective First Nations for this project. These TUS were generally not incorporated into the EA (and not for issues of confidentiality - which can be addressed - but because of the Proponent's desired timelines), which we consider to be rushed.	Coastal GasLink acknowledges that final Traditional Knowledge (TK) Agreements were not signed with each of these Aboriginal Groups until late in the Spring or early Summer of 2013 or until the Spring of 2014, and that certain traditional use studies (TUS) have not been finalized. Coastal GasLink expects to discuss site specific mitigation with each of these Treaty 8 communities following completion of final TUS Reports. Coastal GasLink anticipates that these discussions will further inform construction planning and detailed engineering design.		
568	Application Appendix 2G	Section 3.5.1, p. 20	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		We are satisfied with the methodology of assigning fish bearing status on conservative basis, but to use a gradient of 25% for fish barrier to upstream habitat is not appropriate. It's one thing to assign that 25% section of creek as non-fish bearing but there are many, many examples of fish presence upstream of that sort of habitat - particularly bull trout, Dolly Varden, cutthroat trout that can thrive in steep mountain streams.	Coastal GasLink confirms that the 25% gradient sections are treated as potential barriers, the same as waterfalls and cascades. As such, habitats upstream of the high gradient sections are not considered non-fish bearing unless additional survey work was conducted to support it (e.g., sampling with no fish captured, or no perennial fish habitat present upstream of the high-gradient section).		
569	Application Appendix 2G	Section 3.5.1, p.20	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Discrepancy in the description of field surveys here (100m upstream, 300m downstream) and on page 4, where downstream is 100m.	Coastal GasLink confirms that 100 m downstream is the minimum survey distance specified on page 4 of the Fish and Fish Habitat TDR. Section 3.5.1 of the TDR (Page 20) describes the site length scenarios.		

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570	Application Appendix 2G	Section 3.5.4, page 35	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		We do not agree with the methodology for assigning non-fish bearing (S5 or S6) status in cases where no fish were captured. Reference is given to MOE / MOF documents that were later adopted into the O&G regs (EPMR). However, regarding those guideline documents: (1) the provision of "upstream of a barrier" only applies if fishing has been exhaustive, or there is no perennial habitat upstream of the barrier; (2) the fish sampling to go along with that designation has to be sufficient, and sampling must be done in the conditions that would maximize the likelihood of capturing fish. This applies to both methods and timing. June 25 - July 24 sampling would be mid-freshet in many locations, and April sampling would be winter conditions in many locations (temp <4°C). From page 52 of the TDR: "although the intent of the OWFP was to assess streams during open water conditions and sample for fish presence where applicable, crews encountered snow and cold water temperatures during April and May, including some sites which were still snow covered. At some sites the snowpack persisted until June". This has important implications on the type of mitigation and habitat protection so it is necessary to reconsider the adequacy of fish-bearing designation.	Coastal GasLink has completed its fish and fish habitat field program in accordance with the relevant guidelines and best management practices listed in Section 5.1.4 of the Fish and Fish Habitat TDR.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: In numerous cases (e.g. IR#570, #584), the comment in the first place was meant to point out that the conditions of the AIR had not, in fact, been met. The 30 day screening review is not comprehensive enough to determine if every single aspect of the AIR has indeed been met, and so the response that "the EA was accepted for review, therefore it is inconceivable that we missed a commitment in the AIR" is not acceptable. A response should address the comment on its own merits. These need not be onerous responses, though some may require some reference to supporting opinions. For example, there are concerns related to timing of some of the fish presence/absence work and how that is incompatible with the expectations of the relevant guidelines. The simple fix in this case is to apply a precautionary principle. This sort of comment is not an attempt to officiously tie up the project, it is just an attempt to ensure accountability and transparency, and due diligence.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR. The assessment was completed by a multi-disciplinary team of qualified professionals who have experience with projects of similar scale and complexity, including an understanding of the potential adverse effects and mitigation approaches. A detailed list of the qualified professionals completing the assessment was provided in a technical memo to the EAO on May 13 2014. The Application has been completed using transparent and accepted assessment methodology that has been applied and tested in the context of various regulatory processes. The methodology describes the potential adverse effects of the proposed Project, outlines mitigation, and characterizes the residual adverse effects and their significance.
571	Application Appendix 2G	Section 3.6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Statement, "where warranted, field crews collected infodownstream for larger mainstems". After reviewing the rest of the document(s), it is not clear where this actually was applied. Please clarify.	Coastal GasLink confirms that this approach was taken in areas downstream of the LSA where such information would be useful to help characterize/classify crossings in the LSA. For example, site 5C to 17B1 were all classified as NCD/NVC at the centreline, but all flow together a short distance downstream before entering the Murray River. So the watershed was surveyed by helicopter downstream and a 5 m falls was located 1.2 km upstream from the Murray River. Sampling was conducted above the falls to confirm the non-fish bearing status.		
572	Application Appendix 2G	section 3.7.4, p. 39	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The characterization of effect duration ("the amount of time that a residual effect will persist") within the Risk Management Framework is not clear. Winter work is characterized as having the minimal duration effect since it is done before the growing season. It is given the same duration as no work at all, which is incorrect. However in-stream construction has potential for large sedimentation to downstream habitat and/or direct consequences on incubating redds. Strictly fluvial bull trout - particularly where adult size at maturity is less than 200mm - are adept at making use of seemingly benign, small creeks, and smaller spawning substrate than many people think. Areas of groundwater upwelling in small, snow-covered streams that may seem inconsequential may be active habitat. The duration of a large scale scour or burial of eggs would have a long term duration since it can affect multiple generations. There is also no consideration of riparian impacts, which will also be >1 year in duration. Please clarify if and how these concerns are addressed.	Section 3.7 of the Fish and Fish Habitat TDR provides a detailed description of the Risk Management Framework. Coastal GasLink completed a preliminary risk assessment to determine the level of risk that residual effects identified in the aquatic effects assessment posed to fish and fish habitat. To assess risk, the scale of negative effects was considered in the context of the sensitivity of fish and fish habitat and timing of use. The risk management framework used for baseline data collection about the aquatic environment is a coarse filter for identifying sites with the potential for significant adverse effects.		

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573	Application Appendix 2G	section 3.7.4, p. 39	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The method of ranking intensity based, apparently, squarely on the basis of least risk timing window is not explained.	Coastal GasLink was guided by the Practitioners Guide to the Risk Management Framework, Fisheries and Oceans (2006), which notes that intensity is a way of describing the degree of change, such as changes in water temperature, salinity, flow, suspended sediment etc. DFO indicates effects such as a sediment release occurring during critical spawning periods will have a higher intensity (Practitioners Guide to the Risk Management Framework, Fisheries and Oceans, 2006).		
574	Application Appendix 2G	section 4.5.5, p. 94	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		No explanation of how high-risk watercourse crossings are reflected in the specific mitigation for that crossing.	Coastal GasLink confirms that the risk management framework was used as a tool to identify those crossings where site specific mitigation may need to be considered to further reduce potential adverse effects. Coastal GasLink will use this information as guidance in advancing its construction planning and detailed engineering design.		
575	Application Appendix 2G	Section 5.0, p. 95	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		"The (BMP information provided in this section) will be the basis of detailed, site-specific crossing plans and recommended mitigation practices provided in the Application". We have not found such site-specific information in the Application, just a long list of standard BMPs.	Coastal GasLink is advancing its construction planning and detailed engineering design to develop the appropriate site specific plans for watercourse crossings along the proposed route.		
576	Application Appendix 2I	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Disruption to groundwater flow where springs are encountered are identified as a potential residual effect in Section 7.8.1 of the application. The TDR provides no discussion of baseline data for springs, including the springs that have been identified by TEK. Springs are extremely important. Please provide baseline data for known springs that may be affected by the project.	Coastal GasLink confirms that springs reported by aboriginal community TEK participants are noted on Page 7-174 of Application and include two locations near KP 70.6 and KP 96.8. Eight other springs were identified within the Hydrology LSA through review of the Provincial Water Licence database and the locations are shown on the Hydrology TDR Mapbook, and corresponding details summarized in Appendix D of Hydrology TDR.		
577	Application Appendix 2I	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		It is our interpretation that effects to groundwater are less likely if trenching does not reach the water table. Thus, potential changes to groundwater quantity will be influenced by the depth to groundwater itself. The TDR identifies aquifers that may be affected, but does not provide information on the depth of the water table; if the water table is at greater depth than the trenching depth, groundwater flow may not be affected at all. The lack of baseline data or interpretation of depth to water for aquifers crossed by the project made conclusive technical review of this section very challenging.	Comment noted. Coastal GasLink confirms that the EMP identifies mitigation for situations where trenching may encounter groundwater. Available information about the location of aquifers and higher water tables will continue to inform Coastal GasLink's construction planning and detailed engineering design.		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
578	Application Appendix 2I	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Groundwater quality data includes little to no information on hydrocarbons, which presumably are the potential contaminants of concern. Please clarify if your assumption is that there is currently no hydrocarbon contamination along the proposed route.	Hydrocarbon compounds were included in the baseline groundwater quality data review. The compilation of data available from BC MOE's Environmental Monitoring System and from BC MOE Mine Reports included PAH (polycyclic aromatic hydrocarbons) compounds and LEPH/HEPH (light and heavy extractable petroleum hydrocarbon) compounds. An inventory of potentially contaminated sites was developed for the proposed Project and is included in Volume 2, Appendix 2-M, Social Technical Report Appendix C. Based on a review of this inventory, Coastal GasLink is aware of three provincially registered sites, one of which is crossed by the proposed route. Coastal GasLink expects to carry out further study at the western end of the pipeline once construction planning and detailed engineering design advances to further refine the construction footprint. Additionally, surficial sediment samples taken from a watercourse downstream of the Brule coal mine where it crosses the proposed route identified evidence of historical hydrocarbon contamination (Volume 1, Section 20.4.3, Surface Water and Sediment Quality).		
579	Application Appendix 2K	Section 1.3.1	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Wetlands TDR acknowledges that no field surveys were conducted between KP 522 and 592 (70km of the Project route) due to active protesting activities and concerns for worker safety. Mapping for this area show extensive wetland ecosystems through which the proposed Project alignment occurs (particularly between KP 555 to 575). The absence of field collected data across 70km represents a notable gap in groundtruthed data potentially resulting in inconclusive assessments of wetlands, ecosystems of conservation concern, and plant species at risk. Please clarify how this gap will be addressed.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The application describes the technical boundary in section 3.1.2 of the Application. Coastal GasLink expects to collect the necessary data to advance the project planning. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in wetlands. Section 1.4 of the application includes evaluation criteria for pipeline routing, compressor and meter stations siting and the location of temporary ancillary facilities.		
580	Application Appendix 2K	Section 2.5	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The report indicates that 413 of the 2,225 detailed/ground/visual plots were observed during the TEM field surveys. Section 2.5 (p. 25, line 13) indicates that 541 wetlands were surveyed for wildlife habitat, but there is no indication that these assessments covered wetland function within the context of this VC. Presuming the same detailed to ground to visual plot ratio applies to the 413 wetland plots during the TEM surveys (i.e., 5 : 20 : 75), this would suggest that only 20 detailed wetland focused plots were completed for the Project LSA. This is 20 wetland detailed plots across a total LSA of 133,400ha (667km x 2km = LSA), of which 12,511ha are known to be wetlands (Section 1.4.2, Page 15, Line 2). If this assumption is accurate, it is our opinion that the level of effort invested in ground-truthing wetlands in the LSA means there is significant uncertainty in the Application's conclusions for this VC. Please confirm the number of detailed to ground to visual plots completed in the 413 wetland plots surveyed, and please provide greater rationale for the confidence presented in the conclusions.	Coastal GasLink has prepared a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Wetlands that were surveyed for wildlife habitat were used to assist in creating Table 3-20 and the text in Section 3.2.7 (Habitat Functions). As wetland TEM plots are a subset of the Vegetation TEM plots, the same ratio does not apply. There was an emphasis on completing plots in wetlands, and as such, 19% of the plots were completed in wetlands, while wetlands only cover approximately 9% of the LSA. A total of 73 detailed, 81 ground and 259 visual plots were completed in wetlands across the LSA.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
581	Application Appendix 2L	Section 3.1, page 28	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The methods section in the TDR for wildlife and wildlife habitat incorrectly defines the wildlife species/groups listed in this section as Key Indicators. Based on BC EAO methodology, wildlife species/groups are not indicators, rather they are sub-components. The BC EAO Guideline for the Selection of Valued Components and Assessment of Potential Effects defines indicators as "metrics used to measure and report on the condition and trend of a VC and (furthermore) should be clearly identified to further focus and facilitate the analysis of interactions between the project and the selected VC. Indicators are distinct from sub-components that may be used to facilitate the assessment of a broadly defined VC; for example, for a broadly defined VC such as wildlife, individual species or species groups (e.g., grizzly bear or large carnivores, Northern Goshawk or avifauna, Western Toad or amphibians) may be used as sub-components to structure the assessment."	Coastal GasLink prepared its Application in accordance with the AIR issued by the EAO in May 2013.		
582	Application Appendix 2L	Section 3.5.1, page 35	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Regarding the analysis of remote camera data, what are the assumptions of the occupancy models? How were these assumptions met?	There are four main assumptions within the occupancy models developed for the Project (MacKenzie 2006): 1. The occupancy state is "closed" during the sampling period. a. Wildlife occupancy does not change during the sampling period. 2. Sites are independent. a. Detection of an individual animal at one location must not be related to whether it is detected at another location. 3. No unexplained heterogeneity in occupancy. a. The probability of occupancy is the same across sites or can be explained with site characteristics (i.e., model covariates). 4. No unexplained heterogeneity in detectability. a. The probability of detection is the same across sites or can be explained with site characteristics (i.e., model covariates). b. The assumptions were met in the following ways: 1. Camera trap sampling appears to violate the first assumption as large mammals clearly move in and out of a camera's field of view during a one month sampling period. However, MacKenzie et al. (2004) found that this assumption can be violated if animals move in and out of the field of view in a random pattern, which is indeed the case for mobile species like large mammals. In that case occupancy results are interpreted as 'probability of use', where a member of the species occupies a location on at least one sampling occasion rather than during the entire sampling period. Consequently, occupancy results were referred to as 'probability of use' in the technical data report (see section 4.4.1 and Table 4-17). 2. Camera traps were located at a minimum of 10's of kilometers apart. It is unlikely that an individual animal detected at one site would be detected at another site. 3. Habitat site characteristic measurements (i.e., model covariates), including habitat type and human footprint, were included in occupancy models to account for their effects on wildlife probability of use. 4. Camera site characteristic measurements, including snow depth and vegetation cover, were included in occupancy models to account for their potential effects on probability of wildlife detection.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									MacKenzie, D. I. (Ed.). (2006). Occupancy estimation and modeling: inferring patterns and dynamics of species occurrence. Academic Press. MacKenzie, D.I., Bailey, L.L. & Nichols, J.D. (2004) Investigating species co-occurrence patterns when species are detected imperfectly. Journal of Animal Ecology, 73, 546-555.		
583	Application Appendix 2L	Section 3.5.3, page 39	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulneau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Baseline surveys for raptor nests may have underestimated the number of nests occurring in the LSA. As per RISC methods, although aerial surveys are efficient for searching large areas in a short period of time, boat or foot surveys should be used at least in part of the census area as a correction factor and to verify nest site locations (Inventory Methods for Raptors, Standards for Components of BC's Biodiversity No. 11, October 2001, Version 2.0). Please note that the AIR committed to adopting this protocol.	Coastal GasLink confirms that baseline aerial surveys for raptor nests were focused specifically on bald eagle and osprey. The BC Wildlife Act requires year-round protection of eagle, peregrine falcon, gyrfalcon, and osprey nests. (BC MOE 2012). The aerial survey was used to identify nesting locations for these species that could potentially interact with the Project. Due to the sufficiently large local study area (LSA), aerial surveys were deemed the most efficient method by which to search the LSA for nesting bald eagle and osprey. Aerial surveys targeted preferred habitats within the LSA, including forested margins and islands of rivers, lakes and other wetlands that occurred within 500 m of the Project centerline (TDR section 3.5.3 pg.39). The aerial survey work provides useful information related to early Project planning and mitigation. Coastal GasLink is committed to conducting additional pre-disturbance surveys prior to construction in order to appropriately verify and mitigate for any identified bald eagle or osprey nests. These additional surveys are likely to include aerial and foot surveys. British Columbia Ministry of Environment. 2012. Develop with Care 2012: Environmental Guidelines for Urban and Rural Land Development in British Columbia. Website: http://www.env.gov.bc.ca/wld/documents/bm		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									p/devwithcare2012/index.html.5 Accessed: July 2013.		
584	Application Appendix 2L	Section 3.5.3, page 39	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Helicopter (aerial) surveys are not an appropriate method to survey for Great Blue Heron nests. As per RISC standards, aerial surveys can be used to detect Great Blue Herons foraging on tidal flats, lakeshores and open fields; however it is not feasible to survey breeding colonies for number of active nests (due to sensitivity during breeding). Helicopters are also not suitable for aerial surveys of GBH due to the high-degree of disturbance caused by low-level flights (Inventory Methods for Colonial-Nesting Freshwater Birds: Eared Grebe, Red-Necked Grebe, Western Grebe, American White Pelican, and Great Blue Heron, Standards for Components of BC's Biodiversity No. 8, March 1998, Version 2.0). Please note, the AIR committed to adopting this protocol.	Coastal GasLink confirms that baseline aerial surveys conducted for the Project were designed to be multi-purpose so as to survey for multiple species (bald eagle, osprey, great blue heron). The goal of the survey effort was to identify nest locations for these species that could potentially interact with the Project. Due to the sufficiently large local study area (LSA), aerial surveys were deemed the most efficient method by which to search the LSA for the nests of these species. Aerial surveys targeted preferred habitats within the LSA, including forested margins and islands of rivers, lakes and other wetlands that occurred within 500m of the Project centerline (TDR section 3.5.3 pg.39). For a multi-species survey such as this, guidelines were adopted that would have the least negative impact for detections on a given species (refer to TDR section 3.5.3 pg.39). No great blue herons were observed during the survey (TDR Section 4.4.3 pg. 238), including in open areas where they would be conspicuous. Coastal GasLink is committed to conducting additional pre-disturbance surveys prior to construction in order to appropriately verify and mitigate for any identified bald eagle, osprey, or great blue heron nests. These additional surveys are likely to include a combination of aerial and foot surveys.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: In numerous cases (e.g. IR#570, #584), the comment in the first place was meant to point out that the conditions of the AIR had not, in fact, been met. The 30 day screening review is not comprehensive enough to determine if every single aspect of the AIR has indeed been met, and so the response that "the EA was accepted for review, therefore it is inconceivable that we missed a commitment in the AIR" is not acceptable. A response should address the comment on its own merits. These need not be onerous responses, though some may require some reference to supporting opinions. For example, there are concerns related to timing of some of the fish presence/absence work and how that is incompatible with the expectations of the relevant guidelines. The simple fix in this case is to apply a precautionary principle. This sort of comment is not an attempt to officiously tie up the project, it is just an attempt to ensure accountability and transparency, and due diligence.	See response to issue tracking # 570

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
585	Application Appendix 2L	Section 3.5.5, pages 42 and 43	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The standard protocol for surveying for Yellow Rail and American Bittern (Presence/Not Detected) in BC is by nocturnal call playback or call playback respectively (Inventory Methods for March Birds: Bitterns and Rails, Standards for Components of BC's Biodiversity No. 7, October 7, 1998, Version 2.0). Given that the methods used to survey for these species varied from the RISC methods (i.e., use of acoustic monitoring) please provide some rationale as to why these methods were selected over the BC standards that were committed to in the AIR.	Coastal GasLink clarifies that autonomous recording units (ARUs) were used because they provide several advantages over call-playback surveys: <ul style="list-style-type: none"> • ARUs can be programmed to conduct multiple surveys over several days and several times within a 24-hour period. For the Project, ARUs were deployed for 5 days (see Lines 7-9, Page 43 of the TDR), and set to record 7 times per night (see Lines 73-5, Page 46 of the TDR) for a total of 35 8-minute surveys. The number of surveys that ARUs provide relative to a single event RISC survey very likely increases the probability of detecting elusive target species such as yellow rail. • ARUs reduce the potential for observer effects on species. Biologists need only to visit survey sites for initial ARU deployment and ARU retrieval. During the recording interval between those visits there are no biologists at the survey site potentially influencing wildlife behavior. Call-playback surveys require a biologist at the site during the entire survey session, which may disturb elusive species. • ARUs provide a digital record of the survey that can be referred to at a later date or independently quality-checked or reviewed as required. • ARUs increase safety for field biologists. ARUs can be deployed during daylight hours and set to record during the night, whereas nocturnal call-playback surveys require that biologists travel to sites and conduct surveys at night when it is dark. <p>One potential disadvantage of ARUs is that a call-playback survey cannot be completed, as there are currently no broadcast capabilities (i.e., speakers) on ARUs. However, the number of surveys that were completed using ARU's (35) likely makes up for this disadvantage, because if a species is present at a wetland, it is likely that it will call at least once during the 35 8-minute long surveys completed at the site.</p>		
586	Application Appendix 2L	Section 3.6.6, page 116	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		How were ponds and lakes defined for the basis of model development and what was the rationale behind assigning them a nil habitat rating? Depending on size and vegetation characteristics ponds/lakes may provide suitable habitat for wetland birds.	Coastal GasLink confirms that ponds and lakes were defined according to the Standard for Terrestrial Ecosystem Mapping in British Columbia (RIC 1998). A lake is defined as "a naturally occurring static body of water, greater than 2 m deep in some portion", while a pond is defined as "a small body of water greater than 2 m deep, but not large enough to be classified as a lake (e.g., less than 50 ha)." <p>The wetland bird community habitat model to which this issue summary refers was developed to represent breeding habitat for 34 songbird species (page 114 of the Wildlife and Wildlife Habitat TDR). Ponds and lakes were assigned a nil rating in this model because open waterbodies such as these do not provide suitable songbird breeding habitat.</p> <p>Resources Inventory Committee (RIC). 1998. Standard for Terrestrial Ecosystem Mapping</p>		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									in British Columbia. Resources Inventory Committee, Victoria, BC.		
587	Application Appendix 2L	Section 3.6.6, pages 84-87	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Were ratings adjustments for sensory disturbance considered for the Band-tailed Pigeon model? If yes, what was the rationale for adjustments not being made? Presumably breeding habitat suitability would be reduced near the Project footprint during the construction phase.	Coastal GasLink confirms that ratings adjustments for band-tailed pigeon were considered, and based on a review of literature there was no compelling evidence to suggest that sensory disturbance would reduce habitat suitability. In British Columbia, band-tailed pigeon is known to nest in a variety of anthropogenic habitats, including backyards, parks, golf courses and orchards (Campbell et al. 1990; COSEWIC 2008). Based on this evidence, we assumed that band-tailed pigeon is quite tolerant of human activity and will readily nest in proximity to disturbance features. Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1990. The Birds of British Columbia: Nonpasserines, Diurnal Birds of Prey Through Woodpeckers. Volume 2. Royal British Columbia Museum. Victoria, BC. Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2008. COSEWIC Assessment and Status Report on the Band-Tailed Pigeon Patagioenas fasciata in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, ON. vii + 42 pp.		
588	Application Appendix 2L	Section 3.6.7, page 130	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Only land within a designated or proposed mountain goat ungulate winter range (UWR) or wildlife habitat area (WHA) was considered suitable mountain goat habitat within the project study areas. Given that there is likely suitable mountain goat habitat outside of these areas we would argue that the assessment of potential adverse effects will underestimate the impact on mountain goat habitat.	Coastal GasLink confirms that only land within a designated or proposed mountain goat ungulate winter range (UWR) or wildlife habitat area (WHA) was considered suitable mountain goat habitat within the project study areas.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: -This will underestimate impacts on mountain goats as UWR capture only certain features of mountain goat habitat use. The proponent response does acknowledge that goat habitat exists outside of UWR, but did not provide us with further explanation regarding how this influences the conclusion drawn in the Application. This is important because the mitigation offered in the EMP (Section 7.1.3) specifies all mountain goat mitigation in specific reference to UWR.	The results of the quantification of Project effects in mountain goat ungulate winter range is only one component of the information used to characterize the residual effects of the Project on mountain goat. The assessment acknowledges that mountain goat utilize habitats outside of the designated UWR, and may be affected by the construction and operation of the Project. The assessment applies assumptions clarified in the Technical Memo on Mountain Goat submitted to the EAO on May 13, 2014. As part of the permitting process with the OGC, Coastal will be required to provide further information on mitigation and monitoring for areas where the proposed Project deviates from general wildlife measures, such as when crossing an ungulate winter range. Coastal GasLink will meet all regulatory requirements.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
589	Application Appendix 2L	Section 3.6.7, page 141	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Downgrading contiguous areas with ratings 1, 2 or 3 that were <15 ha to nil is not precautionary for the marten habitat suitability model. This is considering the reference used here (i.e., Synder and Bissonette, 1987), which reports that some marten detections were in habitat patches <15 ha. This would mean that the baseline habitat conditions have a bias to underestimate suitability for this sub-component species.	Several researchers note the importance of large patch size and larger areas of interior forest as important predictors of the occurrence of marten (Chapin et al. 1998; Hargis et al. 1999; Potvin et al. 2000). These researchers note that larger patch size and interior forest area provide the preferred habitat structure for marten. This includes the availability of coarse woody debris structure that provides for refugia as well as subnivean access to prey. The work completed by Snyder and Bissonette (1987) noted that the majority of marten detections (81%) were within forest patches >15.0 ha. Snyder and Bissonette (1987) also note that larger residual and undisturbed stands (>15 ha) are important habitat components for marten. Other marten habitat models have also incorporated these patch size thresholds (e.g., Takats et al. 1999). Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. References: Chapin, T.G., D.J. Harrison, and D.D. Katnik. 1998. Influence of landscape pattern on habitat use by American marten in an industrial forest. <i>Conservation Biology</i> . 12(6):1327-1337. Hargis, C.D., J. Bissonette, and D.L. Turner. 1999. The influence of forest fragmentation and landscape pattern on American martens. <i>Journal of applied Ecology</i> . 36(1):157-172. Potvin, F., L. Bélanger, and K. Lowell. 2000. Marten habitat selection in a clearcut boreal landscape. <i>Conservation Biology</i> . 14(3):844-857. Synder, J.E. and J.A. Bissonette. 1987. Marten use of clear-cuttings and residual forest stands in western Newfoundland. <i>Canadian Journal of Zoology</i> . 65: 169-174. Takats, L., R. Stewart, R. M. Todd, R. Bonar, J. Beck, and R. Quinlan. 1999. American marten winter habitat: Habitat suitability index model, Version 5. Foothills Model Forest. http://www.fmf.ab.ca .		

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590	Application Appendix 2L	Section 3.6.8, page 153	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		It does not seem reasonable that structural stage 2 was rated nil within 500m of suitable streams. As discussed in the Habitat Use and Life Requisites section, coastal tailed frog are known to use clearcut areas adjacent to suitable streams. Since structural stage 2 ecosystems are early successional stage or herbaceous communities maintained by environmental conditions or disturbance that resemble clearcuts communities (Standards for Terrestrial Ecosystems Mapping in BC, 1998) it seems logical that they would provide some terrestrial habitat value to coastal tailed frogs.	Coastal Gas Link confirms that it is correct that coastal tailed frogs are known to use clearcuts adjacent to suitable streams. For example, Richardson and Matsuda (2000) found use of clearcuts by juvenile and adult coastal tailed frogs although they do not provide details on the characteristics of these clearcuts (i.e., whether or not they were shrubby). Spear and Storfer (2008) suggest that grassy, non-forested areas can act as barriers to gene flow through dispersal by coastal tailed frog on land. As stated on Page 155 of the Wildlife and Wildlife Habitat TDR, coastal tailed frogs prefer moist old and mature forest habitat, though maturing forests are also suitable. On this basis the assignment of nil value to structural stage 2 habitats and low value to structural stage 3 habitats within 500 m of suitable streams is considered appropriate. Matsuda, B.M. and J.S. Richardson. 2000. Clearcut timber harvest and movement patterns in tailed frogs. Pages 485-488 in L.M. Darling (editor). 2000. Proceedings of a Conference on the Biology and Management of Species and Habitats at Risk, Kamloops, BC, 15-19 February 1999. British Columbia Ministry of Environment, Lands and Parks, Victoria, BC and University College of the Cariboo, Kamloops, BC. Spear, S.F. and A. Storfer. 2008. Landscape genetic structure of coastal tailed frogs (<i>Ascaphus truei</i>) in protected vs. managed forests. <i>Molecular Ecology</i> 17: 4642–4656."		
591	Application Appendix 2L	Section 3.6.8, page 159	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		A limitation of both the western toad and pond-dwelling amphibian models is that smaller ponds, although assumed to provide habitat, are not captured due to the inability to map these smaller habitats. Were any adjustments made in the model to account for this limitation? If not, please provide additional comment on whether this has potential implications for ultimate conclusions (e.g. sensitivity analysis in light of the uncertainty).	Coastal GasLink confirms that no adjustments were made to the western toad or pond-dwelling amphibian models to account for smaller unmapped habitats. Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. This includes surveys to identify western toad and pond-dwelling amphibian breeding sites, which include smaller ponds.		
592	Application Appendix 2L	Section 4.2, pages 172 - 177	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		This section is very repetitive largely due to the fact that it is organized by LRMP. It seems that it would have been more appropriate to organize the information by aboriginal communities.	Comment noted.		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
593	Application Appendix 2L	Section 4.2, pages 172 - 177	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The ATK described in this section is very general and rarely specific to individual First Nation communities as it seems to rely heavily on desktop review of third party reports and not TUS. In light of the fact that project-specific TUS studies are either in process or have been completed post-Application, we would like a commitment from Coastal GasLink to review and potentially revise their Application upon consideration of all outstanding TUS studies, prior to construction.	In Section 3.2.1 of the Application, Coastal GasLink describes how available Aboriginal Traditional Knowledge will inform the assessment. Coastal GasLink acknowledges the participation of local Aboriginal representatives in the field data collection program to share Traditional Ecological Knowledge. Coastal GasLink will continue dialogue with Aboriginal groups about site specific issues and mitigation to inform construction planning and detailed engineering design. Coastal GasLink acknowledges that final Traditional Knowledge (TK) Agreements were not signed with each of these Aboriginal Groups until late in the Spring or early Summer of 2013 or until the Spring of 2014, and that certain traditional use studies (TUS) have not been finalized. Coastal GasLink expects to discuss site specific mitigation with each of these Treaty 8 communities following completion of final TUS Reports. Coastal GasLink anticipates that these discussions will further inform construction planning and detailed engineering design.		
594	Application Appendix 2L	Section 4.3 and 5.1.2	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There are several tables in these sections that list issues and concerns identified by First Nations on particular segments of the pipeline route including requests for avoidance or buffers to be established around particular wildlife habitat features. It is important that these and ongoing input from First Nations be considered in the mitigation section for wildlife and wildlife habitat. It is not clear how these specific requests were addressed further on in the Application beyond very general statements along the lines of "First Nations concerns have been considered"	Coastal GasLink will continue dialogue with Aboriginal groups about site specific issues and mitigation to inform construction planning and detailed engineering design.		
595	Application Section 1	page 1-50 to 1-68	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The AIR (p. 3 to 4) includes a commitment to use the listed evaluation criteria for this section. The Application (p 1-50 and 1-51) includes a similar but altered list of 22 criteria. More importantly, the listing of those 22 criteria is followed in the Application by a lengthy but difficult to follow timeline of how the current route has been chosen. There is neither a detailed nor a structured account for how the listed criteria (either those from AIR or the ones outlined in the Application) are actually applied to the assessment. Given the number of pipeline projects proposed through Treaty 8 territory, comparison of alternative routes takes on a particularly high importance in the EA process. If additional time had been taken to better incorporate TUS for Treaty 8 communities, additional avoidance/mitigation measures for high-use areas could have been explored in a more comprehensive way. This should still be undertaken. The Treaty 8 nations - and many others - have been advocating for planned routing comparisons that will eliminate the unnecessary redundancy and extensive cumulative impacts on biophysical and cultural receptors that will arise from this stovepipe method. The lack of a structured comparison of alternatives, including not only identification of how different alternatives were identified but also then how they were compared to each other, is therefore a notable deficiency in the Application.	Coastal GasLink acknowledges that final Traditional Knowledge (TK) Agreements were not signed with each of these Aboriginal Groups until late in the Spring or early Summer of 2013 or until the Spring of 2014, and that certain traditional use studies (TUS) have not been finalized. Coastal GasLink expects to discuss site specific mitigation with each of these Treaty 8 communities following completion of final TUS Reports. Coastal GasLink anticipates that these discussions will further inform construction planning and detailed engineering design.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
596	Application Section 1	Page 1-89	Project Benefits	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		AIR committed to including "projected benefits for Aboriginal economic development, including employment, contracting and business development, including small and medium sized enterprise". The Application actually includes very scant detail on the specific projected benefits other than an intended course of action, such as to create Aboriginal hiring quotas for general contractor(s). Two problems here: first, it is the old standard model which has proven to provide fairly limited and very transient benefits to Aboriginal communities. Second, seeing as how the old model IS being pitched, then there should be information available to present projected benefits to Aboriginal groups in a much more detailed way based on past precedent and available data. Compare the level of research and methodology for this section as a Socio-ec KI compared to other more routinely applied disciplines. Aboriginal communities are arguably the groups most affected by the project, and the consideration of project benefits against impacts is a key foundation of the assessment. This information gap is therefore highly material to the ability for EAO to complete this assessment properly, and should be addressed in parallel with ongoing government-to-government discussions and further consultation by the Proponent.	The description of Coastal GasLink's engagement with Aboriginal groups included in Section 23 of the Application provides information about Coastal GasLink's efforts to date to engage in dialogue with Aboriginal Communities about opportunities to participate and realize benefits from the Project. Coastal GasLink will continue to implement the Aboriginal Consultation Plan approved by the EAO. The Plan describes Coastal GasLink's commitment to continue engagement with Aboriginal groups from pre-application through construction and operations. The Aboriginal Consultation Reports 1 and 2 submitted to the EAO by Coastal GasLink includes further detail about the dialogue to date regarding such issues as participation and benefits. Coastal GasLink respects the confidentiality related to discussions with Aboriginal groups about specific details of contracting opportunities and agreements.		
597	Application Section 1	Section 1.2.2, page 1-15	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The number of pioneer camps doesn't add up (i.e., the Project Description states that approximately 15 pioneer camps are needed for the Project, with 6 to be located in non-mountainous terrain and 14 in mountainous terrain).	Coastal GasLink confirms that twenty potential sites were identified in the Application, but expects that only approximately 15 sites will be used. Coastal GasLink will determine the pioneer camp locations as construction planning and detailed engineering design advances.		
598	Application Section 1	Section 1.4.3, Table 1-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There is an explanation missing for pipeline section KP 24.1 to KP 26.5 under the column "Reason for Application Corridor Width." The Application width proposed for this section is 500m so presumably there are some major constraints being considered here (e.g., river crossing) – it is important from the reviewer's perspective to know what these are. Please clarify.	Coastal GasLink confirms that this segment crosses the Murray River where additional flexibility is necessary in case the contingency crossing technique is implemented, and for determining the best location for a vehicle crossing. This content is provided in Table 26-2 of the Application.		
599	Application Section 10	Section 10.1, pages 10-1 and 10-2	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		This section gives a very general description of the scoping process and although it describes the basis for selecting sub-components to assess within the wildlife and wildlife habitat VC, the section does not provide rationale for inclusion/exclusion of selected or considered sub-components (e.g., Species X was included because it is at-risk and is important to trappers; or, conversely Species Y was excluded because...). Documenting and providing rationale to support inclusion/exclusion of VCs and sub-components is important to provide assurance that species/species groups raised in the scoping process by stakeholders were considered. This rationale has not been provided to date for the Coastal GasLink project (i.e., not found in the VC scoping doc, AIR, TDR or Application).	The selection of valued components was completed using the methodology outlined in Section 3.1.1 of the AIR and detailed in the Coastal GasLink Selection of Valued Components document. Both documents were issued by the EAO in spring 2013.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
600	Application Section 10	Section 10.10.2, pages 10-102 and 10-103	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Although we understand the context that this provides in this section of the Application, the bullet points summarizing typical movement patterns of pond-dwelling amphibian species would be more appropriate in the Wildlife and Wildlife Habitat TDR.	Comment noted.		
601	Application Section 10	Section 10.12	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		<p>With regard to the determination of significance for wildlife and wildlife habitat sub-components, the Application is contradictory. It states that "in the absence of accepted thresholds or standards for assessing the significance of residual adverse effects on wildlife key indicators, a qualitative significance threshold has been defined." A paragraph later the Application provides this definition of significance "Potential residual adverse effects are considered not significant when they: do not exceed accepted biological thresholds or standards..." If there are no thresholds or standards established for wildlife sub-components as stated earlier, how can the definition of significance include a decision as to whether potential residual adverse effects exceed accepted biological thresholds or standards? We find that the determination of significance is not clearly documented or explained in the Assessment. As per EAO guidelines, where legislated or regulated thresholds do not exist the significance definition should consider relevant VC-specific factors, such as population integrity, resource management objectives or other appropriate factors. The Application provides related information in other sections for wildlife sub-components, however it has not been clearly linked to definitions or determinations of significance. The assessment should identify the relevant VC specific factors and explain how they were considered in the determination of significance. This methodology would also lend itself to thresholds that may vary by region. We believe this is necessary to avoid overly-generalized conclusions that can arise through very large geographic projects, and also as a means to effectively assess impacts on Traditional Use and Treaty Rights at the appropriate scale.</p>	<p>Coastal GasLink confirms that as stated in Section 10.12 of the Application, "Potential residual adverse effects are considered not significant when they:</p> <ul style="list-style-type: none"> • do not exceed accepted biological thresholds or standards • are not predicted to affect the indicator population to a degree such that stated management and conservation objectives might not be attainable • are reversible. <p>When a long-term or irreversible potential residual adverse effect with a magnitude that is predicted to exceed an accepted biological threshold or standard, or is predicted to affect the indicator population such that stated management or conservation objectives might not be attainable, it is considered significant."</p> <p>Where there are no available accepted biological thresholds or standards, a potential residual adverse effect is significant if it is a long-term or irreversible potential residual adverse effect with a magnitude that is predicted to affect the indicator population such that stated management or conservation objectives might not be attainable. In other words, accepted biological thresholds inform the significance determination when they are available.</p> <p>As discussed in Section 10.8 of the Application, "the sensitivity of the key indicator (e.g., as indicated by conservation status, population trend and sensitivity to disturbance) was considered in the determination of magnitude when biological thresholds or standards were not available, such as in the assessment of movement and mortality risk for most indicators. In the absence of biological thresholds or standards, the magnitude evaluation also considered relevant conservation, recovery, and land use planning objectives and strategies, and previous environmental assessments reviewed and approved under provincial and federal environmental regulatory processes, where appropriate. These sources provide useful information on social values and risk tolerance, which are an essential component of significance determination." This is consistent with the Environmental Assessment Office (EAO) guidelines (BC EAO 2013).</p>		

Coastal GasLink Project: Working Group Comment Tracking Table

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									<p>Region-specific regulatory and policy setting information, such as land use planning objectives and strategies, are identified in Section 10.2 of the Application. Ecological context, including region-specific information, for each wildlife and wildlife habitat KI is provided in Sections 10.9-10.11. Additional region-specific information is presented throughout Sections 10.9-10.11 and Sections 10.14-10.16 (e.g., habitat modelling results are presented by Land and Resource Management Plan area, grizzly bear core areas and motorized access density results are presented by Grizzly Bear Population Unit, etc.).</p> <p>Reference: British Columbia Environmental Assessment Office. 2013. Guideline for the selection of valued components and the assessment of potential effects.</p>		
602	Application Section 10	Section 10.14.1, page 10-174	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Cumulative effects on Mountain Goat are underestimated as they only consider impacts to within UWR and WHAs.	Coastal GasLink acknowledges that mountain goat occurrence is not restricted to designated UWRs and WHAs, and will implement appropriate mitigation to avoid adverse effects. For more information about mitigation for mountain goat habitat, please refer to Section 7.1.3 of the EMP.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
603	Application Section 10	Section 10.14.4, page 10-179, Table 10-27	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		As for the assessment of potential residual effects, the criteria for the cumulative effects assessment have not been defined (e.g., how is medium defined with respect to magnitude, when "environmental or regulatory standards" that are embedded in the magnitude definition on p. 3-23 are not defined?).	Coastal GasLink applied the methodology for assessing residual adverse effects outlined in the AIR, issued by the EAO in May 2013.		
604	Application Section 10	Section 10.3.1, page 10-20, Table 10-4	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Application states that the "spatial Footprint was defined as a 100m wide corridor, which would encompass the permanent ROW and likely temporary workspace, in addition to proposed permanent facility locations." Section 1.4.13 defines temporary workspace to include equipment storage, laydown areas, borrow pits, timber salvage and decking sites, and temporary construction camp facilities". These areas can collectively create a much larger footprint than what is considered in the effects assessment. Construction camps alone are predicted to range from 1.5ha to 25ha as indicated in Table 1-7 of the Project description and approximately 25 of these camps are needed. The clearing for these additional areas and the subsequent loss of habitat could have a huge impact on wildlife that may not be considered in the effects assessment. We consider this to be a significant gap in the assessment and request that correction be made accordingly prior to any decisions being rendered.	Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. The complete temporary facility footprint was not included because the locations for these will be developed during the construction planning and detailed engineering design. For example, in the case of access roads as shown in Table 1-5 of the Application, in some cases, there will be no work required, while in others there may be a need for road upgrades or new road construction. Each of these scenarios would have a different requirements for clearing, depending on the location and type of access needed. The only areas where removal of forest is required for the life of the facility are the compressor and meter station sites and the approximately 10m wide area above the operating pipeline. Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will include allowing for natural reforestation.		
605	Application Section 10	Section 10.3.1, page 10-21, Table 10-5	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Table 10-5: Study Area Segments and Project Components Corresponding to Key Indicator – this table should include roads and ancillary sites under Project Components for each of the wildlife species/groups since roads and ancillary structures will also impact many of these species. Roads and construction camps in particular can have specific and large impacts on wildlife and do not appear to have received due focus in this Application. We are concerned the Application underestimates the effect of the Project on wildlife and wildlife habitat (and by extension other related VCs such as Traditional Land Use).	Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. The complete temporary facility footprint was not included because the locations for these will be developed during the construction planning and detailed engineering design. For example, in the case of access roads as shown in Table 1-5 of the Application, in some cases, there will be no work required, while in others there may be a need for road upgrades or new road construction. Each of these scenarios would have a different requirements for clearing, depending on the location and type of access needed. The only areas where removal of forest is required for the life of the facility are the compressor and meter station sites and the approximately 10m wide area above the operating pipeline.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: -Details are also lacking on the impacts of the ancillary components of the project.	The Application considered potential adverse effects of temporary ancillary facilities in a qualitative fashion. Further detail on temporary ancillary facilities, including spatial information will be provided to the OGC during permitting, and will adhere to the requirements of the Oil and Gas Activities Act and regulations, as well as the OGC's Environmental Protection and Management Regulation.

Coastal GasLink Project: Working Group Comment Tracking Table

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									Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will include allowing for natural reforestation.		
606	Application Section 10	Section 10.5.1, page 10-29	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Application states that "caribou, mountain goat, grizzly bear and wolverine were specifically identified [by Aboriginal groups] as sensitive species that might be displaced from the vicinity of the proposed Project as a result of construction activities." However, wolverine was not included as a sub-component - please provide rationale as to why wolverine was not considered in the assessment, as we believe it warrants specific consideration from a project-level and cumulative effects level.	Coastal GasLink assessed the valued components and key indicators listed in Section 4.6 of the AIR, issued by the EAO in May 2013.		
607	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The second mitigation point listed in this table is as follows "Complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. Survey locations should be selected to focus on habitats or segments of the proposed route determined to have the potential for occurrence of site-specific habitat features that could be adversely affected by the proposed Project." This is a measure where it would be valuable to include the input from local FNs. Reliance on habitat mapping would not identify site specific habitat features such as game trails, or other small features that cannot be identified through habitat mapping. All segments have the potential to have site-specific habitat features important to local wildlife. Similarly local FN input would be valuable for identifying where wildlife gaps should be placed in windrows as a measure to mitigate impacts on wildlife movement.	Section 7 of the EMP includes mitigation to complete pre-construction surveys of wildlife habitat features that warrant specific mitigation.		
608	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The mitigation measures identified here for sensory disturbance to wildlife should consider additional measures including implementing noise restrictions at construction camps, blasting restrictions in wildlife habitat during sensitive life cycle stages and for wildlife sensitive to noise (e.g., mountain goats) and ensuring that pilots during construction and operation use procedures that mitigate disturbance to all wildlife. We consider these to be highly important measures related to wildlife movement patterns and consequently availability from a Traditional Use perspective.	Comment noted.		
609	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Barriers/Filters to Wildlife Movement during Construction – if trenches need to be left open for extended periods of time an attempt should be made to prevent wildlife from falling and becoming trapped in the trench (e.g., temporary fences combined with wildlife overpasses, temporary covers stable enough for wildlife to cross etc.)	Comment noted.		

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610	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Please commit to more stringent guidelines for speed limits and minimum height thresholds for potential wildlife barriers (e.g., windrows and snow berms) than the BC OGC, 2013 guidelines. The chances of avoiding wildlife during winter driving conditions at 80km/hr does not seem realistic. Also, the "critical" barrier height for moose has been identified as 60cm (Peek et al., 1982) which is considerably less than the 1.5m minimum height threshold that triggers the creation of gaps as identified in the Application. Reference: Peek, J.M., Scott, M.D., Nelson, L.J., Pierce D.J. and L.L. Irwin. 1982. Role of Cover in Habitat Management for Big Game in Northwestern USA. Transactions of the North America Wildlife & Natural Resources Conference 47: 363-373.	Coastal GasLink's construction planning and detailed engineering design is guided by industry accepted best practices and current regulatory guidance.	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: IR#610 questioned the practicality of an 80km speed limit on winter roads for avoiding wildlife collisions, and proposed an alternate barrier height for ungulates as supported by published literature. The proponent's response relied upon regulatory guidance. We believe firmly that regulatory standards are a bare minimum and that project-specific mitigation should consider the issues at hand for the local setting, including biophysical and cultural values. We call upon either regulators or the proponent to demonstrate due diligence in this regard.	Coastal GasLink carries out its activities in accordance with TransCanada's HS&E Commitment Statement, provided in appendix E-1 of the Social Technical Data Report in Appendix 2-M of the Application. This corporate guiding principle outlines the commitment by TransCanada's executive leadership team, management and employees to being in industry leader in health, safety and environmental practices, to maintaining a safe and healthy workplace and to protecting environmental quality. In addition to meeting or exceeding all applicable laws and regulations and minimizing risk to the environment, the statement also includes the principle of respecting the diverse environments and cultures within which Coastal GasLink operates.
611	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Caribou Range - Local First Nations site-specific knowledge should be incorporated into the monitoring program to monitor the effectiveness of reclamation and access control efforts as part of Post-Construction Monitoring.	Coastal GasLink will develop its Post Construction Monitoring program in consultation with the appropriate regulatory authorities. Coastal GasLink will continue dialogue with Aboriginal groups about site specific issues and mitigation to inform construction planning, detailed engineering design and monitoring programs.		
612	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Mountain Goat – additional mitigation measures should include implementing blasting restrictions in mountain goat habitat during critical life periods; adherence to helicopter procedures to mitigate impacts to mountain goat during construction and operation; and monitoring mountain goat behaviour if there are potential adverse effects to mountain goats during Project activities.	Coastal GasLink confirms that many of the mitigation measures suggested are included in Table 10-6 including scheduling clearing and construction activities (e.g. blasting) outside sensitive periods and following aerial guidelines.		
613	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Migratory Birds – the breeding bird window referenced here varies from the 2012 BC Ministry of Environment "Develop with Care Guidelines", which identify the least risk window for passerines as September 1 – February 28 (i.e., March 1 to August 31 breeding period). Also, least risk windows may vary according to Ministry Environment Region within the province. The Project should consider the appropriate least risk windows identified for each region.	Coastal GasLink's construction planning and detailed engineering design is guided by industry accepted best practices and current regulatory guidance regarding least risk windows for migratory birds.		

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614	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Migratory Birds – setbacks/buffers from identified active nests should be determined on a species-specific basis by a Qualified Environmental Professional (e.g., R.P.Bio. with suitable applied expertise).	Coastal GasLink will follow the direction of the appropriate regulatory authorities, and engage input from appropriately qualified personnel. .		
615	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Raptor and Owl Nests – least risk window for "other raptors" is identified as October 1 - February 28 in the 2012 BC MoE Develop with Care Guidelines (not October 1 – February 15 as identified in the Application).	Coastal GasLink acknowledges that the correct least risk window for "other raptors" in the BC MOE Develop with Care Guidelines is October 1 to February 28.		
616	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Bear Dens – We request that the Application be revised to include additional measures to mitigate impacts on bears during denning season, specifically including the implementation of blasting restrictions and establishment of no-go areas in high potential denning habitat.	Coastal GasLink will follow the direction of the appropriate regulatory authorities.		
617	Application Section 10	Section 10.6, Table 10-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Environmental Inspection and Monitoring – All project personnel should be responsible for recording and reporting on wildlife sightings, encounters, issues and collisions. Reporting should not just be limited for species with special conservation status.	Comment noted.		
618	Application Section 10	Section 10.9, page 10-64	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		This section of the Application indicates that selection rationale for each wildlife and wildlife habitat VC sub-component (referred to in the Application as key indicators) are described in the Wildlife and Wildlife Habitat TDR, however we find that rationale was not adequately provided. This extends to the exclusion of certain species identified during First Nations consultation as important, such as wolverine. The general selection process that is provided in the TDR implies many cases of subjective judgment, but the rationale behind each of the sub-components is absent. This is necessary for transparency of process.	The selection of valued components was completed using the methodology outlined in Section 3.1.1 of the AIR and detailed in the Coastal GasLink Selection of Valued Components document. Both documents were issued by the EAO in spring 2013.		

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619	Application Section 10	Section 10.9.1, page 10-80, Table 10-9	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		"Effective habitat" in this section is not clearly defined. We have assumed it refers to habitat that is given a habitat suitability rating of moderate, moderately high or high. Please confirm.	Coastal GasLink confirms that habitat rated as moderately effective or better is reported as effective habitat for the modelled indicators.		
620	Application Section 10	Section 10.9.1, Table 10-9	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Again we would argue that Mountain Goat habitat is underestimated in this assessment because only designated/proposed UWR was used in the area analysis. Habitat suitability modelling based on TEM (similar to what was completed for other wildlife sub-components), would have provided a more accurate quantification of mountain goat habitat.	Coastal GasLink acknowledges that mountain goat occurrence is not restricted to designated UWRs and WHAs, and will implement appropriate mitigation to avoid adverse effects. For more information about mitigation for mountain goat habitat, please refer to Section 7.1.3 of the EMP.		
621	Application Section 10	Section 10-17, page 10-207	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		As for the assessment of potential residual effects, the determination of significance is not clearly documented or explained in the Application. It is not possible to provide final comments given the ambiguity in CEA.	Coastal GasLink applied the methods for cumulative effects assessment outlined in the AIR, issued by EAO in May 2013. Application Sections 10.8, 10.12 and 10.13 provide the explanation of assessment approach, and Sections 10.14 through 10.16 provide the explanation for the characterization of effects and supporting information used in the determination of significance of residual cumulative effects.		
622	Application Appendix 2L	Section 10 and Appendix 2L	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There are no figures provided in either the Wildlife and Wildlife Habitat Technical Data Report or the Application showing the results of the habitat suitability mapping at baseline or with the Project footprint applied. It would be helpful to provide reviewers with a visual representation of the modelling at an appropriate scale (e.g., 1:20000) so that it can be compared to known existing habitat conditions.	Comment noted.		
623	Application Section 16	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Working Group meeting on April 11, 2013 included a request by OGC that trapping and hunting data be included in the Application. These are quantitative data available from regional regulatory staff and provide measurable parameters that vary over space and time. These data should be used to supplement the completed Traditional Use Studies by each of the participating nations to refine the understanding of resource use intensity in space and time. This would consequently provide an ability to actually assess potential impacts on resource availability in a way that is meaningful to respective First Nations and the family groups. Note, this has intrinsic relation to impacts on Aboriginal Rights and Title and/or Treaty Rights.	Coastal GasLink notes that publicly available quantitative data from regional regulatory staff pertaining to trapping and hunting is available in Sections 3.4.4 and 3.4.6 of the Socio-economic Technical Data Report (Appendix 2M of the application). The information available is not specific to any one aboriginal community, therefore trapping and hunting data included in the application specific to Aboriginal communities that has been included has been gathered from third party reports provided by Aboriginal communities and publicly available data (Available in Section 23).		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
624	Application Section 20	20-43	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Human receptor locations were identified as farms and residences around the compressor stations. What about transient users that are closer to the exposure source and receive higher dosage but for shorter periods? If it is decided that there is not a need to consider such users that may camp/hunt/fish/trap in areas closer to the stations, then this should be clarified as it is a valid effects linkage.	Coastal GasLink confirms that residents who live near the compressor station locations were considered because they have the longest exposure durations.		
625	Application Section 20	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The whole section about standards/guidelines that are used for each media are really not necessary here. With the exception of a few media (air quality, sediment and noise), there is no use of the other standards/guidelines discussed in this section in the remainder of the Application. This contributes to the extensive irrelevant information in this section. It should be more general and just reference the jurisdictions etc. that were relied on when doing this report. It was at times difficult to make sense of this Section for review, and if other edits are necessary we would appreciate editorial revision for overall clarity of this Section.	Comment noted.		
626	Application Section 20	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		A statement at the outset of the HHERA is necessary to explain how and why catastrophic events were not considered in the HHERA, as it is clearly scoped to only include routine activities.	Coastal GasLink notes that the HHERA is a process that evaluates potential human and ecological exposures to routine long-term Project-related emissions. It is designed to evaluate potential changes in physiological function resulting from exposures to chemicals released from the Project. It is not designed to evaluate the effects on humans or the environment that would result from short-term exposures to potentially high levels of chemicals released during possible catastrophic events. Section 21 of the Application contains a risk assessment of accidents or malfunctions.		
627	Application Section 20	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There is no consideration of humans that may be in the area of the pipeline. The only receptors that are discussed in the HHERA are those that live in areas within the study boundaries, however the Application does not address individuals that may be closer to the pipeline while they are conducting activities such as hunting, fishing camping etc. Although they have limited exposure as they are in this area for a small amount of time, discussion regarding this receptors is needed where exposure that is considered insignificant is included.	Coastal GasLink confirms that people who may spend time in the vicinity of the pipeline would have no means of being exposed to the materials within the pipe itself during normal operation. The environmental assessment is designed to evaluate the health risk during normal operations. People in the vicinity of the pipeline can only be exposed to the contents within the pipeline if there is an accident or malfunction of the pipeline. Section 21 of the Application includes a risk assessment of accidents or malfunctions.		
628	Application Section 20	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There is no consideration of workers as receptors. Is this dealt with elsewhere in the Application? Effects pathways on workers should be scoped into the Application, particularly as Treaty 8 Nations have been advised that jobs for their citizens will be a key benefit of the Project.	Coastal GasLink is committed to ensuring the safety of its workers and the public. Coastal GasLink will comply with all applicable legislation and regulations regarding worker safety.		

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629	Application Section 20	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The term Conceptual Site Model is used, but it is not defined or clearly presented. The CSM is an integral part of an HHERA and thus it should be clarified that it is what underpins the entire HHERA. It is essentially the point of a screening level Risk Assessment, as it summarizes the following key items: (1) location and type of contamination/stressor, (2) Potential receptors, (3) Potential exposure pathways between receptors and contaminants. It defines the specific contaminants/ stressors and associated pathways that require quantitative assessment with respect to the potential to cause adverse effects.	Comment noted.		
630	Application Section 20	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 11 references Appendix B, Table B-4, but there is no Table B-4. This makes it difficult to confirm the statement "No exceedances of the standards/guidelines for the locations of identified receptors".	The Table B-4 in in Section 20 of the Application has been provided to the EAO.		
631	Application Section 20	Section 20.4, in general	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The use and consumption of resources by First Nations communities is a gross over-simplification of actual usage, spatially and temporally. While our subsequent review of the HHERA agrees with the general conclusions that the risks are low enough to not warrant detailed quantification of exposure, we would like it clearly acknowledged in this section that the "publicly available ATK" summarized in this section does not represent the usage or views of Doig River First Nation, Saulteau First Nations, West Moberly First Nations, or McLeod Lake Indian Band.	Comment noted.		
632	Application Section 20	Section 20.6, General	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There is no consideration of direct exposures to spill materials. Many of the exposure pathways have been dismissed as irrelevant based on perfect implementation of mitigation (e.g., assuming that spills will be cleaned up perfectly, or avoided altogether). However, spills can occur in areas where there are receptors, thus there is a potential for direct exposure. Although the number exposed is likely to be limited, this should be discussed. There should be distinction between scenarios where no exposure is anticipated: incomplete exposure pathway (i.e. ARD - mitigation avoids mobilization of metals to the environment, subject to post-construction confirmation) and those where some exposure could occur but number of receptors exposed would be small (spills): completed but insignificant exposure. This ties in with the above comment about Species at Risk	The proposed Project will transport natural gas. A risk assessment for potential accidents or malfunctions is provided in Section 21 of the Application.		
633	Application Section 20	Section 20.6, General	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Discussion pertaining to the protection goal/level for the Ecological Risk Assessment is needed. We have assumed that protection at a community level is the objective, as opposed to a more stringent goal of protecting individual organisms. Since events such as spills could potentially affect a few organisms that may be in the area of the spill (i.e. plants in the spill zone), protection goals on an individual basis would not be met. Protection goals on a community basis is generally the approach used in ERAs, however protection levels for endangered species is at the individual. Given this, discussion of potential exposures to endangered species is needed and risk associated with these exposures (if complete exposures are identified) should be discussed/evaluated. This extension of the ERA should be achievable using existing assessments on Species at Risk from the terrestrial and aquatic biophysical sections of the Application.	Coastal GasLink confirms that the proposed Project will be transporting sweet natural gas, not liquids. Therefore, spills would be associated with an accident or malfunction, and is discussed in Section 21 of the Application. Materials that could be released from the pipeline in the event of an accident include light hydrocarbons (natural gas) which would volatilize into the atmosphere and not accumulate in soil or surface water.		

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634	Application Section 20	page 20-47	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		We do not agree with the statement on line 21, "exposure to a stressor must be of substantial magnitude and duration in order to elicit a biological effect". This should be revised to reflect that effects can occur at low levels of exposure.	Coastal GasLink confirms that the quoted statement includes low levels of exposure. The term "substantial magnitude" does not imply that exposures to stressors must be high to elicit a biological effect. The magnitude and duration of exposure to elicit a biological effect is based on health-based guidelines. For example, the BC Ambient Air Quality Objectives provide guidelines for nitrogen dioxide (NO2) for different durations (1-hour, 24-hour, annual). The annual NO2 air quality objective recognizes that low levels of exposure over a prolonged period of time could be associated with health risks.		
635	Application Section 20	page 20-57	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There is no mitigation for use of herbicides listed. We do not, in fact, support use of any chemical herbicides as the water and fish in Treaty 8 territory are already highly stressed. But specific to this point, wildlife can ingest treated weeds, which creates adverse effects on wildlife and indirectly, an exposure pathways on traditional land users.	Coastal GasLink respects the request by the affected First Nations to avoid the use of Pesticides or Herbicides within their traditional territory. As Coastal GasLink develops its invasive plant management plan, consideration will be given to other options of vegetation control.		
636	Application Section 21	21.3, p. 21-30	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The section on pipeline leak / failure in accidents and malfunctions is of considerable interest to our communities. We appreciate the new quantitative review of historical failure rates provided in the revised application. Rates are provided for "failures" and "significant failures", in units of incidents per 1000km of pipeline. Please define this categorization of "failure" vs "significant failure". It is noted that in the past decade, 29% of failures have been "significant" failures (CEPA, 2013a).	CEPA defines a failure incident as "any unplanned release of product due to a failure of a pipe". A significant failure incident is one that meets one or more of the following criteria: 1. Causes a serious injury or fatality 2. Causes a liquid release of greater than 8 cubic meters (50 US barrels) 3. Produces an unintentional ignition or fire 4. Occurs as a rupture Information source: http://www.cepa.com/about-pipelines/maintaining-safe-pipelines/pipeline-integrity/cepa-member-pipeline-integrity-performance		
637	Application Section 21	21.3, p. 21-30	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Failure incidents are provided as incidents per 1000km of pipeline. We followed up with the cited source of these rates (CEPA, 2013a): rates for 10 year period are climbing. Mean rate for 11 years from 2002 through 2012 was 0.29 failures per 1000km of line. Using this as a mean value for predictions, this equates to a failure of the 650km Coastal GasLink line in approximately once every 5 years. Based on this, the "likelihood" within the risk assessment matrix (as per Table 21-1) would be "may". We acknowledge that this calculation is using statistics from a wide range of existing pipelines and that this ignores the necessarily related likelihood of the rupture then also having an adverse impacts on a VC, but if TransCanada is able to provide better predictions, please do so. It is a necessary aspect to proper communication of risk for a project that travels through pristine areas of Treaty 8 territory.	Coastal GasLink provides this information to the EAO as an attachment to this IR Table.		

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638	Application Section 21	21.3, p. 21-30	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Similar to above, please provide some description for the nature of the 42 pipeline failures within TransCanada's pipeline network since 1990. This will assist in understanding the typical nature of such an event, were it to occur on the Coastal GasLink Pipeline Project.	Coastal GasLink provides this information to the EAO as an attachment to this IR Table.		
639	Application Section 21	p. 21-32	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 5, refers to the Coastal GasLink lines having to cross over or under numerous other pipelines, one of which carries "an unknown substance". Can Coastal GasLink provide more details on this unknown pipeline? (related to interpreting the risk).	Coastal GasLink has confirmed that this particular pipeline referenced on line 5 of Section 21 on page 21-32 is carrying oil. Coastal GasLink is aware of the product in all pipelines crossed by the proposed Project.		
640	Application Section 21	page 21-3	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Applications states that "The assessment of likelihood and consequence is based on historical trends and predictive models, if available". No follow up found (yet) on this statement... where were predictive models used?	Coastal GasLink relied on historical information, and where available, the results of predictive modeling. Predictive models were not generated specifically for this assessment, however the information from previous modeling was applied. Coastal GasLink relied on TransCanada's projection regarding pipeline failures.		
641	Application Section 21	page 21-3, table 21-1	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Methods for characterization of likelihood has categories of "may" (event every 3 to 5 years), then "unlikely" (once during the lifetime of the project). This project includes a proposed 30+ year operational life, likely longer - so there is a gap here in how one would classify decadal-cycle events. Because the methodology is such that this gap also includes a cut-off between high and medium risks (Table 21-2), it does have potentially influential outcomes on the proponent's risk assessment process.	Coastal GasLink acknowledges that there is a time gap between the likelihood of may and unlikely. The likelihood categories took into account logical timeframes based on the life of the proposed Project. Estimates of likelihood, and risk were made conservatively.		
642	Application Section 21	page 21-4	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		"where uncertainty exists in the conclusion of risk, appropriate follow up and monitoring programs are provided". We do not believe this statement is accurate. Uncertainty in risk is not accurately acknowledged, nor is it clear in cases where it is acknowledged that monitoring programs have been developed in light of that uncertainty.	Coastal GasLink confirms that the level of uncertainty in the assessment of risk has been defined through the identification of confidence in the assessment, which is based on the level of understanding of the cause and effect relationship, the availability of data on which to base the assessment, and the determination of whether the data is pertinent to the project area. Much of the uncertainty associated with the potential for an accident or malfunction is addressed through the implementation of appropriate management plans to decrease the likelihood and consequence of an event, and		

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									the implementation of emergency response procedures and plans, should an accident or malfunction occur.		
643	Application Section 21	Table 21-3	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The interaction matrix identifies many possible VCs that would interact with project accidents, but many of these aren't explained in the assessment of effects. E.g., how would a rupture impact groundwater, given the explanation that it is non-toxic, low-soluble and would dissipate to atmosphere immediately?	The cross reference to valued components are identified in the tables outlining potential adverse effects, unmitigated likelihood and consequence, and mitigation for each type of accident or malfunction. Regarding the specific example listed, while groundwater may not be directly affected by the release of natural gas, without proper mitigation, groundwater quality and quantity could be affected during the emergency works to repair the failure.		
644	Application Section 21	Table 21-4 and 21-5	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Generally satisfied with approach to spills under "accidents and malfunctions", depending of course on the diligent implementation of a spill prevention and response plan. However, would note that the likelihood of a small spill must realistically be considered "almost certain", regardless of mitigation. That is not to say, however, that mitigation and preparedness are lost causes. Given the proximity of much of the work to watercourses, we request commitment to only using biodegradable hydraulic oil within RMZs. Not sure if this is already included in the management plan(s) anywhere, but didn't see it. Research shows conclusively the toxicity of biodegradable hydraulic oil is an order of magnitude lower than petroleum based lubricants (Cecutti and Agius, 2008).	Coastal GasLink acknowledges that even with diligent implementation of spill prevention, the likelihood of a small spill occurring during the construction of the proposed Project is almost certain. While this likelihood addresses the event of a spill, the assessment of risk of a spill considers the potential adverse effect associated with the spill. The rationale for each determination of risk, including the likelihood and consequence of the effect are described for spills in Section 21.2.3 of the Application. Coastal GasLink confirms that biodegradable hydraulic oil shall be used in excavators working within the wetted area of watercourse crossings.		
645	Application Section 25	page 25-4, and most of Appendix 2A - App C	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		For the record, we strongly agree with the statement that "the environmental monitoring program is a key component of the Coastal GasLink environmental compliance strategy". Furthermore, the contingency planning and management plans all have a significant amount of professional discretion, as opposed to a prescriptive approach. We support this approach but only on the condition of sufficient qualification. Given the geographic size, intensity of construction activity, and diversity of disciplines involved, it is fundamentally important that the mitigation identified is undertaken by experienced professionals, with sufficient financial and human resources, and logistic and regulatory support, to do the job effectively.	Coastal GasLink will retain the services of Resource Specialists for site-specific mitigation planning during construction planning and throughout the construction phase, as appropriate. Resource Specialists are individuals with the technical expertise and experience to assess site-specific conditions within the ecoregions traversed by the Project, and develop site-specific mitigation in collaboration with the Environmental Inspector(s), Construction Manager, Coastal GasLink and appropriate regulatory authorities. Resource Specialists have been involved in the assessment, planning and development of mitigation for the Project to date, and will continue to be retained by Coastal GasLink as appropriate as construction planning, engineering design advances as well as during the construction phase of the Project.		

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646	Application Section 25	page 25-5	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The availability of resource specialists to assist the environmental inspectors is positive. A main challenge with this sort of model is that it puts considerable onus on the environmental inspectors - often generalists, or trained specifically in environmental monitoring - to understand when and where to call in resource-specific specialists. Conversely if the specialists are enabled to be reviewing and planning work ahead of the construction process - aided by the Application and by site-specific work plans - then there are better odds that potential incidents can be avoided instead of responded to once there is clearly an issue with construction in progress. Also, some of the mitigation measures are quite subjective (particularly where weather-dependency is involved), and the EI must be given clear authority to make decisions, knowing that contractors have been briefed on the rationale for such decisions. In general, the extent of monitoring and contingency planning is formidable, but necessary to achieve the desired outcome. It has been our experience that this level of planning and mitigation can conflict with construction schedules. We urge Coastal GasLink and BC EAO to demonstrate some forethought for implementation and compliance monitoring, if this project is going to be approved.	Coastal GasLink will retain the services of Resource Specialists for site-specific mitigation planning during construction planning and throughout the construction phase, as appropriate. Resource Specialists are individuals with the technical expertise and experience to assess site-specific conditions within the ecoregions traversed by the Project, and develop site-specific mitigation in collaboration with the Environmental Inspector(s), Construction Manager, Coastal GasLink and appropriate regulatory authorities. Resource Specialists have been involved in the assessment, planning and development of mitigation for the Project to date, and will continue to be retained by Coastal GasLink as appropriate as construction planning, engineering design advances as well as during the construction phase of the Project.		
647	Application Section 25	Section 25.2, page 25-11, Table 25-2	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		One of the main concerns raised by Treaty 8 Nations and many others was the increase of predation on ungulates by wolves – monitoring this effect should be included in the post-construction monitoring program. The program should include ongoing communication with the local FN and other hunters, trappers and resource users in the area. Without information from the local community on wildlife there will not be a comprehensive understanding of ongoing impacts on wildlife including this particular effect.	Post Construction wildlife monitoring will form part of the post construction monitoring program. A description of post construction monitoring is provided in Section 25.3 of the Application. Timing, type, and the description of monitoring for wildlife are outlined on page 25-11. Coastal GasLink will develop its post-construction monitoring program in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.		
648	Application Section 3	Section 3.1.2, Table 3-2 Identified Spatial Boundaries of Valued Components	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Project Description (Section 1.4.3) describes the Application corridor width as varied (i.e., between 150m – 2000m) to allow for flexibility given constraints identified in particular areas (e.g., watercourses, challenging terrain etc.). The LSA and RSA for wildlife and wildlife habitat is narrower than this corridor width. Please confirm that any route alterations that fall outside of the LSA will be the subject of supplemental assessment.	The Application defines the LSA for wildlife and wildlife habitat to be a 2-km band centered on the proposed route (e.g., 1 km on both sides of the proposed route), and the RSA as a 30 km wide band centered on the proposed route, with additional RSAs for grizzly bear and caribou. Coastal GasLink has collected appropriate information in the Application corridor to support the assessment of potential adverse effects.		
649	Application Section 3	Table 3-5 / p 3-22, and all disciplines that follow	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		We are unable to find clear definitions for the criteria used for characterizing residual effects. In the case of 'context' according to 2013 EAO Guidelines for the Selection of Valued Components and Assessment of Potential Effects, the Application should, with regard to context, "indicate the level of sensitivity and/or resilience (e.g., using qualitative terms, like 'low', 'medium', or 'high', clearly defined for each VC [or sub-component]), and explain the factors contributing to the ranking of sensitivity and/or resilience." The Application describes a supporting narrative for context, however the ranking is not there and the intent of including context appears to have been dismissed. Similarly we find the 'magnitude' ratings are neither quantitatively nor qualitatively described, nor accompanied by distinct definitions with respect to each VC (the definitions of each level of magnitude may vary by VC). Magnitude ratings have been assigned in Table 3-5 in relation to "environmental and/or regulatory standards", but in most cases no clarification is provided as to what these standards may be for VCs or subcomponents. Without a clear definition of criteria the nature of residual effects cannot be clearly understood, and the conclusions are not supported by a transparent and logical application of EA methodology.	Coastal GasLink applied the methods for effects assessment outlined in the AIR issued by EAO in May 2013, which defines context as the extent to which the area an effect may occur in has already been adversely affected by human activities or is considered to have little resilience and resistance to imposed stresses. The AIR indicates that the characterization of potential residual adverse effects will discuss context by describing the sensitivity and resilience of each VC to the construction and operation of the proposed Project and the baseline conditions that contribute to the understanding. Context has been described for each valued component. Both context and magnitude have been described in the Application. An explanation of the magnitude was provided for each residual adverse effect assessed.		

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650	Application Appendix 3A	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		In checking the assumptions that went into the calculations for cumulative effects assessment on riparian areas, we note that ROW for pipelines is considered 20m. However, the Project ROW is given in the Project Description as 32m, and temporary construction clearing (e.g. riparian impacts) at 60m, and 100m for "major watercourse crossings". Presumably this will also be the case for the other pipelines included in the cumulative effects assessment on fish and fish habitat. So this calculation, and therefore the conclusions, are not based on accurate assumptions.	The assumption of a 20 m width of right of way for pipelines is based on the understanding that the majority of existing pipelines on the landscape have a statutory right of way approximately 18.3 m wide . For cumulative effects assessment, a conservative approach was applied, and a 100 m wide corridor was used to calculate the contribution of Coastal GasLink's footprint to the cumulative effects.		
651	Application Section 5.7	page 5-54	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The set of defining criteria for identifying and classifying PAG is narrow. While there is supporting literature (e.g. Price, 2009), these criteria should be used for screening, as opposed to diagnosing, PAG. In fact, the cited reference, Price (2009), states on p. 14-11: "procedures that specify which criteria are to be used in calculating the AP and NP without due consideration for site specific factors may produce errors if the selected analyses are insufficient or inappropriate for the site conditions". As above, we request that the adequacy of qualification by the "trained personnel" be externally vetted for this project, prior to earthworks beginning.	Coastal GasLink will mobilize appropriately qualified and experienced geological engineers, geologists and senior geological technologists to provide on-site evaluation of exposures of PAG materials during construction. Geologists and engineers will be eligible for registration with the Association of Professional Engineers and Geoscientists of British Columbia and Applied Science Technologists and Technicians of British Columbia. All field personnel will be selected based on their academic and professional qualifications and relevant experience. Prior to mobilization, field personnel will participate in training and orientation suited to the expected site specific conditions along the pipeline route.		
652	Application Section 5.7	page 5-54	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		"Because no potential residual environmental adverse effects ... are expected, a summary of the characterization of potential residual environmental adverse effects of the proposed Project on ARD is not required." This is an overly narrow outlook. The Application appears to consider ARD strictly a construction planning issue that does not warrant post-construction follow up, given the screening-level mitigation that is proposed. We do not consider the confidence in these conclusions to be as high as what is presented in the Application, and request that follow-up monitoring for ARD be added to the conditions of Certificate, if granted. Linear projects are different than mines in that they can involve long, funneled exposure pathways. The persistent and serious ARD issues following construction of Highway 97 are a good example: this was a modern-day project (presumably with what seemed like reasonably strong environmental planning) and yet the ARD problem was not identified until well after construction.	ARD/ML was identified by Coastal GasLink as a potential issue early in the project design and route evaluation phases. Coastal GasLink conducted field work to assess and evaluate the potential for acid generating (PAG) materials to be present along the study area. In 2013 over fifty sites were sampled along the proposed route except for some locations within the identified technical boundary, and only two sites were identified as PAG. The Project will consider various mitigation to address PAG as construction planning and detailed engineering design advances. Mitigation may include, as appropriate: avoidance, rock cut management and treatment. Post construction monitoring will include areas identified as having PAG materials in addition will be included in the monitoring and surveillance programs during the operations phase.		
653	Application Section 5.7	page 5-54	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		We are reasonably comfortable with the desktop review of ARD generating potential, but wish to emphasize the importance of following through with the field assessment. There will be heavy reliance on the "trained personnel" will visually inspect the rock for presence of sulfide mineralization" (p. 5-54), and ARD is a topic that does indeed rely very heavily on the level of training by the practitioner. The individual(s) should be able to identify more than just sulfide mineralization, given the complexity of ARD. We request that the personnel assigned to this task be identified and their qualifications verified by BC MFLNRO prior to the field work. ARD is best managed by AVOIDANCE. Once encountered, it is extremely problematic to contain and/or stop.	ARD/ML was identified by Coastal GasLink as a potential issue early in the project design and route evaluation phases. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink conducted field work to assess and evaluate the potential for acid generating (PAG) materials to be present along the study area in 2013 over fifty sites were sampled along the proposed route except for some locations within the identified technical boundary, and only two sites were identified as PAG. Coastal GasLink will mobilize appropriately qualified and experienced geological engineers, geologists and senior geological technologists to provide on-site evaluation of exposures of PAG materials during construction. Geologists and engineers will		

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									be eligible for registration with the Association of Professional Engineers and Geoscientists of British Columbia and Applied Science Technologists and Technicians of British Columbia. All field personnel will be selected based on their academic and professional qualifications and relevant experience. Prior to mobilization, field personnel will participate in training and orientation suited to the expected site specific conditions along the pipeline route. Additional laboratory testing of exposed rock materials at specific sites may also be conducted to provide assessment of the acid generating potential and neutralizing potential and to inform the determination of appropriate mitigation.		
654	Application Section 6	Page 6-34	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulneau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Surface water and soil acidification resulting from Nox emissions is not identified or considered in the effects assessment. Please provide credible rationale for this exclusion.	The effects of water and soil acidification were not a requirement stated in the approved Application Information Requirements document.		
655	Application Section 6	Page 6-36	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulneau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Mitigation strategies for managing fugitive dust during construction are lacking. Provide additional recommendations if access to water for spraying is not available or practical. Additional mitigation strategies are required to manage fugitive dust for clearing and grubbing stage, and not just for when clay or silt sub soils are exposed. This was reviewed in the context of Air Quality but the implications carry forward to vegetation, wildlife, fish resources and human health.	Dust control measures are included in Section 8.1 of the EMP. Coastal GasLink also considered the natural mitigation of snow cover during winter conditions as well as rain and humidity during the summer in reducing the potential for adverse effects from dust.		
656	Application Section 6	Page 6-36 and 6-37	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulneau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Mitigation examples provided in the Air Quality TDR are not referenced in Section 6. This includes: use of low sulphur fuel and deployment of tall stacks for compressor engine exhaust.	Coastal GasLink will use the natural gas that is being transported in the pipeline as fuel for the compressor stations. The gas quality specifications for the pipeline ensure that this natural gas is low in sulfur. As detailed engineering design advances, Coastal GasLink will consider the use of low sulphur fuel and the appropriate design of compression equipment such as exhaust stacks. Coastal GasLink expects detailed engineering design information will be reviewed by the OGC during permitting.		

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657	Application Section 6	Page 6-39	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Increases in VOC concentrations resulting from emissions associated with scheduled and unscheduled maintenance at compressor, valve, metering and pigging stations are expected. Details should be provided on expected frequency and duration of venting to justify the statement that the magnitude will be low. Modeling of venting should be included on a short term basis as a separate result.	Coastal GasLink has completed a comprehensive assessment of the potential adverse effects of the proposed Project in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink confirms that natural gas releases during maintenance activities affect mostly GHG emission predictions and very little of the VOC emission predictions, as the composition of the natural gas in the pipeline system is composed almost completely of methane.		
658	Application Section 6	Page 6-41	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Proponent indicates that detailed follow up and monitoring is proposed for the first operating compressor. In addition to maintaining records of vented volume amounts and recording emission estimates, an air quality monitoring program should be established to verify modelled results to ensure compliance.	Coastal GasLink will comply with all applicable legislation and regulatory direction for emissions monitoring and reporting.		
659	Application Section 6	Page 6-8	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Local Study Area has been established as a 2km band centered on the proposed route. LSA should be increased around compressor stations to include the 20km x 20km dispersion modelling domain used to determine the effects of the project emissions on air quality.	The Local Study Area boundary for the assessment of the VC Air Quality is defined in the AIR issued by the EAO in May 2013. The LSA was selected to encompass the area within which air quality effects were anticipated to be realized. The assessment of potential adverse effects on air quality during operations was based on air quality modelling completed within the 20km x 20km modelling domain for each of the compressor stations. The modelling domain was defined based on experience conducting dispersion modelling for similar past projects and in accordance with the <i>Guidelines for Air Quality Dispersion Modelling in British Columbia</i> (BC MOE 2008)."	Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: it is true that the comments were directed at the scoping level decisions in the Application. We accept that the VC and AIR documents were approved by EAO in 2013. We have also pointed out that none of our four communities were able to submit meaningful comments on those documents. In some cases this was due to workload burdens, and the absence of capacity funding at that time. In the case of DRFN, our community was not even invited to comment as we were not then recognized as a Schedule B First Nation. We are willing to entertain rationale that the content that is included in the Application can address these issues through reinterpretation, but we are not satisfied to have technical consultation curtailed on the basis that the AIR was approved without input from our communities. We also note that it appears there are numerous provisions in the BC Environmental Assessment Act, 2002 that would enable the Executive Director to require supplemental or retro-fitted assessment on a discretionary basis, which calls into question how strict the timelines and AIR may in fact be.	See response to issue tracking #562.

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660	Application Section 7	CEA	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The level of work that went into providing a quantitative CEA on riparian and instream habitat disturbance is appreciated. However a big issue here is application of scale, and context. Cumulative effects felt at the watershed level for key sub-basins of relevance to traditional use is requested. This would include, at minimum, sub-basins for Anzac, Parsnip, Sukunka, Pine and Burmt Rivers, in particular.	These watersheds are included in the RSA and were included in the CEA. Cumulative adverse effects were assessed at the Regional Study Area scale. The RSA for the Aquatic Environment is defined in the AIR issued by EAO in May 2013.		
661	Application Section 7	Cumulative Effects Assessment	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		No inclusion of the potential for simultaneous disturbance of multiple pipelines constructed in the same watershed with respect to sedimentation of watercourse. We have raised concerns herein about the proposed acceptable TSS values in the creek, given scientific literature (e.g. Newcombe and MacDonald, 1991) has noted values below the proposed thresholds can cause significant mortality of Arctic Grayling, among others. The synergistic effects of multiple simultaneous projects is at the heart of cumulative effects assessment, and the proposed multitude of pipelines constructed at the same time through Treaty 8 territory is an immense concern to the respective Treaty 8 communities. We request that this application be revised to identify anywhere that the ROW will be within 1km of another pipeline, and that commitments be made to manage the work timing to avoid significant sediment loading that would affect the same local fish populations.	The cumulative effects assessment conducted for the Project includes the construction of known reasonably foreseeable future developments (including proposed/approved pipelines) within the RSA (Table 3-A-1 in Volume 3). Implementation of mitigation reclamation for each project will lessen the input of sediment into watercourses. In addition, timing of construction is expected to occur during windows of least risk for the species occurring in each waterbody. The cumulative effects assessment in Section 7 takes into account the additional pipelines that are proposed in the RSA and concludes that the residual cumulative adverse effects of the proposed Project are not significant.		
662	Application Section 7	N/A	groundwater	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The interaction of the project with groundwater - in synergy with other potential projects - does not consider the linkages between the project and the consumptive water use from upstream well site development that would not occur otherwise. To what extent does the pipeline facilitate additional LNG extraction?	The proposed Project does not include a consumptive use of groundwater for industrial purposes. Coastal GasLink expects that its activities will only temporarily interact with the subsurface during the construction phase and concludes that the potential adverse effects on groundwater are limited to this phase. Coastal GasLink also expects that industrial uses of groundwater are subject to review by the appropriate regulatory authority.		
663	Application Section 7	p 7-79	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Instream habitat alteration effects are predicted as "highly likely" within the ZOI. So, fish bearing status within the entire ZOI is what should be used for the timing windows. In general, this is an important inconsistency in zone-of-influence vs. timing windows for downstream fish status, even if crossing location is non-fish-bearing. S5 streams are particularly concerning, as they are larger watercourses, often present throughout the year, and represent bigger potential sediment loads. The TDR, p. 96 and 97, uses MOF allowance for conditions where no timing window applies (basically, complete isolation of work zone and no sedimentation), but sedimentation to some extent is highly likely for any in-stream construction work.	Installing a pipeline beneath a watercourse using a trenched method involves excavation of the trench across the streambed. Since disruption to instream habitat is expected at watercrossings where a trenched installation methodology is used, the likelihood of the effects occurring is high. Timing windows are generally designed to avoid direct impacts during sensitive life stages of fish (for example, when eggs may be incubating or when spawning migrations are occurring). Timing windows typically do not correspond with the time period when sediment is most easily controlled. Therefore, the construction time period that represents the least risk to downstream fish in nonfish-bearing (and even in many fish-bearing streams) does not necessarily correlate with the timing windows applied to fish-bearing streams.		

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664	Application Section 7	p 7-81	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The AIR committed to assessing effects at species level within the VC. The Application instead reverted to a general habitat assessment within DFO's Risk Management Framework. Then, when it comes to context, p. 7-81 just says "context varies by species". This is precisely why assessment should proceed based on habitat-level effects by species within the VCs. The way this is presented completely defeats the purpose of including context into the assessment at all.	The BC EAO completed the screening review of the Application, deeming it complete and has accepted the Application for review on March 11 has determined the Application to be complete and in satisfaction with the AIR. The AIRs stated that the fish and fish habitat assessment will focus on fish species of recreational, Aboriginal and commercial importance and their habitats (Section 4.3.1). It was not stated that the assessment would be done at the individual species level. Additionally, the purpose of the assessment was to assess the effects of the Project as whole on the fish and fish habitat along the pipeline route. Although the assessment was done considering all fish species collectively, additional site-specific work will be conducted as directed by regulators. Windows of least risk will be followed where feasible to account for fish species present in a watercourse.		
665	Application Section 7	p. 7-101	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		No definition of a cumulative effect threshold for instream disturbance?	Discussion on instream habitat thresholds for cumulative effects assessment is provided on pages 7-111 and 7-113 of the Application.		
666	Application Section 7	p. 7-102, lines 2-3	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		"Potential cumulative effects on fish are best considered at the watershed scale". We agree completely, but this should be at smaller watersheds compared to what is applied here. Especially when one considers effects on traditional uses, which are almost always based on family-use areas. To assess impacts on the availability of fish or impacts on fish habitat for harvest, this Application should include outcomes of the TUS done by participating communities, interpreted at this smaller spatial scale.	<p>Cumulative adverse effects were assessed at the Regional Study Area scale. The RSA for the Aquatic Environment is defined in the AIR issued by EAO in May 2013. Cumulative effects are considered at the spatial scale defined by the RSA. In determining an appropriate scale for the RSA and the cumulative effects assessment, two primary factors were considered:</p> <ul style="list-style-type: none"> • If the spatial extent was too large, effects of the project appear relatively small (Hegmann et al. 1999; Antoniuk 2000, 2002; Magdych et al. 2002). • If the spatial scale was too small, it may exclude potentially significant development (Hegmann et al. 1999; Finley and Revel 2002). <p>To balance these factors, the RSA was defined to include the area encompassed by all sub-basins crossed by the proposed route and the cumulative effects assessment was applied to the RSA as a whole. For further detail, assessment was also conducted at the basin level.</p> <p>Coastal GasLink acknowledges that final Traditional Knowledge (TK) Agreements were not signed with each of these Aboriginal Groups until late in the Spring or early Summer of 2013 or until the Spring of 2014, and that certain traditional use studies (TUS) have not been finalized. Coastal GasLink expects to discuss site specific mitigation with each of these Treaty 8</p>		

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									communities following completion of final TUS Reports. Coastal GasLink anticipates that these discussions will further inform construction planning and detailed engineering design.		
667	Application Section 7	p. 7-81	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Discussion on acceptable thresholds for TSS during open cut crossings refers to "low risk" (<100 mg/L above background), "medium risk" (100 - 200mg/L above background) and "high risk" (>400mg/L above background). A few issues here. (1) Graded risk jumps from 200 to 400mg/L, what about the 200 to 400 range? (2) What is the implication of this statement? How is it applied to managing risk during work? (3) It ignores published data cited elsewhere in the same section (Newcombe and MacDonald, 1991) that identifies a wide variety of high-risk exposure to TSS that varies by species. Here again is a rationale to consider effects on a species level, and in better local context. For instance, Newcombe and MacDonald report that only a 24 hour exposure to TSS increase of 65 mg/L results in 15% mortality of arctic grayling sac fry. A 72 hour exposure to 185 mg/L resulted in a 41% mortality of sac fry. Conversely, the same study reports rainbow trout as being more resilient to TSS. In the context of Treaty 8 territory, arctic grayling are highly valued and utilized, but are also highly sensitive (populations are depressed relative to historic levels, and the species is generally sensitive to disturbance; Blackman and Hunter, 2001). The conclusion on line 21 and 22 (and again on subsequent pages) that the likelihood of mortality is low given the mitigation recommended in this application is not consistent with these findings; it is too broad a conclusion and, once again, better consideration for effects by species and by region – and consequently more site-specific mitigation - is necessary.	Coastal GasLink clarifies that the 200 to 400 mg/L range for TSS thresholds is rated as 'high risk' in Birtwell (1999) and was not mentioned in the Application. As a point of clarification, TSS levels greater than 400 mg/L present 'unacceptable risk' to fish and their habitat as opposed to high risk' (see page 7-81). These TSS ranges provide general guidelines on the potential effects that sediment may have on salmonids and their habitat. In order to manage pipeline construction risk sediment dosage (TSS), duration of exposure, fish community and life stages present must all be evaluated at each watercourse crossing. Timing windows are species and region specific and take into account local conditions. Coastal GasLink considers sensitive timing windows for fish in the construction planning and detailed engineering design for watercourse crossing installation as described in section 1.4.16 of the Application. In cases where multiple fish species are present, all sensitive species and life stages present at the time of construction will be considered when managing the risk.		
668	Application Section 7	p. 7-83	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Application points out the high risk of fish handling during salvages in mid-winter in Peace Country. (It is also quite difficult to actually capture fish at this time of year, if a salvage is necessary). The same page notes that with mitigation, there is negligible residual risk, but on review of Table 7.9 and Appendix 2A, cannot find any mitigation commitments specific to winter salvage techniques.	In situations where fish salvage is conducted during construction, personnel will be guided by the mitigation in Section 8.0 of the EMP and the mitigation in Section 7.0 of the Application. Site-specific mitigation may be developed in consultation with the appropriate regulatory authority and may include: <ul style="list-style-type: none"> • Manually remove of ice cover in the isolation area prior to fish salvage; • Partially de-water of isolation area to minimize the volume of habitat to be salvaged; • Guide fish from the isolation area by leaving one end open while pushing fish out with nets or current generated by electrofishing equipment; • In areas of high overwintering potential conduct a pre-salvage prior to freeze up but following winter related fish movements; • Use insulated transfer containers; • Locate suitable release locations prior to 		

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									fish salvage and ensure ongoing maintenance of these sites to minimize fish handling time; • Adhere to any temperature restrictions provided in Fish Collection Permit conditions.		
669	Application Section 7	p. 7-84	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Classifying the fish (or embryo) mortality as reversible within one year due to stock recruitment is possible but far from probable. There is high uncertainty here, and a huge body of literature to support the potential effects of a localized but high-magnitude loss of a year-class of fish.	Coastal Gaslink believes that successful implementation of mitigation, including carrying out activities during instream windows of least risk, will limit mortality. As a result the loss of an entire age class is not expected.		
670	Application Section 7	p. 7-84 to 7-86	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The likelihood of adverse impacts to fish and fish habitat due to increased site access is classified as low, on the basis that access-restriction mitigation approaches will be used. However it is also acknowledged that the time it takes for some of the mitigation to be in place will be years, as it is dependent on vegetation re-growth. This is an issue of highest concern for wildlife, but given the clear increase in back-country access that has resulted from other ROWs in the area (which has been pointed out to Coastal GasLink by Saulteau First Nation (EBA, 2013)), we would like to know what specifically about the proposed mitigation in THIS CASE is different than the mitigation that would have been applied elsewhere, where it has clearly failed? Reliance on BMPs with no descriptive rationale only works where the BMPs are broadly accepted as being effective, and we are unconvinced that is the case here.	Appropriate measures will be implemented to reduce access along the pipeline ROW following construction (i.e., during final cleanup). Mitigation is described in Section 7.5.1 of the Application. Coastal GasLink will also develop its Access Control Management Plan as described in Appendix D of the EMP in consultation with the appropriate regulatory authorities..		
671	Application Section 7	p. 7-88	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Despite the description provided, there is no magnitude threshold actually defined for riparian clearing nor for habitat alteration (e.g. what is the "regulatory or environmental limit" in this instance?). It is left to the reader to infer... in terms of mortality, our understanding of DFO's application of the revised Fisheries Act is that unauthorized fish mortality remains a "serious harm", so that would seem to be one measure of the significance threshold. The remaining aspects of "serious harm" in the Fisheries Act are either defined by the assessing professional or, if uncertainty exists, via collaborative review with DFO. So, some considerable clarity would be appreciated in terms of what is being defined as the threshold for significance determination on this VC and the sub-component species.	Due to the lack of established thresholds for riparian habitat clearing, the assessment was conducted considering regulatory or environmental standards established by the provincial and federal regulatory authorities, which provide a benchmark for the assessment of magnitude for a given effect. In regards to serious harm, the assessment was conducted utilizing unauthorized serious harm to fish as a significance threshold. The definition of serious harm to fish as defined in the Act as "the death of fish or any permanent alteration to, or destruction of, fish habitat" which was considered in establishing this threshold. In following DFO policy, Coastal GasLink will follow direction from DFO regarding alternative mitigation strategies such as offsets in situations where serious harm is caused by construction of the proposed Project.		

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672	Application Section 7	p. 7-96, (and section 3.8.9)	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The description of approach on this page isn't clear. Perhaps the application of the disturbance hierarchy is meant to avoid double-counting disturbed areas? Please clarify.	Coastal GasLink clarifies that the disturbance hierarchy is intended to avoid double counting land uses. When one land use footprint type overlaps another, e.g., a cutline crossing a primary road, the intersect area is classified as one 'dominant' footprint type. A hierarchy was established, which assigns an order of precedence for each of the land use footprint types and was based on the estimated level of activity or use of each footprint. For example, a primary road was assumed to receive more use than a cutline; therefore, the intersect area between the two footprints would be identified as a primary road.		
673	Application Section 7	Page 7-103	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		It is not clear if the cumulative effects assessment of in-stream disturbance includes the 60+ km of roads and the associated culverts and bridges. Given the absence of roads in the quantitative calculations in subsequent sections, we presume that is the case. This would be a considerable oversight and the assessment should be re-done including best-estimates of culvert crossings.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The assessment considers potential adverse effects associated with temporary facilities, including roads, in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the information will be provided to appropriate regulatory authorities during permitting. Roads were not included in the cumulative effects assessment calculations. However, the impact of the Project was overestimated in the calculations since a conservative ROW of 100 m was applied to some sections to account for temporary facilities such as roads. While the type of road crossing would be known for the Project, it is unknown for existing crossings and reasonably foreseeable future developments. Coastal GasLink believes that the cumulative effects assessment was conservative and appropriate for the Project.		
674	Application Section 7	page 7-15	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Discussion in several sections of the aquatic assessment, most notably page 7-15 and throughout Appendix 2G, lacks a specific description of process. There is the list of categorical VCs, but not the actual species that qualify in those categories. Then there is discussion of the species that may qualify, but other references to species that may not qualify as per EPMP. Then there is discussion on page 7-15 and throughout Appendix 2G about the risk management framework used for habitat-based biological assessment. Is this being used to represent the assessment for all species, through both the VCs? It is very difficult to review this section and identify how it relates back to the AIR.	The VCs and KIs selected for the aquatic environment are identified in Section 4.3 of the AIR. Coastal GasLink notes that all of the species listed in Table 7-3 are considered under the VC 'Protection of Recreationally, Commercially and/or Culturally Important Fish and Fish Habitat'. Although some of the species listed in table 7-3 do not meet the EPMP definition of a 'fish stream', they are still considered in the assessment of the VC as potentially being important in subsistence or cultural fisheries. Species considered under the VC "Species of Conservation Concern" are provided in Table 7-4 of the Application. The same methodology of assessment is applied to all species considered under both VCs.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
675	Application Section 7	Page 7-164, table 7-34	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Table 7-34 is very misleading, in that stream crossings due to access roads are not included because "locations of permanent and temporary access roads were not known" (p.7-166). Conversely, there are also "null" values for things that are known to be zeroes for the project, such as new railway crossings. It is disingenuous to even present the cumulative effects in this section as quantitative when one of the big project-specific and "foreseeable future projects" is roads, and is not included. And yet, this entire section presents conclusions with "high confidence" (p. 7-170) that there will be no significant effects. Over 60km of new roads, not scoped into this CEA. It seems reasonable that even a range of new road crossings should be estimated, to allow completion of this assessment. It is particularly notable that secondary and tertiary roads themselves are both either at or near the "high risk" threshold for cumulative watershed impacts (Table 7-34), particularly in the eastern part of the province (Treaty 8 territory) - attributable, as the Application notes, to the "higher level of oil and gas activity and forest harvesting". It is clear that existing pressure on aquatic habitat is intense; in other words, the context of the VC is already stressed. Further cumulative impacts are potentially significant and it is insufficient to present the CEA as-is.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The assessment considers potential adverse effects associated with temporary facilities, including roads, in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the information will be provided to appropriate regulatory authorities during permitting. Roads were not included in the cumulative effects assessment calculations. However, the impact of the Project was overestimated in the calculations since a conservative ROW of 100 m was applied to some sections to account for temporary facilities such as roads. While the type of road crossing would be known for the Project, it is unknown for existing crossings and reasonably foreseeable future developments. Coastal GasLink believes that the cumulative effects assessment was conservative and appropriate for the Project.		
676	Application Section 7	page 7-19	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		This section seeks to expand on the species that actually fall under the two categorical VCs. We appreciate the clarification on fish species that are culturally used but not classified as "fish" under the EPMP - but there is no clear explanation on how this applies. There is very frequent reference to the EPMP for fish bearing status, etc., but this doesn't appear to be consistent with the Fisheries Act or with the stated approach to protect all these species of fish. Amounts to inconsistency in methodology and logic. We do not support the exclusion of any fish species from classification as "fish", as all species either are culturally used or support other fish populations that are culturally used.	Coastal GasLink notes that the proposed Project is subject to the requirements of the EPMP and the <i>Fisheries Act</i> . Where there are discrepancies, Coastal GasLink will comply with the most stringent requirements. Although there is no direct mention of protecting fish not defined in the VC (e.g. recreational, commercial or culturally important as well as species of conservation concern), these species are protected under subsection 35(1) of the Fisheries Act which states "No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery". As a result, fish not directly listed in the VC's or under the EPMP are still protected under the Fisheries Act when they are part of a commercial, recreational or Aboriginal fishery.		
677	Application Section 7	page 7-20	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Was necessary to read this whole section a few times to figure out what logic was being applied and how focal species within the "umbrella VC" were being derived. Coastal GasLink please confirm if this is correct, but lines 1 - 5 on page 7-20 summarize the applicable species for Peace River watershed. There is no summary table, just the sentence where it is boiled down to 12 species. This does NOT seem to be consistent with the new Fisheries Act definitions of culturally / recreationally / commercially important fish since that definition also includes the habitat - and species - on which those species depend.	A summary of all fish species present, historically present, introduced or possibly present for the upper and lower Peace River basins can be found in Table 7-3. All of the species listed in this table and their habitats have been considered in the Application.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
678	Application Section 7	Page 7-60 and 7-61	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Table 7-8, p. 7-61 commits to developing "site-specific plans for all watercourses undergoing channel realignment". The previous page commits to "return the watercourse bed and banks to their pre-disturbance configuration with no realignment of the channel".	Coastal GasLink will continue consultation with the appropriate regulatory authorities as construction planning and detailed engineering design advances. At locations where temporary channel alignment is required to safely install the pipeline at a watercourse crossing, Coastal GasLink will review the detailed plans with the appropriate regulatory authorities and follow direction for regulatory compliance.		
679	Application Section 7	page 7-75	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The receptor of this assessment is fish and their habitat, so effects on riparian vegetation are not spatially bounded by only the footprint - this would be the case if the receptor was just the vegetation - but for fish, riparian contributions are both within footprint (shading, channel forming) and downstream (leaf litter, nutrient contributions, downstream effects from the shading, etc.).	Coastal GasLink confirms that the potential residual effect 'Alteration or Loss of Riparian Habitat Function during Construction' on page 7-75 of the Application focuses on changes to riparian habitat function as an effect. The potential adverse effects, such as sedimentation and effects on instream habitat, associated with clearing of riparian area are addressed under 'Alteration of Instream Habitat within the Zone of Influence at Trenched Crossings and during Construction of Vehicle crossings' on page 7-78 of the Application and 'Increase Mortality or Injury due to Increase of Suspended Sediment during Instream Construction at Trenched and Vehicle Crossings within the Zone of Influence' on - 80 of the Application. These residual effects consider sedimentation due to bank erosion and are assessed within the Project LSA.		
680	Application Section 7	page 7-76, and thereafter	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		This section and the pages that follow highlight the inadequacy of "context" in this Application. The potential residual effects are presented, describing context for each one. But context is defined by resiliency and sensitivity - and this varies greatly by region for such a long, spatially diverse project. It is impossible to describe the pre-existing state of stress of, for instance, riparian community, collectively for cities, towns, pristine areas and heavily logged ones, in one overarching sentence. This should be assessed at minimum at the sub-basin level, independently. This would also facilitate meaningful assessment of impacts on Treaty rights and land use (e.g harvestability varies regionally and different species are stressed in different ways by region). The context for riparian vegetation is basically reduced to a statement that "context varies" but that is the very rationale for including context as part of the assessment in the first place. To do otherwise is to completely ignore the relevance of this portion of the assessment...which, it must be added, was a commitment in the AIR. There is no denying this makes for a lengthier assessment, but it must be acknowledged that simply by virtue of being a very long linear project, assessment at the site level shouldn't be scoped down. One may argue that if this was, for instance, a 3km long pipeline, more detailed consideration of local context would have been expected. Context may or may not influence how significance is determined, but at the very least it should see consideration of more intensive application, development, monitoring or review of site-specific mitigation measures to improve confidence and reduce implementation error.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Context is described in section 3.7 of the AIR and in Section 3.5 of the Application . As noted on page 7-76 of the Application, context varies depending on the location and various parameters of the receiving environment. Particular aspects of the receiving environment will be considered on a site-specific basis as construction planning and detailed engineering design advance and provided to the appropriate regulatory authorities during permitting.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
681	Application Section 7	page 7-77 (and Appendix 2A, p. 30)	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Riparian vegetation maintenance during 30 year operational period is described as potentially involving pesticide use (and herbicide use is mentioned elsewhere throughout the Application). This is an area of high concern for the Treaty 8 membership regardless of permit / regulatory authority. Water quality in general is an issue. Fish have been poisoned, and people are already unable to harvest fish in traditional areas due to contamination (Rescan, 2012). Thus, in the context of Traditional Use, the LSA is already highly stressed insofar as chemicals in the environment are concerned. The concern is not only for the fish-bearing creeks but also the headwaters, which must be kept pristine as much as possible. Elders and community members also feel they cannot trust the health of berries when spraying occurs. The resource specific mitigation for use of herbicides (Appendix 2A, p. 30) is vague: "restrict application of herbicide near sensitive resources"; "prohibit use of pesticides in proximity to an open body of water, unless herbicide application is...approved by relevant regulatory agency". We are not comfortable that regulatory policies address our interests on this topic, and "sensitive resources" and "proximity" are undefined but fundamentally important terms here. Given the TEK that is noted in the EA and the concern for water quality, we request specific and reasoned cases where chemical applications are necessary. The default should be no use of pesticides or herbicides in Treaty 8 territory unless approved by affected Nations.	Coastal GasLink respects the request by the affected First Nations to avoid the use of Pesticides or Herbicides within their traditional territory. As Coastal GasLink develops its invasive plant management plan, consideration will be given to other options of vegetation control.		
682	Application Section 7	N/A	section on species at risk	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Still lacks any summary table of "here are the species of conservation concern that are included within that open-ended VC".	Species of conservation concern potentially occurring along the proposed pipeline route are listed in Table 7-4 of the Application.		
683	Application Section 7	table 7.8	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The use of 10m riparian buffer requires clarification since RMZ, RRZ are specified as much more than this in the stream classification.	The Environmental Protection and Management Guide provides guidelines for protection of riparian areas; however, construction of a crossing may require work closer to a watercourse than the 30 m buffer distance for a S2 Riparian Reserve Zone. Temporary workspace within 10 m is a minimum value set in consideration of potential terrain conditions (e.g., slopes and valleys) that may be present at site-specific watercourses and impose restrictions on work space which would require a deviation from the Environmental Protection and Management Guide and subject to approval by the appropriate regulatory authority.		
684	Application Section 7	table 7.8	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The table includes the commitment to "inspect all erosion and sediment control structures after precipitation events and after snowmelt". This lacks specificity and as worded is untenable. High focus here on implementation feasibility.	Section 8 of the EMP includes mitigation to address erosion control. In this Section, Coastal GasLink notes that All temporary sediment control structures will be inspected on a regular basis and following precipitation events and snowmelt. If this inspection identified the need for repairs, the repair work will be carried out before the end of the working day. Should the potential for erosion resulting in contributing sediment to a watercourse be identified during construction, Coastal GasLink will implement the Soil Erosion Control Contingency Plan is included in Appendix C of the EMP.		

Coastal GasLink Project: Working Group Comment Tracking Table

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685	Application Section 7	table 7.8	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The restriction against taking no more than 10% of the instantaneous streamflow warrants some description for how this will be calculated and monitored. Particularly important where there are already upstream uses.	Coastal GasLink will provide the necessary information to the appropriate regulatory authority to support permitting for water withdrawal. Coastal GasLink expects direction from the appropriate regulatory authority about water withdrawal rates and will comply with direction provided. It is expected that the permitting authority will ensure that cumulative withdrawals are acceptable.		
686	Application Section 7	table 7.8	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Table states that contractor is required to develop site-specific watercourse crossing plan and submit to Coastal GasLink prior to undertaking the crossing. Is that the case for all crossings? Please clarify, as the table of mitigation measures in the master watercourse crossing table only lists major watercourse crossings as requiring site-specific plans.	Coastal GasLink will develop site specific plans for watercourse crossings during construction planning and detailed engineering design in consultation with the appropriate regulatory authorities.		
687	Application Section 7	table 7.8, page 7-63	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		When using pumped isolation, "monitor pumps at all times to ensure downstream flow is connected". Does that imply full time night-shift pump watchers? We share the concern as pump failure has very high consequences, but would like to see a more specific and clearly achievable means of ensuring against this outcome.	Section 8 of the EMP includes a description of measures to ensure maintain of downstream flow at all times using an isolation method to install the pipeline. If pumps are used to maintain stream flow, back-up pumping capacity must be on-site and ready to take over immediately if operating pumps fail. Pumps will be continuously to ensure downstream flow is maintained at all times until the dam materials are removed and normal flows are re-established. Pumps will be monitored continuously including through the night to avoid equipment failure.		
688	Application Section 7	table 7.8, page 7-63	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Commitment to "develop water quality monitoring plans", and "threshold water turbidity levels". When will those plans apply? What are the thresholds? Effects assessment would be appropriate to define these thresholds.	Coastal GasLink will develop appropriate water quality monitoring plans prior to construction in consultation with the appropriate regulatory authorities. Additionally, on-site environmental monitoring will ensure work is completed in compliance with applicable regulatory requirements as indicated in Section 4.3 of the EMP.		
689	Application Section 7	table 7-17	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Footnotes (1), (2), (3) appear to be missing?	Coastal GasLink confirms that the definitions for each were provided in Table 7-17: (1) Existing Disturbance of Instream Area (ha)/% (2) Area of Instream Disturbance Attributed to the Proposed Project, assuming no trenchless crossings (ha)/% (3) Area of Instream Disturbance Attributed to Reasonably Foreseeable Development (ha)/%		

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690	Application Section 7	Table p. 7-88, table 7-10.	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Application classifies that an effect on fish and fish habitat will be significant if: high likelihood, high magnitude (doesn't meet regulatory criteria), low reversibility (takes longer than 1yr to reverse). We argue that based on the above that the mitigation currently identified and the level of acceptable risk (e.g. for TSS when in grayling habitat), & the exclusion of zone-of-influence consistency for fish timing windows, the uncertainty around reversibility of localized but high-magnitude effects, etc., collectively this provides very low confidence that the project has applied mitigation to an appropriate level during construction in particular. It is not unreasonable that appropriate mitigation could be achieved, but better consideration of potential effects at regional and species level, consideration of context, and development of more thorough mitigation is necessary – and NOT at the permitting stage. And as noted, the "moderate confidence" stated for the potential for increased access and disruption of habitat due to new trails warrants better explanation, as similar standard mitigation has very often failed in this regard.	Coastal GasLink notes that the effects of pipeline construction on watercourse crossings is well documented. With the implementation of proper construction and reclamation techniques the effects to fish and fish habitat are well understood and predictable. Coastal GasLink will comply with all regulatory requirements. As a result, Coastal GasLink believes that the mitigation that has been proposed for the Project is appropriate.		
691	Application Section 7	Page 7-73	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The table refers reader to section 2.4 of Appendix F of Appendix 2A. But, appendix 2A does not have an Appendix F. (ends at appendix E, which is just the DFO operational statements).	Coastal GasLink clarifies that the table should refer to Appendix D of Appendix 2A (Management Plans).		
692	Application Section 7.8.1	Page 7-173, Table 7-38	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The Project-Environment interaction matrix for groundwater is poorly developed (absent, actually). For example, potential effects are assessed only for the construction phase. There is no description of why this phase is of concern, nor why other phases are not. Please clarify why the construction period may have an effect on groundwater, while other periods will not.	The proposed Project does not include a consumptive use of groundwater for industrial purposes. Coastal GasLink expects that its activities will only temporarily interact with the subsurface during the construction phase and concludes that the potential adverse effects on groundwater are limited to this phase. Coastal GasLink also expects that industrial uses of groundwater are subject to review by the appropriate regulatory authority.		
693	Application Section 7.8.1	Page 7-173, Table 7-38	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The table notes that if springs and groundwater are encountered, appropriate mitigation actions will be determined, and references Section 7.1, Appendix 25. There is no Appendix 25. This perhaps was reference to Section 25 (Construction and Operational Environmental Management), but that section contains no details on groundwater mitigation. Similarly, Appendix 2A (Environmental Management Plan) has the same text copied from Table 7-38, with no further details. It is acknowledged that mitigation of effects on springs and groundwater will have to be completed on a site-specific basis, but there is insufficient information presented to allow review. Please provide a greater level of detail and commitment as to how this issue will be approached and managed.	Coastal GasLink clarified that the correct reference is Appendix 2A. Coastal GasLink confirms that the EMP identifies mitigation for situations where trenching may encounter groundwater. Available information about the location of aquifers, springs and higher water tables will continue to inform Coastal GasLink's construction planning and detailed engineering design Trench blockers may be installed during construction, where appropriate, to limit the potential for subsurface water flow along trenches backfilled with permeable granular fill that could be a preferred flow pathway for groundwater.		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
694	Application Section 7.8.1	Page 7-174, Table 7-39	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The characterization of potential residual effects, including the text in pages 7-174 to 7-175, does not provide sufficient justification to determine if ratings are appropriate. It is impossible to follow the line of reasoning presented. Please provide justification for the potential effects characterization.	Characterization of potential effects is provided in the subsequent text following the table (lines 16-24 on page 174 and Lines 1-12 on page 175). The BC EAO determined the Application was complete in accordance with the AIRs; therefore, Coastal GasLink believes that the potential effects characterization utilized in this case is appropriate.		
695	Application Section 7.8.2	Page 7-175, Line 13	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Significance of effects on groundwater quality are only discussed in terms of groundwater that contributes to surface water. This is an important component, but Table 7-38 includes a "mitigation" for water wells within 200m of the project, implying that effects to groundwater quality in itself may occur to an extent that could affect well owners. Please present justification as to why no significance criteria for groundwater quality have been presented.	Coastal GasLink notes an explanation provided in Section 7.8.2 of the Application about the relationship between groundwater quality and surface water quality with reference the BC <i>Water Act</i> . The description of significance criteria for surface water quality is provided in Section 7.7.3 of the Application. In terms of the assessment of effects on groundwater, groundwater encountered as discharge to ground surface along the Project route, whether naturally occurring or because it is somehow exposed, becomes surface water and is regulated as such under the <i>Water Act</i> . Therefore, the surface water quality mitigation summarized in Section 7 of the Application apply to these discharges.. Accordingly, by applying the surface water quality mitigation summarized in Section 7 of the Application generally to surface water encountered in all forms along the Project, potential effects on groundwater quality within actual groundwater recharge areas/sites is correspondingly mitigated. Importantly, by addressing surface water quality within recharge areas/sites, the quality of groundwater available to down gradient users, whether domestic wells or some natural receptor, is likewise addressed.		
696	Application Section 7.8.2	Page 7-175, Line 17	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Significance of effects on groundwater quantity are defined as a withdrawal rate greater than 75 L/s. This withdrawal rate limit is defined in Part 5 of the Reviewable Projects Regulation as applying to groundwater extraction projects, not Transmission Pipelines. Thus it is not clear how this determination applies to significance from either a regulatory limits or environmental limits standpoint, as defined in Table 3-5. This approach to significance criteria may be appropriate if the project affects aquifers used for water supply, but insufficient justification is presented to show that this criteria is appropriate for potential effects on springs, which are the only potential residual effect that has been identified. Does this imply that if a spring having a flow rate of less than 75 L/s is reduced to 0 L/s due to the project, the effect is insignificant? We have mentioned that springs are very important within the affected Treaty 8 communities. Please provide justification for how the chosen criteria are appropriate in regards to the potential residual effect.	Coastal GasLink notes an explanation provided in Section 7.8.2 of the Application about the relationship between groundwater quality and surface water quality with reference the BC <i>Water Act</i> . The description of significance criteria for surface water quality is provided in Section 7.7.3 of the Application. The withdrawal rate of 75L/s represents the only available regulatory threshold for groundwater and is cited for that purpose. Available information about the location of springs will continue to inform Coastal GasLink's construction planning and detailed engineering design and to meet regulatory requirements during permitting.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
697	Application Section 7.8.4	Page 7-177, Table 7-42	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The characterization of potential cumulative effects on groundwater, including the text in pages 7-177 to 7-178, does not provide justification to determine if ratings are appropriate. Please provide justification of potential effects characterization.	Coastal GasLink has completed a comprehensive assessment of the potential adverse effects of the Project in accordance with the AIR, issued by EAO in May 2013. Construction and operation of the Project does not require withdrawal of groundwater and all groundwater interactions will be temporary and related effects have been defined and can be effectively mitigated		
698	Application Section 7.8.5	Page 7-178, Table 7-43	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The determination of significance for cumulative effects on groundwater is presented as a series of qualitative statements about judgment. It is not possible to agree or disagree with the determination of significance or confidence for residual cumulative effects without some description of conclusions that were reached. In terms of transparency of process we consider this a highly relevant issue. Please provide justification for significance and confidence ratings for residual cumulative effects.	Coastal GasLink has completed a comprehensive assessment of the potential adverse effects of the Project in accordance with the AIR, issued by EAO in May 2013. Coastal GasLink conducted a qualitative assessment using available information and recognizing the lack of quantifiable groundwater data (e.g., groundwater usage) for all existing, and reasonably foreseeable developments located in the RSA. Construction and operation of the Project does not require withdrawal of groundwater and all groundwater interactions will be temporary and related effects have been defined and can be effectively mitigated		
699	Application Section 8	Page 8-101	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		"...adverse effects on occurrences of whitebark pine is not significant based on the anticipated efficacy of mitigation to reduce disturbance..." - based on comments on Page 8-55, this may not be the case in alpine/subalpine environments in order to maintain safe work areas. Adverse effects to whitebark pine will not likely be avoidable in these habitats and additional mitigation will be required.	Coastal GasLink is confident that most whitebark pine locations within the proposed route have been detected since the route has been flown on three occasions and ground-based surveys have been conducted. One of the aerial surveys was conducted by rare plant botanists explicitly searching for whitebark pine along the proposed route, while the other aerial surveys were conducted by experienced plant ecologists. The actual area of suitable habitat that overlaps with the proposed route is a relatively discrete/limited area, and therefore, feasible to survey. Coastal GasLink will continue surveying in 2014, including ground surveys of the whitebark pine areas identified by aerial survey to inform construction planning and detailed engineering design. Appropriate mitigation will be developed prior to construction in consultation with the appropriate regulatory authorities.		
700	Application Section 8	Page 8-27	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Paragraph beginning on Line 18 indicates that the Project meets the objectives of the applicable LRMPs and SRMPs, specifically protecting and avoiding infrastructure development within Red and Blue-listed plant communities. Table 8-5, however, and the overall effects assessment contradicts this claim suggesting that 15.1ha and 448.3ha of Red and Blue-listed plant communities overlap with the proposed PR. The Project does not appear to meet the avoidance objectives noted.	Coastal GasLink confirms that areas of Red and Blue-listed communities were predicted through Terrestrial Ecological Mapping (TEM). Continued data collection to support construction planning and detailed engineering design, including refinement of locations of ecological communities of concern. Section 1.4 includes evaluation criteria for pipeline routing and facility siting which notes consideration of environmental sensitive areas. Site-specific mitigation determinations will follow the mitigation hierarchy for addressing potential adverse effects (avoid, mitigate, compensate/offset).		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
701	Application Section 8	Page 8-30	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The list of potential adverse effects during construction, operation and decommissioning does not mention soil compaction as an issue of concern. Soil compaction, however, is addressed in the EMP with prescribed mitigation (Section 8.8).	Coastal GasLink agrees that soil compaction is addressed in the EMP. Soil compaction is included in the assessment of the VC Soil Capability in Section 5.5 of the Application.		
702	Application Section 8	Page 8-49	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 1 indicates that "Approximately 2,407ha of old forest will be disturbed by the proposed Project (16% of the Vegetation LSA). In addition, there are approximately 376ha of legal OGMA and 244ha of non-legal OGMA in the Vegetation LSA." Calculations done using the areas provide in the TDR suggest that only 613.1ha of old forest is present in the ROW, and a total of 2,403.7ha occurs in the LSA. Our understanding is that the ROW represents the area that will be directly impacted by the Project, which includes a 100m corridor plus associated facility sites. Please confirm what the 2,407ha number is referring to.	Coastal GasLink confirms that approximately 2,407 ha of old forest has been identified in the Vegetation LSA of which approximately 613.1 ha is located on the proposed route.		
703	Application Section 8	Page 8-49	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 24 indicates that in addition to seeding, appropriate tree species will be replanted on temporary workspace in forested areas. This would partially address the aboriginal concerns summarized in the TDR (e.g., Lines 30-35, Page 36); however, the notion of doing more than seeding in the reclamation/restoration strategy is not carried forward in the EMP. Please update the EMP to reflect specific commitments on this topic.	Coastal GasLink will develop a Reclamation Plan prior to construction in consultation with the appropriate regulatory authorities. The Reclamation Plan will be informed by site-specific data collected prior to construction and will be updated during construction to reflect the current conditions.		
704	Application Section 8	Page 8-5	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Discussion of OGMA indicates the Project will impact OGMAs, that there is a provincial OGMA replacement process, and that the BC MFLNRO has requested that Coastal GasLink participate in this process. There is no further mention of this participation in the effects assessment and mitigation. Please clarify where in the assessment the impacts on OGMAs are outlined in proper detail, including the commitment to mitigating adverse effects in cooperation with the Province.	Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate mitigation for Old Growth Management Areas.	It is presented as a foregone conclusion that impacts to old growth forests and to caribou habitat, and the permanent impacts to whitebark pine, can be avoided or effectively compensated. We find the support for this position to be lacking and feel the discussion in the WG meetings reinforced this opinion.	The Application acknowledges the potential residual adverse effects of the Project on old forest, caribou and whitebark pine. Coastal GasLink commits to ongoing dialogue with regulatory agencies to continue development of comprehensive mitigation that includes elements of monitoring the effectiveness of the mitigation, as well as adaptive management as appropriate. As construction planning and detailed engineering design advances, Coastal GasLink will continue to apply the mitigation hierarchy. Coastal GasLink completed a comprehensive assessment in accordance with the AIR. The assessment was completed by a multi-disciplinary team of qualified professionals who have experience with projects of similar scale and complexity, including an understanding of the potential adverse effects and mitigation approaches. A detailed list of the qualified professionals completing the assessment was provided in a

Coastal GasLink Project: Working Group Comment Tracking Table

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											technical memo to the EAO on May 13 2014. The Application has been completed using transparent and accepted assessment methodology that has been applied and tested in the context of various regulatory processes. The methodology describes the potential adverse effects of the proposed Project, outlines mitigation, and characterizes the residual adverse effects and their significance
705	Application Section 8	Page 8-54	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 6 begins by indicating a total of 49ha of alpine/subalpine area occurs within the proposed ROW. Further down in the paragraph (line 15) the text suggests that "Coastal GasLink will aim to avoid alpine/subalpine areas. If avoidance of alpine/subalpine areas in general is not practical, Coastal GasLink will aim to reduce the potential adverse effects of the proposed Project...". This later statement on line 15 seems irrelevant and misleading given the opening statement of the paragraph notes that avoidance cannot be achieved.	Coastal GasLink will continue surveying in 2014, including ground surveys of the whitebark pine areas identified by aerial survey to inform construction planning and detailed engineering design. Appropriate mitigation will be developed prior to construction in consultation with the appropriate regulatory authorities. Section 1.4 of the application includes evaluation criteria for pipeline routing and facility siting which notes consideration of environmental sensitive areas. Site-specific mitigation determinations will follow the mitigation hierarchy for addressing potential adverse effects (avoid, mitigate, compensate/offset).		
706	Application Section 8	Page 8-55	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		A portion of the text beginning on Line 34 and carrying through to Line 5 on Page 8-56 appears to be in the wrong place (i.e., discusses alpine/subalpine areas under the "Grasslands" section). Furthermore, the alpine/subalpine text alludes to the fact that "to accommodate safe and feasible construction, it is expected that the suggested measures are likely not practical in most locations. Because it is necessary to cut and fill to create a safe work area, it is expected that the potential effects on vegetation in alpine and subalpine areas will often be permanent." This statement suggests that the reversibility of the potential residual adverse effects on alpine/subalpine habitats should favour "permanent" status rather than "long-term to permanent". In addition, the text continues, "Coastal GasLink will work with provincial regulatory agencies to identify opportunities to alleviate the proposed Project's potential residual adverse effects (e.g., financial or habitat offset) on alpine/subalpine areas. Coastal Gas link's commitment to alleviating the proposed Project's potential residual adverse effects on alpine and subalpine areas is expected to effectively reduce these effects to avoid and material potential adverse effect". This latter statement indicates that residual adverse effects to alpine/subalpine habitat are not sufficiently mitigated through the key mitigation strategies and that further action is required (e.g., financial or habitat offset); however, this is not mentioned anywhere else within the assessment. Clarification is required, as well as details regarding the proposed opportunities to alleviate adverse effects.	Acknowledged. Lines 34-39 on page 8-55 should be under the subheading "Potential combined Adverse Effects on Alpine/Subalpine Areas Resulting from Clearing and Invasive Plans" on page 8-54. Coastal GasLink expects that the reversibility will be permanent in alpine areas that require blasting to safely install the pipeline, and as a result, it is expected that the thin soil layer will be lost and the topography will be altered. There are some alpine areas, where is it expected that blasting will not be required and so the reversibility is expected to be long-term in those areas. Coastal GasLink will consult with the appropriate regulatory authorities in developing alternate mitigation strategies if warranted.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
707	Application Section 8	Page 8-58	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 1 indicates that the proposed mitigation for the Project "has been used on other major pipeline construction projects with good success". It would be useful to understand what qualifies as "good", and if project references/confirmation could be provided (similar to those provided on Page 8-95, Line 14).	Coastal GasLink will develop a Post-construction Monitoring Plan in advance of construction, in consultation with the appropriate regulatory authorities. Industry-accepted best practice considers reclamation of ecological communities of concern are generally considered a success when the composition of a community type or the species abundance/distribution/health are comparable to the composition/abundance prior to the disturbance. Coastal GasLink provide the following example: On the NGTL Groundbirch Mainline Project, several aspen/thimbleberry/wild sarsaparilla communities (S2S3) were observed on the right-of-way. The locations were staked off and the right-of-way was also narrowed to the greatest extent practical. The mitigation for these rare communities also included avoidance of grubbing and, where vehicle travel occurred, matting and temporary travel surfaces were installed to limit disturbance. It was noted during PCM that the communities had experienced minimal impact. Avoidance during construction by narrowing the right-of-way was found to have resulted in a near pre-construction level of species composition and abundance (TERA 2012). TERA Environmental Consultants. 2012. Rare Plant Post-Construction Monitoring for the NOVA Gas Transmission Ltd. Groundbirch Mainline Project. Calgary, AB. Prepared for NOVA Gas Transmission Ltd.		
708	Application Section 8	Page 8-59	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Reversibility rationale indicates that "potential residual adverse effects related to re-establishing ecological communities at risk (including that of invasive plants) will likely last more than 10 years". The Post Construction Monitoring (PCM) program is only proposed for five years. If risks of adverse effects extend beyond the PCM, how will they be identified and/or mitigated? This is one of a number of examples where post-construction monitoring and management is insufficient. These issues should be dealt with now and not deferred to some later stage.	A description of post construction monitoring is provided in Section 25.3 of the Application. Timing, type, and the description of monitoring for vegetation are outlined on page 25-10. Coastal GasLink will develop its post-construction monitoring program in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.		
709	Application Section 8	Page 8-96	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The paragraph beginning on Line 8 includes a description of where whitebark pine commonly occur. Some of the whitebark pine in the LSA correspond with alpine environments. Based on the comments provided on Page 8-55, it is unlikely that any whitebark pine in the alpine/subalpine zones of the ROW can be avoided in order to maintain a safe work area. Therefore, it can assumed with some confidence that "avoidance is not practical" and that Coastal GasLink will need to discuss further mitigation with provincial and federal regulators.	Coastal GasLink will continue surveying in 2014, including ground surveys of the whitebark pine areas identified by aerial survey to inform construction planning and detailed engineering design. Appropriate mitigation will be developed prior to construction in consultation with the appropriate regulatory authorities. Section 1.4 of the application includes evaluation criteria for pipeline routing and facility siting which notes consideration of environmental sensitive areas. Site-specific mitigation determinations will follow the mitigation hierarchy for addressing potential adverse effects (avoid, mitigate, compensate/offset).		

Coastal GasLink Project: Working Group Comment Tracking Table

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710	Application Section 8	Page 8-96	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Line 34, "If whitebark pine trees are removed, Coastal GasLink may consider planting whitebark pine seedlings...". We request that "may" be changed to "will" for assurance that this strategy will be considered carefully and implemented wherever possible.	Coastal GasLink will continue to discuss mitigation with the appropriate regulatory authorities to identify effective and practical measures to avoid or lessen potential adverse effects.		
711	Application Section 8	Table 8-14, Page 8-92	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The key mitigation for traditionally important plant species alludes to mitigation outlined in the EMP; however, the headings listed in the table do not clearly correspond with sections included in the EMP.	The organization of the EMP is described in Section 25 of the Application. Headings in the EMP including mitigation related to traditionally important plant species are Clearing page 54, Post-construction Monitoring page 81, Vegetation page xx, Invasive Plants page xx and Forest parasites page xx		
712	Application Section 8	Table 8-7	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		No reference to the Ecological Communities and Species of Concern Contingency Plan under key mitigation for potential adverse effects to aspen forests and deciduous forests. Confirm if this is applicable or not.	The Ecological Communities and Species of Concern Contingency Plan is not expected to be applied to aspen or deciduous forests.		
713	Application Section 8	Table 8-7	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Throughout the table the Ecological Communities and Species of Concern Contingency Plan is referenced as "Section 9 of the EMP" when in actuality it is Section C.9 of Appendix C of the EMP. This typo occurs in various areas of the vegetation assessment as a whole. Please double check and update for clarity.	Coastal GasLink confirms that the Ecological Community and Species of Concern Contingency Plan is Section C.9 of Appendix C of the EMP.		
714	Application Section 8	Table 8-7	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Key mitigation for spread of invasive plants includes standard measures; however, it is not clear how the implementation of these best practices will be monitored and/or assurance that they will be followed diligently.	Page 82, line 18 of EMP states that Coastal GasLink will record locations of concerns identified during construction related to weeds, vegetation establishment, general right-of-way conditions, water crossing stability and reclamation success. This locations of concern will be reference during post-construction monitoring and operations to understand the success of mitigation used during construction of the proposed Project and to ensure outstanding issues are investigated, resolved, addressed, and reported during Project operations.		

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715	Application Section 8	Table 8-7	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		No mention of invasive plant management under key mitigation for potential effects to old forests. This is relevant and necessary.	The Invasive Plant Management Plan will be prepared prior to construction in accordance with the applicable legislation and in consultation with the appropriate regulatory authorities. The Invasive Plant Management Plan will be available on site, for reference by the construction management team. The Plan will recognize sensitive locations, such as old forest and will outline site specific measures.		
716	Application Section 8	Table 8-7	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Both the TDR and background/overview of the Section 8 assessment indicate the importance of retaining previously established "leave patches" and "leave trees". Table 8-7 suggests that these will be retained "whenever practical". What is the process to determine this? Measures such as this can be rendered completely useless - which undercuts the credibility of the Application - when effective implementation plans are not in place. The EMP does not appear to include any detail for how the subjective parts of this mitigation will be interpreted and implemented.	<p>The decision to retain "leave patches" and "leave trees" will be a site-specific decision made by the Coastal GasLink Environmental Inspector and the Construction Manager. Coastal GasLink is committed to ensuring the safety of all personnel on the construction site. Ensuring an appropriate work surface is key to ensuring the safe operation of equipment. The decision to retain 'leave patches' and 'leave trees' will be based on the grading requirements to develop a safe construction working surface and whether there is adequate space to avoid the patches and trees.</p> <p>In areas where the Project cannot practically avoid the clearing of leave patched and leave trees, Coastal GasLink will consult with the appropriate regulatory authority.</p> <p>Commitments made in the Application will be implemented and tracked throughout the construction phase of the Project. Coastal GasLink will hire competent, experienced Environmental Inspectors who will be tasked with monitoring implementation of these commitments following the framework provided by the Environmental Management Plan. This task includes monitoring the implementation of the mitigation identified in the Application and any other direction provided by appropriate regulatory authorities. The role and responsibilities of the Environmental Inspector are described in the Environmental Management Plan introduced in Section 25 of the Application and further detailed in Appendix 2A, Section 4.0, Environmental Compliance.</p>		
717	Application Section 8	Table 8-7 (Page 8-36)	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauleau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		There is mention to "the Invasive Plant Management Plan"; however, this plan was not located, including cross-referencing to Section 25, or Appendix C and D to the EMP.	Coastal GasLink will develop the Invasive Plant Management Plan in consultation with the appropriate regulatory authorities before construction of the proposed Project.		

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718	Application Section 8	Table 8-7 (Page 8-39)	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The practice of salvaging and re-using topsoil and stripping material has been dropped from the key mitigation strategies for potential adverse effects to Douglas-fir forests. There is also no mitigation related to invasive plant management. No reason is provided for either and yet we consider these to be relevant for effective environmental planning.	Section 8.33 of the EMP, provides mitigation for the conservation of topsoil and the handling of surficial material. Coastal GasLink will develop the Invasive Plant Management Plan prior to construction in accordance with the applicable legislation and in consultation with the appropriate regulatory authorities. The Invasive Plant Management Plan will be available on site, for reference by the construction management team.		
719	Application Section 8	Table 8-7 (Page 8-42)	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Forest pests is not listed as a potential adverse effect for alpine/subalpine areas; however, key mitigation includes whitepine blister rust and MPB strategies. Please clarify whether forest pests should be included as a relevant concern for those areas or if the key mitigation is unnecessary.	Coastal GasLink acknowledges that forest pests is a relevant concern for alpine/subalpine areas. The discussion is included in the text and it would also be appropriate for it to have been listed in Table 8-7.		
720	Application Section 8	Table 8-8	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The duration of the threat of invasive plants can't be considered short-term, especially in portions of the project within close proximity to active ATV communities (which is many). ROWs are commonly used for ATV and off-road recreation, and can facilitate invasion for as long as the ROW is accessible. Notwithstanding the Access Management Plan, we feel it is quite unrealistic and irresponsible to presume the ROW will not be used. As such, the threat of invasive plants impacts will persist and management and monitoring efforts are warranted beyond short-term.	The definition of duration, as stated in Table 3-5, page 3-22 is the "period of the event causing the effect". The assessment acknowledges that the reversibility of the effect of invasive plants is either medium to long-term, long-term or long-term to permanent for every potential residual adverse effect in Table 8.8.		
721	Application Section 8	Table 8-9	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The duration of the PCM is listed as five years in the Application (Section 8), but the duration of the PCM in the Ecological Community and Species of Concern Contingency Plan (Appendix C.9 to the EMP) is suggested at three years. Please clarify (and note that neither duration is actually sufficient - see other comments).	Coastal GasLink confirms that the post-construction monitoring conducted for 5 years following final cleanup and reclamation. A description of post construction monitoring is provided in Section 25.3 of the Application. Coastal GasLink will develop its post-construction monitoring program in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.		
722	Application Section 8	Table 8-9 and Page 8-63 and Page 8-85	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		The determination of significance and confidence for adverse effects on alpine/subalpine areas is indicated as "not significant, high confidence". Information provided in pages 8-55 and 8-56 suggest the impacts may be significant and additional measures to alleviate adverse effects (e.g., financial, habitat offset) is required. A similar concern extends to the conclusions made on Page 8-63 in the paragraph beginning on Line 15, and Page 8-85 (paragraph beginning on Line 11).	Coastal GasLink followed the methodology defined in the AIR issued by the EAO in May 2013. The statement on Page 8-63, Line 15 of the Application: "...the anticipated efficacy of mitigation to reduce disturbance to these areas" considers the potential development of alternate mitigation strategies such as compensation or offsets that may be required to alleviate potential residual effects on alpine/subalpine areas and will be discussed with the appropriate regulatory authorities.		

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									The determination of significance follows the methodology defined in the AIR and is based on the residual effect after mitigation (including, if applicable, financial compensation or habitat offset). Therefore, the statement that the effect is not significant relates to the residual effect not the effect prior to mitigation.		
723	Application Section 8	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		In almost all of the rationale for the characterization of potential residual adverse effects outlined in the assessment, duration is characterized as short-term. Although we generally agree with this assessment, the duration rationale consistently do not include decommissioning or abandonment. Decommissioning and abandonment activities will likely involve some potentially adverse disturbance.	Coastal GasLink followed the methodology defined in the AIR issued by the EAO in May 2013. The definition of duration, as stated in Table 3-5, page 3-22 is the period of the event causing the effect and reversibility is defined as the period of time over which the residual adverse effect extends. For all of the vegetation KIs, the duration was found to be short-term because the event(s) leading to the effect are completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer, and therefore the reversibility was assessed as medium-term or long-term for most KIs. Section 1.2.7 describes decommissioning and abandonment activities. The Application considers potential adverse effects associated with decommissioning and abandonment in a qualitative manner. As noted on page 9-31, at an appropriate time prior to the decommissioning and abandonment phase, specific mitigation will be developed for the proposed Project considering the regulatory context at that time and input from stakeholders with interest in the proposed Project. Consequently, mitigation for decommissioning and abandonment is not included in Table 9-8 at this time, in anticipation that specific mitigation will be developed in advance of the decommissioning and abandonment phase.		
724	Application Section 8	Page 8-33	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Paragraph starting on line 6 discusses areas subjected to MSMA pesticide application are present along the proposed Right of Way. MSMA is a health concern and MOF has released a policy aimed at preventing the harvest of MSMA treated trees. There is no further mention of this in the Section 8 portion of the assessment, but Section 20 mentions only that the 2013 timber assessment did not identify any MSMA-treated trees and the issue is consequently disregarded. Please confirm the adequacy of methodology: e.g., did the 2013 assessment include a structured scope including MSMA assessment, or did it rely upon incidental observations?	Coastal GasLink clarifies that Section 8.5.1 of the Application notes that that the proposed route may cross areas with MSMA-treated trees. Based on existing databases, the treated trees may occur near KP 370, KP 486, KP 554, KP 579-580. Coastal GasLink will consult the appropriate regulatory authorities regarding the handling and management of these trees, if warranted.		

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725	Application Section 9	Page 9-30	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Lines 10-13 suggests that the proposed Project meets the objectives of the various LRMPs including the Morice LRMP. The Morice LRMP, however, sets targets for zero reduction in functional area within the sensitive Gosnell Creek wetland complex. The project alignment will impact this complex and therefore it is assumed the Morice LRMP objective will not be met. Furthermore, on Page 9-31 (Lines 11 - 15) states that adverse effects on wetlands in the Morice District are possible and "if" the Morice LRMP targets are "deemed necessary", then a compensation plan for the Gosnell wetland complex will be prepared. No further mention of this negotiation on the necessity of the LRMP targets was seen in the report. How will the requirement for compensation be determined and who is consulted on this item?	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for pipeline route selection is provided in Section 1.4.4 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.		
726	Application Section 9	Page 9-31	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Lines 22 - 25 identifies "a notable potential adverse effect associated with abandonment in place is the possibility that abandoned pipe can act as a conduit for water flow that dewater a wetland". Lines 36 - 38 indicates mitigation for this effect involves plugging of the pipe in various location to prevent this. This appropriate key mitigation was not observed in Table 9-8 and presumably should be included as mitigation for decommissioning.	Section 1.2.7 describes decommissioning and abandonment activities. The Application considers potential adverse effects associated with decommissioning and abandonment in a qualitative manner. As noted on page 9-31, at an appropriate time prior to the decommissioning and abandonment phase, specific mitigation will be developed for the proposed Project considering the regulatory context at that time and input from stakeholders with interest in the proposed Project. Consequently, mitigation for decommissioning and abandonment is not included in Table 9-8 at this time, in anticipation that specific mitigation will be developed in advance of the decommissioning and abandonment phase.		
727	Application Section 9	Page 9-33	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Lines 26 - 29 indicates that "standard pipeline construction [...] are designed to avoid circumstances that result in diversion or natural flow impedance of water in wetlands". In Appendix 1A of Section 1 does not include specific construction drawings for wetlands. Are construction standards applied to terrestrial/forested lands the same as those applied to wetlands, and are these enough to avoid/mitigate impacts to wetlands?	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for pipeline route selection is provided in Section 1.4.4 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted. Mitigation for potential adverse effects to wetlands is include in Section 9 of the Application as well as Sections 7 and 8 of the EMP.		
728	Application Section 9	Table 9-6	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		Information provided in the text do not appear to correlate with the summary information provided in Table 9-6. For example, text on Page 9-25 (Lines 33-34) indicates that "most wetlands in the Wetlands LSA have a potential high to moderate peak flow", whereas Table 9-6 lists "peak flow attenuation" for all wetlands as low to moderate. Similar contradictions can be seen for groundwater recharge and erosion protection. Please review this section and update text or table to clarify the conclusions.	Coastal GasLink clarifies that the expected level of wetland function depends strongly on landscape position. The text identifies that wetlands in specific landscape positions (e.g. riparian swamp or riparian fens, located adjacent to watercourses) have a potential wetland function that may not be typical for all wetlands within a particular wetland class. Similarly, marshes located at the edge of larger waterbodies may be expected to provide shoreline protection at a higher level than typical small basin marshes. The TEM data presented in Table 9-6 and 9-7 identifies generally expected functions for wetland site associations, whereas the text identifies that landscape position is an important factor in predicting wetland function.		

Coastal GasLink Project: Working Group Comment Tracking Table

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729	N/A	N/A	N/A	22-Apr-14	Lisa MacArthur, Naomi Owens, Deborah Prince and Jane Calvert	West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively		In general, the use of the term "whenever practical" is quite frequent throughout the assessment, which is common practice given on-the-ground uncertainties involved in projects of this scale. However, it is important to understand the process in making these decisions and who is involved. If this decision is left to construction contractors and engineers, the environmental values/concerns regarding important issues may not be fully considered and alternative options suitably explored. Similarly, it is unfair to place all expectations for implementation on a generalist Environmental Inspector or similar role. Resource specialists need to be effectively empowered to oversee implementation of the subjective mitigation.	Coastal GasLink will retain the services of Resource Specialists to support construction planning and detailed design prior to construction as appropriate. Resource Specialists are individuals with the technical expertise and experience in specific disciplines to assess site-specific conditions within the ecoregions traversed by the Project, and to develop site-specific mitigation in collaboration with the Environmental Inspector(s), Construction Manager, Coastal GasLink environmental staff and appropriate regulatory authorities. Resource Specialists have been involved in developing the Application, including the development of mitigation for the Project to date, and will continue to be retained by Coastal GasLink as appropriate as the construction planning and detailed engineering design phases advance into the construction phase of the Project		
769	Application Section 1	1-5	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Factors selected for evaluating routing options are not justified.a) Unclear how some of these factors will lead to mitigation of potential adverse impacts, notably selecting a route based on "previously cleared areas". This may be most cost-effective, but may result in an adverse cumulative effect of a highly valued or sensitive area. Rehabilitation of particular cleared areas might be a preferred option.b) Standard practice for developing criteria in an alternatives assessment requires that that basic methods be used for their development (for an authoritative review of this standard practice, see Pohekar and Ramachandran. (2004). Application of multi-criteria decision making to sustainable energy planning – A review. Renewable and Sustainable Energy Reviews 8(4): 365-381).These comments apply to criteria developed for evaluating temporary workspaces (1.4.13), permanent facilities (1.4.14), and access roads (s.1.4.15).Example locations of remaining concern for Nadleh include (Note: both Nadleh and Nak'azdli reserve the right to identify additional locations of concern given the inadequate review period to date):- Coastal GasLink Right-of-way will pass 250 metres from Nadleh Whut'en Fondeur I.R. # 9 that is presently isolated.- Coastal GasLink and another natural gas pipeline ROW propose to cross the Ormond Creek 2 or more times in 2 or more locations thus disturbing the creek bottom unnecessarily.	What established alternative assessment method was used to select the factors used to evaluate routing options, including for temporary workspaces, permanent facilities, and access roads. Reference to published literature and/or regulatory guidance is required.	Coastal GasLink described its process for route and facility site selection in Section 1.4 of the Application, and applied the criteria outlined Sections 1.4.4, which are consistent with criteria described in the AIR issued by EAO in May 2014. Figure 1.5 depicts the process applied for pipeline route and facility site selection. The process of applying the selection criteria is iterative, and takes into account information from project data collection in addition to feedback from regulatory authorities, landowners, Aboriginal groups, and stakeholders. Coastal GasLink's construction planning and detailed engineering design continues to be informed by data and information relative to the route and site selection criteria.		

Coastal GasLink Project: Working Group Comment Tracking Table

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770	Application Section 1	1-52	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Factors selected for evaluating routing options are not justified.</p> <p>a) Unclear how some of these factors will lead to mitigation of potential adverse impacts, notably selecting a route based on "previously cleared areas". This may be most cost-effective, but may result in an adverse cumulative effect of a highly valued or sensitive area. Rehabilitation of particular cleared areas might be a preferred option.</p> <p>b) Standard practice for developing criteria in an alternatives assessment requires that that basic methods be used for their development (for an authoritative review of this standard practice, see Pohekar and Ramachandran. (2004). Application of multi-criteria decision making to sustainable energy planning – A review. Renewable and Sustainable Energy Reviews 8(4): 365-381). These comments apply to criteria developed for evaluating temporary workspaces (1.4.13), permanent facilities (1.4.14), and access roads (s.1.4.15). Example locations of remaining concern for Nadleh include (Note: both Nadleh and Nak'azdli reserve the right to identify additional locations of concern given the inadequate review period to date):</p> <ul style="list-style-type: none"> - Coastal GasLink Right-of-way will pass 250 metres from Nadleh Whut'en Fondeur I.R. # 9 that is presently isolated. - Coastal GasLink and another natural gas pipeline ROW propose to cross the Ormond Creek 2 or more times in 2 or more locations thus disturbing the creek bottom unnecessarily. 	<p>For each alternatives assessment factor, provide a description of (a) evidence used to justify the decision to select the factor, such as published and unpublished social scientific, engineering, and scientific literature, primary data collected for this purpose, etc. and (b) how the factor was applied in the assessment framework (e.g. a simple matrix ranking or weighting each factor could be provided, or particular thresholds adopted for each factor could be described like x% additional cost was considered not financially viable).</p>	<p>Coastal GasLink described its process for route and facility site selection in Section 1.4 of the Application, and applied the criteria outlined Sections 1.4.4, which are consistent with criteria described in the AIR issued by EAO in May 2014. Figure 1.5 depicts the process applied for pipeline route and facility site selection. The process of applying the selection criteria is iterative, and takes into account information from project data collection in addition to feedback from regulatory authorities, landowners, Aboriginal groups, and stakeholders. Coastal GasLink's construction planning and detailed engineering design continues to be informed by data and information relative to the route and site selection criteria.</p>		
771	Application Section 1	1-65 to 1-70	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Factors selected for evaluating routing options are not justified.</p> <p>a) Unclear how some of these factors will lead to mitigation of potential adverse impacts, notably selecting a route based on "previously cleared areas". This may be most cost-effective, but may result in an adverse cumulative effect of a highly valued or sensitive area. Rehabilitation of particular cleared areas might be a preferred option.</p> <p>b) Standard practice for developing criteria in an alternatives assessment requires that that basic methods be used for their development (for an authoritative review of this standard practice, see Pohekar and Ramachandran. (2004). Application of multi-criteria decision making to sustainable energy planning – A review. Renewable and Sustainable Energy Reviews 8(4): 365-381).</p>	<p>Why neither Nak'azdli nor Nadleh were consulted in a meaningful way re: alternatives assessment. Provide a rationale for why the First Nations were not involved in the development of alternatives assessment criteria or the assessment itself.</p>	<p>Coastal GasLink continues to follow the approach outlined in the Aboriginal Consultation Plan approved by the EAO. The process to develop the AIR included opportunities for comment by working group members. Section 1.4.1 of the Application provides information about the route and facility site selection process. Coastal GasLink provided information about the proposed route to Nak'azdli Band and Nad'leh Whut'en First Nation as well as conducted a helicopter flyover on July 30 with representatives of Nak'azdli Band, and September 17, 2013 with Nadleh Whut'en First Nation. Engagement with both Aboriginal groups is outlined in Section 23.8.2 for Nadleh Whut'en First Nation and in Section 23.9.2 for Nak'azdli Band .</p> <p>Coastal GasLink received a 'Red Flags Report' from Nak'azdli Band and Nad'leh Whut'en First Nation on September 18, 2013 that outlined a number of issues and concerns including route selection and the presence of a spring, which continues to</p>		

Coastal GasLink Project: Working Group Comment Tracking Table

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							These comments apply to criteria developed for evaluating temporary workspaces (1.4.13), permanent facilities (1.4.14), and access roads (s.1.4.15). Example locations of remaining concern for Nadleh include (Note: both Nadleh and Nak'azdli reserve the right to identify additional locations of concern given the inadequate review period to date): - Coastal GasLink Right-of-way will pass 250 metres from Nadleh Whut'en Fondeur I.R. # 9 that is presently isolated. - Coastal GasLink and another natural gas pipeline ROW propose to cross the Ormond Creek 2 or more times in 2 or more locations thus disturbing the creek bottom unnecessarily.		inform the construction planning and detailed engineering design. Each of the issues raised were responded to in a meeting and follow-up letter by Coastal GasLink in January 2014. Coastal GasLink has committed to carrying out a site visit with Nadleh Whut'en First Nation and Nak'azdli Band to validate the location of a freshwater spring near the proposed Project.		
772	Application Section 1	1-9; 1-65	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Ancillary facilities require more definition to adequately characterize potential effects and significance. Altogether, the footprint for these activities will be very large and comparable to the proposed pipeline footprint. Further, several activities will have an impact on locations outside of the vicinity of the proposed pipeline. The areas of the following ancillary activities are provided, but location(s) and likely footprint are not provided, include but are not limited to: a) Construction, upgrade, and decommissioning of access roads and shoo-flies (up to 2,295 km in length, Table 1-5), and temporary bridges (no number or area provided) b) Construction camp locations (up to 3.1 sq. km, p.1-15) c) Any stockpile sites (up to 3 sq.km, p. 1-16), disposal sites (no area provided), rail sidings, storage yards (up to 1.6 sq.km, p.1-17), laydown areas (up to 1.6 sq.km, p.1-17), hydrostatic test fill sites (up to 140 sq.km, p.1-18), and borrow pit areas (up to 20 sq.km, p. 1-17). Coastal GasLink states that these activities "will be fully defined once a detailed construction plan has been developed... [and] will be subject to review by the OGC and other regulatory agencies" (p. 1-66). For the purposes of this EA, locations of areas where these effects will occur is requested to generate a general understanding of the potential values that will likely be affected, potential effect pathways, so that an estimation of	1. At minimum, the preferred (or several preferred) location(s) and likely footprint area for each of the following is required to be presented on several map sheets at a coarse level (e.g. 1:50,000): a) Construction and decommissioning of new access roads, road upgrades, shoo-flies, and temporary bridges; b) Construction camp locations; and c) Any stockpile sites, disposal sites, rail sidings, storage yards, laydown areas, water draw locations (for any purpose - Coastal GasLink to detail water withdrawal locations and predicted volumes required), and borrow areas. 2. The areas disturbed should also be summarized by some ecologically meaningful category (e.g., BEC zone, physiographic region or watershed) and socially meaningful category (First Nation territory). 3. The Proponent should provide an estimate of the following for all primary and ancillary physical works required for the Project to take place (including the pipeline ROW and all of the other physical works listed at left and in Table 1-5): a) The predicted physical footprint of the entire Project, broken down by component, and including ROW and all other required physical works and activities; and b) The predicted impact footprint including an appropriate and defensible Zone of Influence (ZOI) beyond the physical footprint. c) For the ZOI, reference to specific supporting literature used to estimate the ZOI should be provided and links to this literature put on the public record for this EA.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013.		Coastal GasLink understands that Nak'azdli Band and Nadleh Whut'en First Nation are concerned about the assessment of the ancillary facilities, and notes that the potential adverse effects of ancillary facilities were assessed in the Application using qualitative methods. In the absence of spatial data, the assessment team took a conservative approach that identified potential effects in a precautionary manner (i.e., worst case scenarios). Proposed mitigation approaches will be comprehensive, and will allow for the selection of appropriate mitigation depending on site specific conditions. The assessment team is composed of qualified professionals who have worked on projects of similar scope and complexity, and have the experience to understand the potential adverse effects and appropriate mitigation approaches. Coastal GasLink notes that ancillary facilities will also undergo a comprehensive review as part of the permitting process, and site specific detail will be provided at that time.

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							significance of the entirety of the project, not the smaller portion of it that has an established location at this time – the purpose of the environmental assessment - is possible. The lack of information on ancillary locations represents the premature status of project planning and the lack of readiness of the proponent to submit applications for an environmental assessment. At pg. 1-17, the Proponent indicates that these ancillary locations, at some undefined future date, will be assessed for potential effects on the human and biophysical environment. These issues CANNOT be left aside for the OGC; they are subject to the Section 11 order for environmental assessment (paragraph 2.2)				
773	Application Section 1		N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Shoo-flies are required for steep slopes where slides are likely, a potential effect that will likely have an adverse effect on several VCs including various terrestrial and aquatic values and worker health and safety.	Identify how Coastal GasLink will design, construct, operate, maintain, and decommission shoo-flies and any ROW that pose a risk of creating slides in a way that reduces this risk. Further, more information on areas that would be particularly vulnerable to slides must be provided, notably areas with high terrestrial and aquatic values in the pathway of potential slides resulting from this project (or cumulatively).	Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the Oil and Gas Activities Act and regulations, as well as the OGC's Environmental Protection and Management Regulation.		As Coastal GasLink progresses through permitting, engagement activities described in the Aboriginal Consultation Plan will continue. In addition, Coastal GasLink understands that the British Columbia Oil and Gas Commission will carry out consultation activities through the review processes under the <i>Oil and Gas Activities Act</i> (OGAA). Information about the location, detailed design, construction and reclamation of ancillary facilities will continue to be shared with Aboriginal communities to further identify and address potential issues and concerns. The designs for temporary ancillary facilities will include considerations of slope and terrain stability and will comply with all applicable regulatory requirements.
774	Application Section 1	1-11 (Table 1-4)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Raccoon Lake and Clear Lake compressor stations will construct up to three (3) or four (4) 30 MW compressors and require new access to be constructed that will impact on Nak'azdli and/or Nadleh territories. More information is required to ascertain what effects might be likely and whether or not this will influence the significance prediction. A selection of several alternatives would be more useful at this point than no spatial information	Please provide a map sheet for access routes and any related ancillary physical works and activities required for the construction and operation, and decommissioning of the Raccoon Lake and Clear Lake Compressor Stations.	Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the Oil and Gas Activities Act and regulations, as well as the OGC's Environmental Protection and Management Guide.		The Application included a comprehensive assessment of potential adverse effects of compressor facilities at up to eight locations including the Raccoon Lake and Clear Creek compressor stations in accordance with the AIR. As Coastal GasLink progresses through permitting for these facilities and the associated access roads, engagement activities described in the Aboriginal Consultation Plan will continue. In addition, Coastal GasLink understands that the British Columbia

Coastal GasLink Project: Working Group Comment Tracking Table

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											Oil and Gas Commission will carry out consultation activities through the review processes under OGAA. Information about the location, detailed design, construction and reclamation of these compressor facilities and required access roads will continue to be shared with Aboriginal communities to further identify and address potential issues and concerns
775	Application Section 1	18-Jan	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	No previous discussion regarding hydrostatic test fill lines. Mentions water sources within Nadleh territory as – Barlow Lake; Etcho Lake; Fraser Lake and Deserter Lake. Nadleh has identified two of the identified lakes, Barlow Lake and Etcho Lake, as culturally significant in the Preliminary Report to Coastal GasLink. Fraser Lake is also a significant cultural location. With the description of the hydrostatic test fill lines and there is concern over the amount of water withdrawn for this component of the construction. Specific concerns raised by Nadleh include: <ul style="list-style-type: none"> We do not want biocides to get into the local water table. Effects on drinking water Identification and adherence to best practices for hydrostatic testing 	These are large concerns given the existing impact of Kenny Dam upon Fraser Lake, and the local watershed. Information requests include: <ul style="list-style-type: none"> How much water will be withdrawn? Will there be additives to the water? What happens to the water during and after the process? Will it be returned to the water table/ground water? Is there permanent water loss? Is there going to be an effect on the drinking water for the region? If so for how long? Further discussion of Proponent's plans to adhere to Hydrostatic Test Water Management Guidelines of Canada is required. When is testing in region 5 anticipated? Are there concerns of the water freezing at the expected test time? If so we do not support the addition of additives to water, which may contaminate the local water table. 	Coastal GasLink clarifies that construction sections 4 and 5 for the Project include Nadleh's traditional territory from approximately KP 328 to approximately KP 407 of the proposed route. Mitigation to protect waterbodies is included in Table 7-8 of Section 7 and in the EMP of the Application. Section 8.7 of the EMP discusses mitigation to be implemented during pressure testing of the pipeline. Permits will be obtained from the appropriate regulatory authorities and water withdrawal and discharge will be carried out in compliance with all regulatory requirements. <ul style="list-style-type: none"> In construction sections 4 and 5, the largest volume of water withdrawal from a single source is estimated to be approximately 28,000 m³, which is expected to be drawn from Breadalbane Lake. Additional sources will be reviewed as construction and detailed engineering design advances. The use of additives to hydrostatic test water is determined by site-specific conditions and subject to approval by the appropriate regulatory authorities. Water used for pressure testing will be handled and disposed of in compliance with the conditions of the permits. Water will be discharged to the watershed from which it was drawn in accordance with regulatory direction. There may be limited water loss from the watershed in site-specific situation where water is treated and not suitable for return to the watershed. Shallow domestic well owners within 200 m of the proposed Project will be provided the option to participate in a water well monitoring program prior to construction to determine pre-construction quality and quantity conditions. All hydrostatic testing activities will be conducted in accordance with all applicable legislation including the Oil and Gas Activities Act, Oil and Gas Waste Regulations under the Environmental Management Act, and the Water Act. The pressure testing of construction sections 4 and 5 is expected to be conducted during the summer months, following the winter construction of the pipeline. 		
776	Application Section 1	22-Jan	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The list of land use activities does not include subsistence practices of the impacted First Nations, despite the fact these are constitutionally protected, priority rights. The Nak'azdli and Nadleh TLU studies demonstrate extensive contemporary land use and subsistence activities within Nadleh territory and desired future use of affected areas is also evident among our members;	Further discussion of this issue is provided in review comments on Sections 16 and 23. Among the primary recommendations is that the Proponent need to carefully consider the findings of Nak'azdli and Nadleh's TLU studies and revise the Application accordingly.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink confirms that the Nak'azdli Band and Nadleh Whut'en First Nation Traditional Land Use (TLU) studies have informed the assessment. Section 1.2.4 of the Application describes land use along the Project in accordance with Section 1.2 of the AIR. Section 23.8 and 23.9 summarizes information provided by the Nadleh Whut'en		

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							these activities will be impacted by the proposed pipeline in ways that are not well identified in the Application.		First Nations and Nak'adzi Band collaborative Traditional Use Study.		
777	Application Section 1	1-33 (Table 1-13)	N/A	22-Apr-14	N/A	Nak'adzli Band Council and Nad'leh Whut'en First Nation	Sections 2 and 3 of pipeline of relevance to Nadleh. Section 2 will be prepped from July 2015 – March 2016. Section 3 will be prepped between July – Dec 2015 and July 2016 – March 2017	Please provide more detailed information about when construction will occur within Nadleh traditional territory, to facilitate discussion of windows of least risk and safety and Aboriginal rights practice timing issues. Please identify how the Proponent plans to involve Nadleh members in pre-, during, and post-construction site finalization and monitoring activities in its territory.	Coastal GasLink clarifies that construction sections 4 and 5 for the Project include Nadleh's traditional territory from approximately KP 328 to approximately KP 407 of the proposed route. The proposed construction schedule for the Project is outlined in Table 1-13 (page 1-33) of the Application. Coastal GasLink confirms that engagement with Aboriginal groups will continue to inform construction planning and detailed design. Section 23.8 includes information about planned engagement activities with Nadleh Whut'en First Nation. Coastal GasLink notes that participation in the EAO Working Group also provides opportunity for input. The Aboriginal Consultation Plan approved by the EAO, outlines the phases of engagement and the commitment to continue engagement through construction and operations. Coastal GasLink will continue dialogue with Nadleh Whut'en First Nation as monitoring programs are developed prior to construction. Section 25.3 and 25.3 provide information about environmental monitoring during construction and post-construction monitoring.		
778	Application Section 1	1-33 (Table 1-13)	N/A	22-Apr-14	N/A	Nak'adzli Band Council and Nad'leh Whut'en First Nation	Sections 3, 4 and 5 of pipeline of relevance to Nak'adzli. Section 3 will be prepped between July – Dec 2015 and July 2016 – March 2017. Section 4 will be prepped from July 2015 – March 2016. Section 5 will be prepped from July 2015 – March 2016	Please provide more detailed information about when construction will occur within Nak'adzli traditional territory, to facilitate discussion of windows of least risk and safety and Aboriginal rights practice timing issues. Please identify how the Proponent plans to involve Nak'adzli members in pre-, during, and post-construction site finalization and monitoring activities in its territory.	Coastal GasLink clarifies that construction sections 3, 4 and 5 for the Project include Nak'adzli Band traditional territory. The proposed construction schedule for the Project is outlined in Table 1-13 (page 1-33) of the Application. Coastal GasLink confirms that engagement with Aboriginal groups will continue to inform construction planning and detailed design. Section 23.9 includes information about planned engagement activities with Nak'adzli Band. Coastal GasLink notes that participation in the EAO Working Group also provides opportunity for input. The Aboriginal Consultation Plan approved by the EAO, outlines the phases of engagement and includes Coastal GasLink's commitment to continue engagement through construction and operations. Coastal GasLink will continue dialogue with Nak'adzli Band as monitoring programs are developed prior to construction. Section 25.3 and 25.3 provide information about environmental monitoring during construction and post-construction monitoring.		
779	Application Section 1	1-27 (Table 1-10)	N/A	22-Apr-14	N/A	Nak'adzli Band Council and Nad'leh Whut'en First Nation	Timber and brush disposal has proven to be very expensive with previous linear developments in BC, notably the Northwest Transmission Line ROW construction that resulted in a local controversy. Forward planning with FLNRO is required to consider costs of transporting useable timber to organizations or	How will costs and benefits be considered when deciding to salvage harvested timber? Will Coastal GasLink with FLNRO provide the opportunity for local organizations or individuals to share transportation costs so timber may be used (instead of burned)?	Coastal GasLink will prepare the information required by the appropriate regulatory authorities for permitting, including a Fibre Utilization Plan. Coastal GasLink will provide opportunities to qualified local First Nation contractors to provide clearing and associated services.		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
							individuals that will take the timber.				
780	Application Section 1	1-38 (Table 1-14)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Maintenance digs "will be conducted in a manner similar to the pipeline construction" and in some locations "temporary access may be required". Given that this activity explicitly falls under the temporal and temporal scope of assessment and is a required part of the operations phase of the development (and thus covered under the Section 11 order), information on area footprint and frequency of impact is required for a general understanding of the potential effect pathway and determination of significance.	What is the expected frequency of these digs? What is the likely range of the physical and impact footprint of these digs?	The integrity of the pipeline system is verified through annual aerial inspections and regular internal in-line inspections (ILI) using tools that identify and, through data interpretation, measure corrosion of the pipe through wall loss. On the Coastal GasLink system the ILI (inline inspection) frequency is guided by the Integrity Management Plan which is currently every 7 years. The number of digs will be dictated by the results of the ILI inspection. The requirement for digs are dependent upon a number of factors with the exact location of the digs dependent upon the inline inspection results. Other factors which may require additional digs would be due to third party damage or external environmental interference. The pipeline inspection digs are completed by Coastal GasLink as directed by the Pipeline Integrity team. In some cases as the pipe ages, the inspection of the pipeline may involve exposing sections of the pipe where wall loss is approaching set standards or at areas where environmental factors allow for corrosion propagation. As a result, there may be a situation where the pipe may be exposed within a riparian area but those instances will be occasional, indicating that this will occur only intermittently and sporadically over the assessment period, and is dependent on the findings of the integrity verification program. The inspection digs footprint is typically limited to within the Pipeline Right of Way (ROW).		
781	Application Section 1	1-38	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	"Vegetation control (including weeds) will be conducted in accordance with requirements from the appropriate regulatory authority on an as-needed basis and will comply with the British Columbia Weed Control Act."	Nak'azdli and Nadleh have expressed that no herbicide or pesticides will be used in their Traditional Territory. Proponent is requested to reconsider and revise its approach accordingly to remove use of herbicides and pesticides in Nak'azdli and Nadleh territories.	Coastal GasLink respects the request by the affected First Nations to avoid the use of pesticides or herbicides within their traditional territory. As Coastal GasLink develops its invasive plant management plan, consideration will be given to other options of vegetation control.		
782	Application Section 1	1-40	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	"The study area was approximately 2 km wide and was the basis of the biophysical field investigations, terrain studies, and engineering and construction planning. In addition, Coastal GasLink used these corridors as the basis for ongoing efforts to engage with land owners, Aboriginal groups, the public, regulatory agencies and other stakeholders."	There is not much evidence of engagement by Coastal GasLink in regards to the areas of concern identified by Nadleh to date	Coastal GasLink confirms that Section 23.8.2 of the Application provides details of Coastal GasLink's engagement with Nad'leh Whut'en First Nation. Table 23-35 identifies issues and concerns raised by Nad'leh Whut'en First Nation, Coastal GasLink's responses, and direction to the Sections of the Application that addresses the issues and concerns in further detail. Aboriginal Consultation Reports 1 and 2 approved by the EAO, provide additional detail about engagement with Nad'leh Whut'en First Nation. Nad'leh Whut'en First Nation is also a member of the EAO Working Group, which provides an additional opportunity for providing input to the development of the Project. Section 23.8.2 of the Application, describes planned activities with Nadleh Whut'en First		

Coastal GasLink Project: Working Group Comment Tracking Table

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									Nation including validating issues and discussing mitigation options. Coastal GasLink received a 'Red Flags Report' from Nak'azdli Band and Nad'leh Whut'en First Nation on September 18, 2013 that outlined a number of issues and concerns including route selection and the presence of a spring, which continues to inform the construction planning and detailed engineering design. Each of the issues raised were responded to in a meeting and follow-up letter by Coastal GasLink in January 2014. Coastal GasLink has committed to carrying out a site visit with Nad'leh Whut'en First Nation and Nak'azdli Band to validate the location of a freshwater spring near the proposed Project.		
783	Application Section 1.5	1-75; 1-76	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Training and Education Opportunities section provides little information on:</p> <ul style="list-style-type: none"> - specific programs and initiatives in place now or in development - methods used to develop these programs - how well these programs are designed to meet community objectives and which objectives are being targeted and why <p>Workforce readiness steps are presented on page 1-76. It is not clear how far along Coastal GasLink is in this process given the timing for training and how these newly skilled workers will be able to take advantage of employment.</p> <p>Coastal GasLink expresses a focus on "short-term workforce readiness" but provides no firm commitments: e.g., "Where needed, Coastal GasLink will explore the need for these programs in specific communities."</p>	<p>How far has Coastal GasLink progressed in their "short-term workforce readiness training"?</p> <p>What plans, policies and programs are in place?</p> <p>How has the readiness of different Aboriginal communities to take advantage of employment, training and business opportunities been studied?</p> <p>What is the window within which training programs need to start in order for First Nations communities to take meaningful advantage of construction stage jobs, and what is Coastal GasLink doing to assist First Nations in meeting that narrow window of opportunity?</p> <p>Which Aboriginal communities have been identified to develop Coastal GasLink's training and education programs (e.g. literacy and numeracy, environmental monitoring programs, etc.)?</p> <p>Reference to 'capacity' seems to exclusively related to equipping community members with necessary credentials and skills to get a job. What other aspects of capacity are Coastal GasLink aiming to enhance? Enhancing number of indigenous language speakers or supporting harm reduction programs that target potential employees working in work camps are potential examples.</p>	<p>Coastal GasLink has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities over the past year to develop meaningful education and training programming. Coastal GasLink has met with Aboriginal Communities to present information related to contracting opportunities for qualified Aboriginal contractors. These meetings have included: community presentations, open houses, discussions with Chief and Council, discussions with companies and individuals that are partnered with Aboriginal groups as well as Project Agreement sessions. Coastal GasLink developed two programs to support community capacity building, namely, 'Pathways to Pipeline Readiness' which focuses on Local workforce readiness training directly related to the Project; and TransCanada 'Education Legacy Program' which aims for long-term community capacity building through education. Dialogue will continue with Aboriginal groups to enable and facilitate participation in these programs.</p> <p>The Application includes data and an assessment on employment, contracting, education and training in Section 1.5, Section 12, Appendix 2N of the Economic Technical Report and in Appendix 2M of the Social Technical Report.</p> <p>Coastal GasLink is also supporting the development of community capacity including providing capacity funding for communities to engage with Coastal GasLink and building collaborative community partnerships focused on long-term community capacity building.</p>		

Coastal GasLink Project: Working Group Comment Tracking Table

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784	Application Section 1.5	1-87 to 1-89 (including Table 1-30)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The "micro" economic assessment does not include any First Nations' communities. Several First Nations' communities are in closer proximity than communities included in Table 1-30. Nor are potential social effects of large numbers of overwhelmingly male and largely out of region workers coming in to local communities including the Nadleh/Fraser Lake area and Fort St. James on their day off, as envisioned in this section of the Application as exclusively an economic benefit, considered anywhere in a meaningful way in the Application. Given that social trauma is much more commonly experienced by marginal sub-populations and that BC First Nations remain marginalized, there is every reason to suspect not merely economic benefit, but social risk from the Proponent's work rotation strategy. Highway 16 communities and First Nations communities in general have seen enough social trauma on marginal sub-populations. It is not acceptable to ignore the risks of this Project on same.	1. What are the expected workforce expenditures and disposable income increases in each of the First Nations communities close to the Project? 2. Please add consideration of potential adverse social outcomes on small local communities and marginal sub-populations (youth and females are two of the obvious at risk populations; there may be more) of large numbers of job holders and job seekers from this and other area pipelines (cumulative effects) coming into the community. Please refer to the literature on social impacts of large construction projects, show evidence of discussion with area communities of this issue (none has been recorded by Nak'azdli or Nadleh to date), and conduct a proper social impact assessment (Project-specific and cumulative).	Section 23.8.2 of the Application provides details of Coastal GasLink's engagement with Nad'leh Whut'en First Nation. Table 23-35 identifies issues and concerns raised by Nad'leh Whut'en First Nation, Coastal GasLink's responses, and direction to the Sections of the Application that addresses the issues and concerns in further detail. Aboriginal Consultation reports 1 and 2 provide additional detail about engagement with Nad'leh Whut'en First Nation. Nad'leh Whut'en First Nation is a member of the EAO's Working Group, which provides an additional opportunity for providing feedback.		To identify how communities along the proposed Project may benefit economically from the construction phase, a "micro" assessment approach was developed based on a general location of the proposed work camps, workforce schedules, anticipated practices for hiring local persons and potential expenditures by the workforce in the communities along the construction route. The result is an estimate on workforce spending for the general area (Section 1.5.5). Ultimately, the workforce decides where they spend their dollars which will also be impacted by available services and products in the immediate area. As agreed, preliminary results of the issues scoping and baseline profile provided by Nak'azdli Band and Nadleh Whut'en First Nation were used to inform Coastal GasLink's social and economic assessment (Sections 12, 14, 15 and Appendix 2N and 2M of the Application). Coastal GasLink appreciates the effort Nak'azdli Band and Nadleh Whut'en First Nation to complete the Socio-economic Scoping and Baseline Profile provided to Coastal GasLink on April 30, 2014. The information provided in April and any further information provided will inform ongoing construction planning and detailed engineering design. Coastal GasLink understands Nak'azdli Band and Nadleh Whut'en First Nation have concerns about the potential adverse social effects on small local communities and marginal sub-populations that may result from a large influx of workers. Project workers and contractors will be housed in Construction Camps, and are required to adhere to the Trans Canada's policies about employee conduct. Coastal GasLink will continue engagement with Nak'azdli Band and Nadleh Whut'en First Nation to address specific concerns.
785	Application Section 1.5	Jan-92	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink commits to developing an Aboriginal Participation Strategy that "will assess community capacity and identify work packages for Aboriginal businesses and workers". No information on the assessment is provided. Coastal GasLink appears to emphasize information-giving rather than information gathering methods, goals, targets and commitments. The absence of detail and actual commitments other than a commitment to do something in the future means that the Crown currently has no information against which to assess the ability of First Nations to take advantage of benefits on offer from the Project.	When will the assessment in developing the Aboriginal Participation Strategy take place and why hasn't it been conducted as part of the EA? What information will be collected – and how - from communities? Nak'azdli and Nadleh recommend the EAO require additional information related to Aboriginal Participation Strategy plans, policies and programs, to inform what to date is an information deficient assessment of economic benefit distribution and Aboriginal ability to take advantage of the proposed Project, both sets of information critical to the EAO's self-stated goal of conducting EAs that contribute to sustainability. Please provide evidence of the Proponent's parent company's Aboriginal business procurement record to date, as a percentage of total procurement, and any other information relevant to identification of the likelihood that meaningful procurement and employment benefits will flow to affected First Nations.	Coastal GasLink confirms that an overview of the Aboriginal Participation Strategy is included in Section 1.5.7 of the Application. Coastal GasLink has achieved Aboriginal participation with communities along the proposed project route since January 2013. Coastal GasLink's prime contractors are required to develop and implement Aboriginal participation plans that maximize productive opportunities for qualified Aboriginal businesses and people. These plans include regular monthly reporting and are monitored for both performance and compliance by Coastal GasLink. As part of the Aboriginal participation plans Coastal GasLink and its contractors regularly communicate sub-contract opportunities to Aboriginal communities through Solicitations of Interest and Requests for Proposals. Coastal GasLink and its contractors perform regional information sessions to inform		

Coastal GasLink Project: Working Group Comment Tracking Table

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									affected First Nations of upcoming opportunities and to learn about suppliers and individuals interested in providing services.		
786	Application Section 2.3.2	2-12 onward (Table 2-4)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	It is not clear what the purpose or utility of Table 2-4 is, other than to provide a weak case for how Coastal GasLink attempted to address generic First Nation issues and concerns raised through the EA process. No information is provided on how Coastal GasLink has attempted to undertake consultation. Further, it is not clear why all issues and concerns are lumped together and not categorized by First Nation. (Issues are categorized by group under public consultation.)	A well thought out description of the consultation methods and the information collected, recorded, and interpreted should be provided in place of Table 2-4. This new table should include (at minimum): (a) the general method(s) (and guide(s)) used to collect, record, and interpret information from community representatives; (b) identify the First Nation that raised the issue concern; (c) the information that was provided (i.e. baseline data, effects pathway, mitigation idea, likely magnitude of effect).	Coastal GasLink notes that Table 2.3.2 is included in the section of the Application describing the participants in the environmental assessment process in accordance with Section 2.3 of the AIR issued by the EAO in May 2013. Coastal GasLink's approved Aboriginal Consultation Plan describes the approach to sharing information, collecting input from Aboriginal groups and discussing strategies to avoid or reduce potential effects. Issues tables are found in Section 23 of the Application. These tables identify each Aboriginal groups' issues and concerns, and also lists Coastal GasLink's responses to the issues raised. Aboriginal Consultation Reports 1 and 2 approved by the EAO, provide additional detail about issues and concerns identified to date. In Section 3.2.2 of the Application, Coastal GasLink describes the methods and guides used to collect, record, and interpret information from community representatives during the consultation process by Coastal GasLink. Coastal GasLink acknowledges the participation of local Aboriginal representatives in the field data collection program to share Traditional Ecological Knowledge. Coastal GasLink will continue dialogue with Aboriginal groups about site specific issues and mitigation to inform construction planning and detailed engineering design.		
787	Application Section 3.1.2	3-4 (Table 3-2)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The AIR requires Coastal GasLink to "estimate the proposed Project's effects on BC's GHG targets" (p. 34). Yet, Table 3-2 of the Application indicates there are "[n]o Project boundaries because GHG emissions and their contribution to climate change is a global phenomenon" (p. 3-4). Jurisdictions around the world have committed to GHG reduction targets and other policies to reduce total emissions. BC is no exception and has legislated a 33% reduction of 2007 emission levels by 2020. This is the least complex impact assessment methodology because the boundaries are clear (BC / Canada), the effect pathways are clear (contribution to existing GHG emissions and foreseeable future emissions), and the threshold is	1) Revise Table 3-2 to revise spatial boundaries for "GHG Emissions" VC so they reflect relevant spatial boundaries as those jurisdictional boundaries of BC and Canada.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		

Coastal GasLink Project: Working Group Comment Tracking Table

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							clear (any project the interferes with BC's legal emissions reduction targets is causing and adverse effect, and that effect is significant when the additional emissions loading is substantial in provincial terms, as defined by the EAO in previous assessments of the Cabin Gas Plant and Fortune Creek Gas Plant).				
788	Application Section 3.1.2	3-7	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Temporal boundaries for VCs: As required on the bottom of page 16 in the EAO VC Selection Guide, temporal boundaries for the scope of assessment must include those for both the project and the VC. A temporal boundary for project phases, like construction, operation, and decommissioning/abandonment is provided by Coastal GasLink on p.3-7 of the Application. However, the Application remains entirely silent on the overarching methods used to select the VC temporal boundaries (e.g. timing or duration of sensitive or critical life stages (spawning, nesting) or human activities (economic cycles, seasons), such that a reliable trend-over-time is established. This is not to say that historical data must be collected to the time the European settlers arrived. For an EA, all that is required is a trend that an expert in the particular research discipline can describe, with some confidence. For example, in some instances this may be two to three years of primary data with samples from critical cycles throughout each year, as well as desktop historical data for critical indicators. Depending on data availability, quality of the data, or sensitivity of the VC, a longer-term or shorter-term analysis will be needed.	In addition to the temporal boundaries for the Project, describe the temporal boundaries for each VC and provide brief justification. We recommend adding a column to Table 3-2 to keep this information succinct. For each VC-specific section thereafter, the temporal boundaries must be described and justified in more detail and with more evidence for each indicator as well.	Coastal GasLink applied the methods for environmental assessment outlined in the AIR, issued by EAO in May 2013. For each residual adverse effect characterized, Coastal GasLink provided a justification for each assessment criteria, including the temporal criteria assessed.		

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789	Application Section 3.2.1	3-9 to 3-17	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>The section describing ATK collection and interpretation methods for use in the Application and the purpose of ATK in the EA process is incomplete.</p> <p>a) ATK, TLU, and TEK are all acronyms used to describe means by which to assess practices of and effects on Aboriginal rights that can be observed and studied to understand the extent of a potential effect and, relatedly and in Canada's legal terms, the extent of the Crown's duty to consult and accommodate for impacts on Aboriginal rights and title. Research in this area, as well as in other related disciplines, must be completed in a way that is defensible. This process begins with good research methods and, in EA terms, a robust and culture group-focused scoping phase (in other words, ATK and TLU must be collected in ways that have meaning to, and are agreed upon by, the people whose values are being assessed). The VC selection and other EA methods must be very carefully set out to be respective of, and responsive to, culturally-specific protocols.</p> <p>b) The methods presented on how "[e]xisting ATK has been compiled" does not reflect an acceptable research method for Nak'azdli or Nadlele.</p> <ul style="list-style-type: none"> - Passively and opportunistically collecting general information from individuals who attend open houses and meetings, recording this information in a map, as outlined in section 3.2.1, describes a public participation process, not a research process, and certainly not accepted ATK or TLU/TUS practice. - In section 3.2.2, the passive and opportunistic collection of ATK within the strict spatial and methodological boundaries for biophysical studies of other VCs (i.e. employing Elders as labourers to visit locations relevant to sampling archaeology test pits or rare plant communities rather than locations where stories are derived, where people regularly collect medicinal plants, travel corridors used seasonally, etc.) offers minimal valuable information. This approach is also disrespectful to knowledge holders who are experts with valuable information; indeed, ATK merits its own, dedicated ATK field study. - Furthermore, any efforts at collecting information from "publicly available ATK, TEK, and TLU" reports will not be very effective. This information is variably held 	<p>More information is required on the research methods used to date to collect ATK from Nak'azdli and Nadlele. Specifically:</p> <ul style="list-style-type: none"> -Who led the study, -What were their qualifications on the topic of ATK/ social research methods, -How was permission from knowledge-holders sought and/or achieved, -What data collection instrument(s) were used (e.g. survey, interview questions, etc.), -What was the sample size, -How was data recorded spatially (e.g. on paper maps or participants were given GPSs to record data points), -How was other information recorded (e.g. notes, verbatim transcripts with interpreter), -How was data analyzed, -How were results verified, etc.? Loose references to "[c]onfirmation of the accuracy of the information" (p.3-17) does not provide any insights on the standards applied, what kind of information was shared, results of verification, etc. -What guidelines, published methods articles, well-cited textbooks, or other sources were used to develop these research methods? -What ATK indicators were specifically developed for inclusion of ATK baseline information for each VC? -How was ATK used to influence spatial and temporal boundaries, effect pathways, thresholds, mitigations, and significance predictions for each VC? <p>Until these questions are answered, and in all likelihood, until additional ATK data collection is conducted and incorporated into the Application, confidence in the Proponent's treatment of ATK/TLU in the Application must be held in very low confidence. Any associated findings should be deemed unsupported without additional field verification work, finalization of and incorporation of findings from TLU Studies, and re-assessment of potential effects in light of this additional information. The current assessment meets no reasonable standard for incorporation of TLU/TK.</p>	<p>Coastal GasLink confirms that Nak'azdli Band elected to provide field participants on biophysical field studies for the Project, but not to share TEK to inform the assessment. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of mitigation .</p> <p>Coastal GasLink offered participation opportunities to Nadlele Whut'en First Nation, however Nadlele chose not to participate in biophysical field studies.</p> <p>Traditional Land Use information for Nak'azdli Band and Nadlele Whut'en First Nation was summarized from the preliminary draft of a third party, independent TLU study provided to Coastal GasLink. Permission to use this report in the assessment was granted to Coastal GasLink on October 16, 2013. This information is available in Section 23.8 of the Application and informed the assessment for the Project.</p>		

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							<p>within the land, air, water, practices, traditions, spirits, and people and is often place-specific. It is not possible to write down all of this in a report that can simply be made available for an EA. For use by the Crown for an EA, this information must be collected using well-designed research methods. For some guidance on this, see Tobias (2000, referenced above).</p>				
790	Application Section 3.5	3-21	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>In Section 3.5, Coastal GasLink states that context (p. 3-22) and significance thresholds (p. 3-24) are not provided for each VC. Why is this the case? Both of these are crucial for understanding significance of an effect. It is not clear why any VC would not include in its analysis some (even brief) consideration of contextual factors that may influence (at a large or small degree) the character of the effect. In all cases, a significance threshold can be created. If it is a highly uncertain area of research (e.g. human environment and number of suicides or addictions) that are deemed 'acceptable' thresholds can be more generalized and established as a range.</p>	<p>Provide a brief explanation of why context may not be provided for each VC, including a specific example and/or references. Provide a brief explanation for why significance thresholds may not be provided for each VC, including a specific example and/or references.</p>	<p>Coastal GasLink defined context and thresholds for significance for each valued component assessed. These definitions are included in the effects assessment, Section 4 to 20 of the Application.</p>		

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791	Application Section 3.6	3-24	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Most of this section is descriptive and offers very little in the way of evidence or justification for statements made so that WG members may verify these statements and assertions. Coastal GasLink states that significance determination relies in part on "professional judgment" as well as a review of "post-construction monitoring reports from previous projects". This statement is not verifiable based on the information in the Application, yet it is a very easy task and entirely reasonable for Coastal GasLink to provide a clear line of evidence for the WG to verify. It is not clear who the professionals are and what credentials they have. It is also not clear what reports were considered.</p> <p>Trained professionals, over the course of their career, will have acquired a very large body of research and information available at their fingertips to use as evidence in any EA Application such as this. Professional judgment, as they will be aware, is the least reliable analytical tool as it relies on the subjectivity of an individual thus making it unreasonable to ask any peer reviewer or WG member to simply 'trust' the professional. High quality evidence and analysis is the best option for all disciplines in the research process. Where professional judgment is deemed to be required, however, justification of their 'professional' designation is required.</p>	<p>When the body of the Application refers to reports, documents, articles, books, statements of fact that are not widely known, numbers, and quotations, an in-text bibliographic reference must be inserted into the body text and included in the bibliography. The Application cannot be verified by the WG without these references.</p> <p>In this section, add in-text and bibliographic references to the "post-construction monitoring reports" consulted. If these references are confidential, it is no appropriate to use them as references in a public process such as this and alternative, publicly available studies should be used. Please provide.</p> <p>Add a description of the lead authors, peer-reviewers for each section. For those sections that rely on "professional judgment" to determine significance, the credentials of the professionals must be provided in that section, along with a brief rationale of why they had to rely on their judgment rather than on providing evidence and analysis, and identification of constraints this places on confidence in their estimations as well as additional requirements for Environmental Follow-up Programs to verify the accuracy of predictions.</p>	Coastal GasLink has included references in each section of the Application to the documents that were referred to in the Application. Coastal GasLink has provided a list of professionals involved in the preparation of the Application to EAO.		
792	Application Section 3.7	3-24	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Confidence level should be demonstrable as well, for WG members to review. Any degree of confidence in a prediction must rely upon several stages of the EA: baseline, project, thresholds, effect pathways, etc..</p> <p>There is a high degree of uncertainty in any EA as the purpose is to create a prediction of the future where conditions cannot be controlled and are different in every location. The purpose of developing appropriate monitoring and adaptive management systems is the recognition of this fact (Holling, 1973) and anything otherwise is not sufficiently precautionary (Holling and Meffe, 1996).</p> <p>Holling, C. S. (1973). Resilience and stability of ecological systems. Annual Review of Ecology and Systematics, 4, 1-2</p> <p>Holling, C. S., & Meffe, G. K. (1996). Command and control and the pathology of natural resource</p>	<p>Please provide the Proponent's opinion on what constitutes an adequate amount of evidence sufficient for a high degree of confidence? Specifically:</p> <p>a) How much information is necessary about the state of the environment for any one VC for a high degree of confidence?</p> <p>b) How much information is necessary about the dynamic nature of the environment for any VC (i.e. seasonal or economic cycles, long-term fluctuations or trend) for a high degree of confidence?</p> <p>c) How much information is necessary about the actual project component or activity for a high degree of confidence?</p> <p>d) How much information is necessary about the interaction between each specific project component or activity for a high degree of confidence?</p> <p>Must all four answers to these questions be satisfied before a high degree of confidence can be determined? Nak'azdli and Nadleh recommend revising this section to clearly articulate how confidence is measured.</p>	Coastal GasLink applied the methods for environmental assessment outlined in the AIR, issued by EAO in May 2013. Coastal GasLink provided justification for the characterization of confidence on an effect by effect basis in Sections 4 to 20 of the Application.		Section 3.7 of the Application outlines the methods applied to determine confidence in the characterization of residual adverse effects. Level of confidence is influenced by numerous factors, including the availability of data, precedents, and degree of scientific uncertainty or other factors beyond the control of the assessment team. A conclusion was based on either a low, moderate or high level of confidence (as defined in Section 3.7 of the Application), and each of the characterizations of residual adverse effects presented in Sections 4 to 20 of the Application provide a justification for the determination of confidence made. <p>Coastal GasLink confirms that a precautionary approach was applied to the assessment to provide for reliable effects predictions, and uncertainty is being further managed through the application of monitoring, as described in Section 25 of the Application, and the commitment of an adaptive management approach</p>

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							management. Conservation Biology, 10(2), 328-337.				during post-construction monitoring to address any issues that are identified.
793	Application Section 3.8	3-25	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>It is understood by EA practitioners in BC that thresholds for significant cumulative effects within First Nations territories and communities for many VCs have already been passed (e.g., in Booth and Skelton, 2011). This understanding is not evident in this Application and must be dealt with. It is also understood that a cumulative effects assessment aims to consider the sustainability or resilience of selected (or interacting set of) VCs. To do this "properly, it must be implemented as if VECs were at centre stage". Rather than focusing on whether or not the Project has an "unacceptable impact" on the sustainability of a VC, all of the possible stresses on the VC must be examined. This includes historic trends, fragmentation of habitat, historical events that had transformative effects, etc. For example, cumulative effects do not simply come from 'forestry activity' but from fragmentation of habitat, combined with slides from roads, and related impacts to streams and fish. Historic information and context is important to understand the resilience of any VC. While a detailed historical analysis may not be necessary, a general recognition of extent of change over time is required. For certain VCs where there are efforts being undertaken to improve its sustainability (e.g. certain wildlife and fish species, ecological communities, traditional land use practices, and culture), history is needed to know what the threshold might be and (oftentimes) to be able to describe that the threshold has already been exceeded, even before the Project being currently entertained. For particular impacts that have affected Aboriginal rights without justification, however, more history may well be required to fully capture the pre-existing effects context.</p>	<p>Coastal GasLink is requested to identify any VC or indicator (e.g., a key indicator species) for which adverse cumulative effects have already passed a significance threshold. Without prejudice, examples may include SARA-listed species, or species that have dramatically reduced their extent and/or populations in recent years. For these significant cumulative effects that exist today (before the project) especially those cumulative effects on traditional land use practices and Aboriginal rights, how does Coastal GasLink address these?</p> <p>Perhaps most importantly, the Proponent's consistently applied "project contribution" approach to assessing the significance of cumulative effects throughout the Application must be rejected. If approved of, this method will draw an totally unrealistic portrait of cumulative effects loading on the receiving environment. How do cumulative effects assessments consider ecological linkages in understanding VC resilience and sustainability? And how are multiple stressors on the same VC or measureable parameter – e.g., full life cycle effects on salmon - considered?</p> <p>As noted above, temporal boundaries must not only include the boundaries of the Project. For cumulative effects, this demonstrates a fundamental flaw and must be changed. As outlined at the bottom of page 16 in the EAO's VC Selection Guide, temporal boundaries must be established for VCs. Recommend deleting the first paragraph under "Temporal Boundaries" on page 3-17 and add a table of temporal boundaries for each VC for the cumulative effects assessment with brief justification. Each VC has experienced stresses for decades and may experience cumulative effects over the long-term (beyond 30 years) or permanently. A qualifications clause on the depth of information collected within these temporal boundaries will not be consistent is fine.</p>	<p>Coastal GasLink applied the methods for environmental assessment outlined in the AIR, issued by EAO in May 2013. Coastal GasLink provided information about cumulative effects without the project for each cumulative effects assessment presented in Sections 4 to 20 of the Application.</p>		<p>Coastal GasLink acknowledges the importance of understanding the conditions on the existing landscape, including cases where there are existing cumulative adverse effects. Such information is important for understanding the context of the Project, including its potential contribution to cumulative adverse effects. The cumulative effects assessment outlined in the Application uses methods that meet the requirements of the AIR, issued by EAO in May 2013. These methods involve understanding both the base case cumulative effects (without the Project) as well as the total cumulative adverse effect (with the Project), in order to understand the Project's contribution to the cumulative adverse effect. Project specific cumulative effects assessments must determine if a particular project is incrementally responsible for adversely affecting a given valued component (Hegmann <i>et al.</i> 1999). The total cumulative effect on a given environmental or socio-economic valued component must therefore be identified; however, the cumulative effects assessment must clearly identify the degree to which the Project under review is contributing to that total effect. The Project's contribution to cumulative adverse effects was therefore characterized in order to lead to a conclusion regarding significance.</p>

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							Booth, A. L., & Skelton, N. W. (2010). Industry and government perspectives on First Nations' participation in the British Columbia environmental assessment process. Environmental Impact Assessment Review, 31, 216-225. Duinker, P. N., & Greig, L. A. (2006). The impotence of cumulative effects assessment in Canada: Ailments and ideas for redeployment. Environmental Management, 37(2), 153-61				
794	Application Section 3.8	3-29 to 3-36	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	A clear data gap in the Application exists for characterizing the extent of forestry activities. For Forestry activities, Coastal GasLink found "no available data on areas harvested within any of the TFLs", so "only TSAs were used to predict timber harvest values". This is not acceptable. Several alternative sources of information are available re: forest change over time in any given area. A readily available source of data that is free to download and a much more useful set of data for considering cumulative effects over large areas (i.e. it includes forest cut and grow back) is from the University of Maryland. It shows analytical results of 654,178 Landsat images characterizing forest extent and change between 2000 and 2012. The information is available here: http://earthenginepartners.appspot.com/science-2013-global-forest . Many others also exist in the B.C. context.	Please gather additional publicly available and free data available for download online re: extent of forested land base fragmentation in the area covered by the RSA for this Project and incorporate it into assessment of cumulative effects for relevant VCs. The information will greatly improve the quality of the information characterizing project activities and vegetation baseline necessary for a good cumulative effects assessment. Cumulative effects on old growth forests and habitat connectivity, specifically, would greatly benefit from this data.	Coastal GasLink applied the methods for environmental assessment outlined in the AIR, issued by EAO in May 2013. Further detail in the cumulative effects assessment is included in the effects assessment for each valued component, provided in Sections 4-20 of the Application.		Coastal GasLink completed a thorough review of available spatial data that would facilitate a quantitative cumulative effects assessment. Numerous data sources were compiled to create the data sets used to delineate existing and reasonably foreseeable disturbance. TFL licensees are not required to publish harvest data and, as a result, Coastal GasLink was unable to obtain information at the time of the assessment that would support a quantitative estimation of future harvest in TFL areas, using a defensible method as described in the Application. Coastal GasLink has investigated the referenced data source and finds that the information is inadequate for inclusion in the quantitative cumulative effects assessment for the Project. The data referenced provides an indication of forest change over time, but does not attribute forest change to specific mechanisms. In order to understand the contribution of various anthropogenic disturbances and natural disturbance (e.g., fire) to regional cumulative effects, the data sources used in the cumulative effects assessment are considered more

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											suitable and informative than the imagery-based information provided in the suggested reference.
795	Application Section 3.8	3-35 to 3-37	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Proponent's decision to adopt a "disturbance hierarchy" methodology is unjustified, given the several other freely available baseline data sources, cumulative effects methods, and existing (defensible) cumulative effects assessments. Professional standards for cumulative effects typically include extensive use of GIS technologies. Very powerful data is freely available to undertake impact assessment quality research. Furthermore, practice standards for cumulative effects in several disciplines exist, yet they have been referenced very weakly. The professionals writing this Application should be aware of these standards and be able to reference them quite quickly. In addition to the guidance that is not referenced, there are several cumulative effects assessments that have been undertaken within the cumulative effects spatial boundaries for VCs that can be referenced (see for example Nitschke, 2008). Nitschke, C. R. (2008). The cumulative effects of resource development on biodiversity and ecological integrity in the Peace-Moberly region of the northeast British Columbia, Canada. Biodiversity Conservation, 17, 1715-1740.	Why was "aerial photography" used to calculate an existing disturbance footprint of area when digital Landsat and other imagery can quickly calculate footprint using GIS tools is widely and (in many cases) freely available? Given that there are several examples of cumulative effects assessments undertaken for VCs within the project footprint, why has Coastal GasLink decided not to include these studies? It is recommended that these studies (e.g., Nitschke, 2008) be considered to frame the assessment methodology and inform assessment findings for relevant VCs.	Coastal GasLink applied the methods for environmental assessment outlined in the AIR, issued by EAO in May 2013. Further detail in the cumulative effects assessment is included in the effects assessment for each valued component, provided in Sections 4-20 of the Application.		Coastal GasLink confirms that the cumulative effects assessment was completed using the methodology defined in the AIR issued by the EAO in May 2013. The methods applied for cumulative effects assessment are appropriate for understanding the context of the project in relation to previous disturbances, the current level of disturbance across the landscape, and reasonably foreseeable future projects. Coastal GasLink confirms that GIS tools were applied to generate the metrics used in the cumulative effects assessment. To understand the proposed Project's contribution to cumulative adverse effects, a recognized and acceptable methodology (Hegmann <i>et al.</i> 1999) was applied. Coastal GasLink acknowledges the importance of cumulative effects assessment in the context of regional land use planning, and recognizes that there may be other methods for cumulative effects assessment appropriate to such a regional planning exercise as compared to methods appropriate for project-specific environmental assessment.
796	Application Section 5	General	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Nations would like more information on the use of explosives in the pipeline construction process.	Please provide more details regarding locations requiring steep slope grading and/or blasting (including watercourses) – amount and types of explosives, potential for and mitigation against contamination of watercourses, and identification of environmental impacts specific to sites where explosives are used.	Coastal GasLink plans to use solid and emulsion explosives for blasting. Specific types of explosives and associated quantities will be identified by the contractors and approved by Coastal GasLink consultants, prior to construction. The project will comply with the Department of Fisheries and Oceans Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters (1998). The Project will also comply with all requirements of Natural Resources Canada, Explosives (NRCan) Regulatory Division, which responsibility for the transportation and storage of explosives.		

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797	Application Section 5	5-23; 5-51	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As outlined in the Application evaluation phase, the Proponent notes that "[s]ince completion of the desktop analysis, several route revisions have occurred and as a result, there are some gaps with respect to ARD potential along the proposed route" (p. 5-24, lines 12-14). In addition, for 62 km of the proposed route, ARD potential could not be extrapolated from desktop analysis. On top of these "desktop review" gaps, the adequacy of desktop review vs. actual sampling and testing of rock formations is highly questionable. Important gaps remain to be filled: a) Coastal GasLink suggests that generic mitigation measures replace site-specific potential effects characterization. This is inappropriate. Site-specific effects characterization is required in an Application. b) Road construction is identified as a potential cause of ARD (pg. 5-51). Yet, road construction is not part of the baseline data collection or effects characterization in Section 5.4.3 of the Application. Rather, only the pipeline ROW is considered. c) The "data gaps" identified by Coastal GasLink will be addressed through "[f]urther desktop analysis" and "field assessments" in "support of ongoing engineering and design activities" (p. 5-51). Some of these data gaps must be filled before significance can be estimated.	Effects characterization and significance estimation involved in EA requires detailed site-specific information for locations where risks are pre-identified. This information is required to make informed determinations of environmental risks at the site level, a critical function of the EA. The subsequent OGC process has no mandate re: identification of significance of site-specific impacts and an extremely limited mandate to require terms and conditions. Provide the following during the Application Review phase of the EA: 1. Risk assessments for ARD in locations where route revisions have occurred. 2. Ground-based data collection and analysis for the approximately 10 per cent of the route where ARD potential has not been estimated to date. 3. Evidence of efforts to discuss all areas of higher ARD potential in Nak'azdli and Nadleeh territory with the Nations, and identification of additional data collection and mitigation and monitoring agree to between the parties for these areas of higher ARD potential.	During 2012 and 2013 a desktop geological study was conducted to identify areas along the route with none, low, medium and high potential for acid rock drainage/metal leaching (ARD/ML). Based on this desktop study 69 investigation sites were identified. Twelve sites were identified as low or no potential; 26 sites were identified as moderate potential, and 31 sites were identified as high potential based on the desktop study. As a result of the desktop work, two field programs were in the summer and fall of 2013 to collect samples of representative rock types from bedrock exposures along the entire pipeline route. A total of 53 samples were collected from 52 sites. Twenty-seven samples were collected from areas identified as high potential; 14 samples were collected from areas identified as moderate potential; 7 samples were collected from areas identified as low potential; and 4 samples were collected from areas identified as having no potential. Samples were not collected from 17 sample sites because of the lack of accessible bedrock outcrops and/or the presence of thick overburden at some sites and a technical boundary that limited access in the Morice River area. These samples were subject to laboratory testing to determine the potential for acid generation and metal leaching. As a result of the laboratory testing on the 53 rock samples collected along the pipeline route, only two meta-sedimentary rock samples were classified as potentially acid generating (PAG). In addition, one volcanic rock sample in the Intermontane tectonic region was classified as uncertain in terms of PAG. Based on the results of the 2013 field program, ARD/ML potential is now estimated to be very low. Additional studies are being planned to further assess the impacts of rock exposure within the two rock mass areas that tested positive for PAG; these studies include the likelihood of rock exposure during construction and mitigation strategies. When the Project has access to the technical boundary near the Morice River, field studies and/or laboratory testing may be undertaken to assess ARD/ML in this area. Section 5.4.3 of the Application outlines Coastal GasLink's approach to Acid Rock Drainage. Coastal GasLink will continue assessment and terrain mapping as construction planning and detailed engineering design advances. Reference to section 5.7 for further detail on the ARD Effects Assessment specifically table 5-9 outlining the potential adverse effects, mitigation and residual environmental adverse effects of the proposed project on ARD during construction.		
798	Application Section 6	6-8 (Table 6-4)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The AIR is clear that project effects must be assessed against GHGs within the spatial boundaries of BC and Canada, not globally. Coastal GasLink avoids how the proposed Project effects will compare to BC's GHG targets by reframing much of the assessment in terms of global climate change. The AIR	Coastal GasLink must revise Table 6-4 and throughout the assessment in Section 6 so the spatial boundaries for GHGs are in compliance with the AIR. In other words, the spatial boundaries for the VC GHGs must be set at the jurisdictions of BC and Canada and re-assessment must occur.	Blasting mitigations will be as per the measures identified in section 6.3 of the Environmental Management Plan, and more specifically at watercourse crossings under section 8.4.3.		Coastal GasLink acknowledges the importance of understanding the Project's contribution to greenhouse gas emissions at the provincial and national levels. The Application describes jurisdictional boundaries when comparing the magnitude of GHG emissions to provincial and national inventories. Coastal GasLink

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							does not state that "global" is the spatial boundary of the assessment				completed the assessment of GHG emissions in accordance with the AIR issued by the EAO in May 2013, applying CEAA (2003) guidance for assessment.
799	Application Section 6	6-49 and Section 6.7 in general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	A 6% increase in GHG emissions in BC must be considered to be significant. Coastal GasLink states that the magnitude of a 6% increase in GHGs within BC is "important" (elsewhere it calls this "notable"). If Coastal GasLink issues this level of emissions annually during 30+ year operations, this clearly limits the Province's capacity to meet this legally required emissions reductions target, first by 33% by 2020. At what level would Coastal GasLink consider the effect to be significant if 6% is not significant? A precedent for significance has already been set. The BCEAO has already found that projects with lower than 6% increases (e.g., Cabin Gas Plant; Fortune Creek Gas Plant) are contributing a significant adverse effect on provincial GHG emissions. This information should be included in the Application; its absence is notable in that these findings are common knowledge and the most recent available EA precedents. In the GHG Technical Data Report, it is found that estimated emissions from Coastal GasLink far exceed industry standard - a key consideration in the CEAA (2003) guide. Specifically, natural gas pipeline operations in BC emitted 0.836 Mt CO ₂ e in 2010 and 1.383 Mt CO ₂ e in 2011, while Coastal GasLink identifies potential emissions of 4.6 Mt CO ₂ e per year of operations (p.32). Coastal GasLink states that they adopt CEAA (2003) guide. Section 2.1.3 of that guide states that "How a project will or will not comply with jurisdictional climate change policies, plans or programs should be noted" (p. 11).	Considering the revised spatial boundaries, Coastal GasLink – and subsequently the EAO - must consider an increase of 6% of GHGs in BC to be significant. Nak'azdli and Nadleh request the Provincial Climate Action Secretariat provide input during this stage of the Application Review period as to whether the 6 per cent GHG emissions growth modeled for this Project constitutes a significant adverse effect on BCs ability to meet its legislated GHG emissions reduction target. For greater context, the Proponent is requested to identify where Coastal GasLink would rank in terms of GHG emissions contribution projects in BC at the modeled amounts. The Proponent must reconsider the implications of its GHG emissions using the measureable parameter of the degree to which BC's ability to reach its legally mandated GHG emissions reduction target will be adversely affected by the Project. As part of this analysis, we request that the Project's emissions be characterized not merely by what percentage of current GHG emissions they would represent, but what percentage of BC's 2020 emissions reductions target they would represent. In addition, Table 6-25's calculation that GHG emission effects are likely to be "low" must be revised and calculated at the Provincial level as "high", as in "one of the highest GHG emissions contributing Projects in the entire province.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. This request is outside of the scope of the AIR.		

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800	Application Section 7.3	7-8 to 7-11	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Fraser River Basin: 255 km (200 km within the Nechako River sub-basin); 341 water courses; 78 are fish bearing. Salmon, Stuart and Endako Rivers.	Stream crossing methods: Please provide a summary of the number of streams crossed in each basin using each type of stream crossing, with a summary for the entire RSA. This information is needed to assess whether a reasonable job has been done in applying the most conservative construction methods possible (e.g., HDD where there are risk factors).	Coastal GasLink will continue engagement with appropriate regulatory authorities and interested parties, including Aboriginal groups about the locations where potential grade and ditchrock blasting may be required as construction planning and detailing engineering design advances.		A description of each crossing method is provided in Section 1.4.16 of the Application. The following summary is the preliminary pipeline installation method being considered. The pipeline installation method may be updated as further data is considered, permitting processes advance and construction planning and detailed engineering design continues. Bulkley River, Isolate if flowing, Open Cut if dry or frozen 32; Bulkley River, Isolation 2; Bulkley River, Open Cut 2 Crooked River, Isolate if flowing, Open Cut if dry or frozen 32; Crooked River, Isolation 17; Crooked River, Open Cut 2; Crooked River, Trenchless 1 Stellako/Nautley River, Isolate if flowing, Open Cut if dry or frozen 105; Stellako/Nautley River, Isolation 23; Stellako/Nautley River, Open Cut 41 Kitimat River, Isolate if flowing, Open Cut if dry or frozen 47; Kitimat River, Isolation 98; Kitimat River, Open Cut 13; Kitimat River, Trenchless 2 Salmon River, Isolate if flowing, Open Cut if dry or frozen 27; Salmon River, Isolation 14; Salmon River, Open Cut 1; Salmon River, Trenchless 1 Morice River, Isolate if flowing, Open Cut if dry or frozen 17; Morice River, Isolation 61; Morice River, Open Cut 2; Morice River, Trenchless 2 Murray River, Isolate if flowing, Open Cut if dry or frozen 16; Murray River, Isolation 9; Murray River, Open Cut 8; Murray River, Trenchless 1 Muskeg River, Isolate if flowing, Open Cut if dry or frozen 17; Muskeg River, Isolation 2; Muskeg River, Open Cut 2; Nechako River, Isolate if flowing, Open Cut if dry or frozen 36 Nechako River, Isolation 6; Nechako River, Open Cut 26; Parsnip River, Isolate if flowing, Open Cut if dry or frozen 74; Parsnip River, Isolation 50; Parsnip River, Open Cut 12; Parsnip River, Trenchless 1 Pine River, Isolate if flowing, Open Cut if dry or frozen 97; Pine River, Isolation 32; Pine River, Open Cut 24; Pine River, Trenchless 2 Stuart River, Isolate if flowing, Open Cut if dry or frozen 32; Stuart River, Isolation 6; Stuart River, Micro Tunnel 1; Stuart River, Open Cut 1 Zymoetz River, Isolate if flowing, Open Cut if dry or frozen 11; Zymoetz River, Isolation 73; Zymoetz River, Open Cut 4

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801	Application Section 7.4	7-11	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Baseline information and Project Setting – Nadleh and Nak'azdli would like more information on the temporal depth and trend-over-time information used in baseline information gathering. Both Nations contend that the current environmental conditions are not adequate measures of health; they have been adversely affected by decades of large scale development regionally and the existing state of the environment is in a demonstrably damaged condition.	<p>Please identify for the Fraser Basin:</p> <ol style="list-style-type: none"> 1. How far back in time information on fish and fish habitat VC health and status was collected, by species 2. A list of all Fraser River fish and fish habitat studies, reports, and experts consulted with in the generation of this trend-over-time data 3. What trends in status were observed in this trend-over-time data collection, by species 4. How observed change re: fish and fish habitat was gathered from Nak'azdli and Nadleh TEK holders <p>The Nations reserve the right to request additional primary and secondary data collection on this critical "damaged baseline" issue.</p>	<p>Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation to reduce potential adverse Project-related effects.</p> <p>Nadleh Whut'en First Nation chose not to participate in biophysical field studies.</p>		<p>Fish and fish habitat data collection was completed for the Project in accordance with the standards outlined in Sections 3.4.1 and 4.3 of the AIR. The Application describes baseline conditions for Aquatic Environment VCs. The baseline conditions inherently include historic and current conditions. Evaluation of fish health and population status and trends is beyond the scope of the environmental assessment. Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation to reduce potential adverse Project-related effects. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. Coastal GasLink has completed a comprehensive assessment of potential adverse effects on fish and fish habitat in accordance with the AIR carried out by qualified professionals using accepted methodologies.</p>
802	Application Section 7.4	7-11	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Baseline information and Project Setting – Nadleh and Nak'azdli would like more information on the temporal depth and trend-over-time information used in baseline information gathering. Both Nations contend that the current environmental conditions are not adequate measures of health; they have been adversely affected by decades of large scale development regionally and the existing state of the environment is in a demonstrably damaged condition.				

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803	Application Section 7.4.1	Pg. 7-13	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>"There are no dams on the Fraser River mainstream or on any other tributary streams within the Aquatics Environments RSS (Kenney Dam, on the Nechako River is located upstream from the Aquatic Environment RSA)." Nak'azdli and Nadleh disagree with the effects of Kenney Dam being discounted on the aquatics assessment. There are well documented effects of the Kenney Dam on the Fraser River and its tributaries, most notably upon Nadleh River, Fraser Lake and the Nechako around Fraser Lake. Given too that the Proponent also notes that the Project falls within "...32% of the proposed route falls within the Nechako River sub-basin, the second largest drainage to the Fraser River" (at pg. 7-13), we do not see how it can discount the effects of Kenney Dam on the aquatic health. Sources that should be consulted include: (Swain, L.G. and R. Girard. 1987. Talka-Nechako Area Nechako River Water Quality Assessment and Objectives: Technical Appendix. Ministry of Environment and Parks, Province of BC. http://www.env.gov.bc.ca/wat/wq/objectives/hechako/Nechakotech.pdf; International Pacific Salmon Fisheries Commission, ND. Potential Effects of the Kemano Completion Project on Fraser River Sockeye and Pink Salmon. International Pacific Salmon Fisheries Commission, New Westminster, BC http://www.arlis.org/docs/vol2/hydropower/SUS446.pdf; Hatfield, T., S. McAdam, and T. Nelson, 2004. Impacts to Abundance and Distribution of Fraser River White Sturgeon: A Summary of Existing Information and Presentation of Hypotheses. Fraser River Sturgeon Conservation Society, BC. http://www.frasersturgeon.com/media/impact-hypotheses-2004.pdf; Ministry of Environment, Fisheries and Ocean. 2005. Nechako Fisheries Conservation Program: Technical Data Review 1988-2002 Summary. Ministry of Environment. http://www.nfcp.org/Tech_Data_Review/NFCP-Summary.pdf; Evenden, M. D. 2004. Fish versus Power: An Environmental History of the Fraser River. Cambridge University Press: New York.)</p>	Please review the sources noted at left and reconsider the effects over time of the Kenney Dam on the LSA and RSA for this Project.	Coastal GasLink confirms that the Kenney Dam is located on the Nechako River and is outside of the Aquatic Environment RSA, and therefore outside of the scope of the assessment.		

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804	Application Section 7.4.2	7-16 (Table 7-3) 7-19 TDR, p.73	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Application uses the definition of fish-bearing stream used in the Environmental Protection and Management Regulations (EPMR) of the Oil and Gas Activities Act (OGAA). This definition is limited largely to species that support recreational or commercial fisheries. Table 7-3 lists other species whose presence is not sufficient for a watercourse to be labelled fish-bearing.	1) Why does the Proponent consider it acceptable to limit the definition of fish-bearing to only commercially and recreationally important fish? Other fish may serve as food sources to support those fisheries and have intrinsic value. This is not an acceptable definition of fish-bearing. 2) How many streams with other fish species (not counted under EPMR) are being crossed?	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. 1) The definitions for fish-bearing and non fish bearing streams under the EPMR are provided by the provincial government. Section 35 of the federal Fisheries Act defines serious harm in relation to fish that are part of a commercial, recreational or Aboriginal fishery or those fish that support such a fishery. All of these definitions have been used in this assessment. 2) Fish captures during field surveys identified 11 watercourses containing fish species that are not included in the definition of a fish stream under the EPMR, where other species that are listed in the EPMR were not captured. There were 149 watercourses where sampling was not conducted or was inconclusive, and were classified fish-bearing by default, based on characteristics of the watercourse and proximity to fish-bearing waterbodies. These watercourses may contain fish species included in the definition of fish under either or both the EPMR and the Fisheries Act.		Coastal GasLink confirms that of the 11 watercourses containing fish species that are not included in the definition of a fish stream under the EPMR, 10 have received "default" fish bearing status and thus are considered to provide potential fish habitat under the definition in the Fisheries Act.
805	Application Section 7	7-1 7-2 p. 1 p. 4 p. 18 p. 25 p. 56 p. 101 7-54 7-83	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that input from Aboriginal groups helped with selecting VCs and KIs. Nak'azdli and Nad'leh do not feel that they have been adequately consulted in general by Coastal GasLink for this Project, let alone for selection of VCs and KIs. The aquatic environment is extremely important to First Nations located along the route. Potential impacts from river and stream crossings and from disturbance to riparian vegetation and the visible signs of industrial development as a result of these disturbances are all very concerning to First Nations. Insufficient methodology for collection of TEK and traditional use information also means that the data used for assessing traditional use located within the Project footprint and LSA are insufficient.	Without properly finalized TEK and TLU studies for each affected First Nation and a full honouring of the information collected through this process, including working with First Nations to select appropriate indicators, the Application cannot be considered to have integrated First Nations information into the assessment. We find the current level of effort with respect to integrating traditional use of and concerns with respect to the aquatic environment into the application inadequate. The EAO should use its capacity to suspend the assessment until such time as this information can be collected and integrated into the Application.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
806	Application Appendix 2G	p. 58 p. 63 p. 101	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The TDR contains a number of adhoc / opportunistic observations from First Nation members who accompanied TERA field staff during field work for aquatics studies. Key references in the Application are noted in the left column.	No references to information collected through adhoc/opportunistic observations by Nak'azdli members employed as field study workers should be labelled as TEK/ATK in the Application. Wherever this is the case, an addendum should be filed removing the reference. Additional, structured TEK/ATK data collection is required to bolster the Proponent's understanding of the aquatic environment and to strengthen deficits in the current effects characterization and significance estimation, which must be labeled as low confidence until these additional inputs are received and integrated.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation to reduce potential adverse Project-related effects.		Coastal GasLink confirms that Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. Information shared by Nak'azdli Band representatives during discussions about potential project-related effects and mitigation amongst field program participants is not considered TEK. Should additional ATK/TEK be made available to Coastal GasLink, the information will inform advancing construction planning and detailed engineering design and the discussion of site-specific mitigation. Coastal GasLink has completed a comprehensive assessment to characterize potential

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											adverse effects of the proposed Project on the aquatic environment and reach conclusions.
807	Application Section 7.1	7-2	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	VCs and KIs: First Nations have suggested that salmon and salmon habitat should be a VC on its own to integrate impacts from the freshwater and marine aquatic environment. Nad'leh and Nak'azdli have both traditionally relied upon healthy salmon stocks for economic and socio-cultural sustenance and even survival.	Salmon and salmon habitat should be a VC on its own for a more robust study. Please identify how full life cycle effects on salmonid species Nak'azdli and Nad'leh are reliant on have been considered in cumulative effects assessment. Please identify specifically how far back in time the temporal backcast for salmonid species health and abundance status goes in this Application, and the role of ATK/TEK in developing a realistic portrait of salmon baseline and trend-over-time status changes.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. VCs and KIs were defined in the AIR. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges the importance of salmon and their habitat to Nak'azdli and Nad'leh and other Aboriginal groups. The Application focusses on VCs and KIs defined in the AIR, and potential adverse effects on salmon and their habitat are addressed in the assessment of the VCs Protection of Recreationally, Commercially and/or Culturally Important Fish and Fish Habitat, and Species of Conservation Concern (see Sections 7.4 to 7.6 of the Application). Fish and fish habitat data collection was completed for the Project in accordance with the standards outlined in Sections 3.4.1 and 4.3 of the AIR. The Application describes baseline conditions for Aquatic Environment VCs. Evaluation of fish health and population status and trends is beyond the scope of the environmental assessment. Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation to reduce potential adverse Project-related effects. Nad'leh Whut'en First Nation chose not to participate in biophysical field studies. Coastal GasLink notes that a Final Use and Occupancy Study was provided on June 17, 2014, which will inform ongoing construction planning and detailed engineering design.

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808	Application Section 7.4.2	7-14	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Data collection:</p> <ul style="list-style-type: none"> -Fall routing assessment program: Oct. 15-24 2012 -Winter fisheries program: Jan. 28 – March 20 2013 -Open Water Fisheries Program (OWFP) (Spring): April 18 – June 15 2013 -OWFP (Summer): June 25 – July 24 2013 -OWFP (late summer): Sept 10 – 17 2013 -Specialized watercourse assessment team: Sept. 9 – 15 2013 -Assessments completed at all watercourse crossings; fish sampling only at sites with potential fish habitat and where limited or no historical fish data were available. Survey lengths reduced at some locations. <p>Surveys extended sometimes into mainstems located downstream. After reviewing the TDR, it's clear that while some streams were surveyed 100 m upstream and 300 m downstream, there are a number of situations where it was deemed by the Proponent or its consultants "not practical or feasible" to extend the survey length to 300 m downstream.</p>	It would be useful to mention how many streams were surveyed (total) and how many were surveyed to the full extent implied in the TDR. Some of this information is captured in Table 4-3, but it's not clear how many assessments included the full extent of the LSA. Please provide additional information.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink provides the following additional information about aquatics data collection to support the assessment of potential adverse effects: The total number of unique site visits completed to develop the TDR and support the assessment is 1342. Subsequent site visits in 2014 to support permitting as well as construction planning and detailed engineering design is expected to total 287. The expected total for 2014 includes approximately 137 re-visits to previously assessed sites. Of the 1342 unique watercourse crossing locations, 471 (35%) were surveyed to the full extent of the LSA (400 m site length). Many non-classified drainages (NCD) and no visible channel (NVC) streams were not surveyed to the full extent given the limited data the extra survey would contribute, and 49% of all watercourses surveyed received this classification (Table 4-4 of the Fish and Fish Habitat TDR). There were many cases where there simply was not enough stream to complete a 300 m section (e.g., the stream discharged into a larger mainstem or a lake before the 300 m downstream survey distance could be completed). There are a number of crossings where no survey has occurred and stream classification was assigned based on historical data, sometimes combined with an aerial overview. Surveys were occasionally shortened because of access/safety (e.g., a cliff or waterfall prevented crews from travelling further), but this scenario was rare. During the winter fisheries program in early 2013, site lengths were shortened in areas with extremely deep snowpack (e.g., Anzac River and Clore River watersheds) since crews were limited in the parameters they could record without digging a large trench, and it was impractical to conduct all of the survey transects on each stream. Where snowpack impacted the field crews survey, it is noted on the field survey card. Survey cards have been provided to the EAO as information for the Working Group.
809	Application Appendix 2G	p. 52	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	It seems that no assessments of watercourses associated with compressors, meter station sites and ancillary sites has specifically been collected, either because they are "outside of the RMAs of watercourses, the information collected as part of the proposed route assessment is sufficient to assess potential adverse project effects within the footprint of the ancillary site, or additional surveys will be completed at a later date."	This is a gap in the Application. Road crossings may not occur directly in the area of the LSA or the area assessed. Locations of ancillary sites relative to stream crossings are not provided so it is impossible to determine whether there may be effects. Multiple crossings on one stream within a short stretch may have a more significant impact. The application cannot be considered complete until these sites are included within the assessment. Please provide. Note: this is only one of many "ancillary physical works and activities" deficits making the application deficient for the purposes of meaningful full scope effects assessment.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013.		Coastal GasLink understands that Nak'azdli Band and Nad'leh Whut'en First Nation are concerned about the assessment of the ancillary facilities, and notes that the potential adverse effects of ancillary facilities were assessed in the Application using qualitative methods. In the absence of spatial data, the assessment team took a conservative approach that identified potential effects in a precautionary manner (i.e., worst case scenarios). Proposed mitigation

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											approaches will be comprehensive, and will allow for the selection of appropriate mitigation depending on site specific conditions. The assessment team is composed of qualified professionals who have worked on projects of similar scope and complexity, and have the experience to understand the potential adverse effects and appropriate mitigation approaches. Coastal GasLink notes that ancillary facilities will also undergo a comprehensive review as part of the permitting process, and site specific detail will be provided at that time.
810	Application Appendix 2G	p. 53	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Fish sampling was not feasible at all sites and electrofishing may not have been effective due to low connectivity within the water. In some cases, the Application states that when conditions were not conducive to sampling, fish bearing status was sometimes determined through sampling at sites located further upstream within the same watershed.	Sampling upstream portions runs the risk of missing fish barriers, which could prevent upstream fish passage. It is essential to confirm the stream classifications (particularly whether fish are present) with local First Nations by active ground truthing of western scientific findings with ATK. There is no evidence that this was conducted in a meaningful way in development of the Application to date. Please conduct appropriate ground truthing exercises and revise the Application accordingly.	Coastal GasLink confirms that there was no situation where non-fish-bearing status was projected to downstream reaches without additional investigation. Upstream sampling would only be used as an indicator of fish bearing status. For example, if crews sampled sites located upstream of the crossing and captured a certain fish species, then that species was considered present at the proposed crossing location. If crews caught no fish, a default fish bearing status would be retained unless there was other evidence to support non-fish bearing status, such as the presence of a definite barrier.		
811	Application Appendix 2G	p. 92p. 22	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The TDR notes that no watercourse crossings scored high for duration but that the initial screening did not take into account certain high-risk activities, such as blasting or riprap armouring. 17 watercourses scored high on the scale of negative effects; 11 have short LRW or no LRW for instream works based on known species present. Of the 1,085 watercourse crossings that went through the preliminary RMF process, 205 scored high on the scale of negative effects, with a score that ranged from 9 – 11. For fish and fish habitat sensitivity, 273 watercourse crossings scored high for sensitivity (9 – 15). Note that only one watercourse received a ranking of 5 in the species rarity category.	Since the noted high-risk activities may affect risk rating, the initial assessment seems flawed in their absence. Please provide reconsideration with these factors included. Please identify how COSEWIC listed species were included in the ranking. We note again, as above, that ATK/TEK ground truthing is critical to properly triangulate risk ratings for watercourse crossings, and should be a high priority activity required of the Proponent. ATK/TEK holders have a temporal depth of knowledge that is a necessary tool to overcome some of the scientific backcast/hindcast deficits in the research record.	Further detail on temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the Oil and Gas Activities Act and regulations, as well as the OGC's Environmental Protection and Management Regulation.		Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding the ranking of watercourses. In addition to the information provided previously, Coastal GasLink clarifies that the COSEWIC rank of fish species with the potential to occur in the Project area is provided in Table 4-14 of the Fish and Fish Habitat TDR. Of those listed with a COSEWIC rank, all species are also provincially listed as red or blue, except for the interior Fraser River population of Coho Salmon. Since red and blue listed species were included in the RMF process, the associated COSEWIC-ranked species were therefore considered. Interior Fraser Coho populations are not known to occur in any stream within the LSA other than the Stuart River, which already considers the presence of COSEWIC-listed species because White Sturgeon are known present. As a result, no stream would be scored based on the presence of COSEWIC listed species. Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation to reduce potential adverse Project-related effects. Nad'leh Whut'en First Nation chose not to participate in biophysical field studies. Coastal GasLink notes that a Final

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											Use and Occupancy Study was provided on June 17, 2014, which will inform ongoing construction planning and detailed engineering design.
812	Application Appendix 2G	p. 94	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	51 proposed watercourse crossings are ranked high risk, including 19 major (S1/S2), 13 intermediate (S3) and 19 minor (S4). Both scale of negative effects and sensitivity of fish and fish habitat scores were high.	Additional work should be done on these watercourses to assess effects across all KIs.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. Coastal GasLink confirms that the Master Watercourse Crossing List in Appendix C of the Fish and Fish Habitat TDR and includes information about the recommended pipeline crossing installation method for each watercourse along the proposed route. Section 1.4.16 of the Application describes alternative construction methods for pipeline installations at watercourses including the considerations for determining the appropriate installation method for each location.		
813	Application Section 7.4.2	p. 7-14 Appendix C, p. 1	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This section states that habitat information for specific watercourse crossings is listed in Appendix C of Appendix 2-G.	We assume this means Table C-1? If so, there is little habitat information included in this table. Please revise this table to include the risk ratings (both) for each water crossing, so reviewers can easily see which water crossings are ranked as high risk and what types of stream crossings are planned.	Coastal GasLink confirms that Appendix C-1 includes the referenced habitat information. Additional habitat information is available in the Stream Crossing Data Sheets in Appendix F of the TDR. Watercourse rankings are available for all watercourses with high or medium RMF scores in Appendix J. Watercourses that do not appear in Appendix J are ranked low.		
814	Application Section 7.5.1	p. 7-56 (Table 7-8)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	In the key mitigations, the document states that "the contractor shall develop a detailed site-specific watercourse crossing plan and submit the plan to Coastal GasLink prior to initiating watercourse crossing activities." Nak'azdli and Nad'leh are very interested in enforcement and compliance monitoring by government, including First Nations.	What role will the Proponent, DFO, OGC, EAO Compliance and Enforcement Division and affected First Nations play in site specific water crossing planning, monitoring and follow-up?	Coastal GasLink will develop site specific plans for watercourse crossings during construction planning and detailed engineering design in consultation with the appropriate regulatory authorities. Coastal GasLink will continue to follow the Aboriginal Consultation Plan approved by the EAO.		
815	Application Section 7.5.1	p. 7-59 (Table 7-8)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	In key mitigations, the document lists provisions regarding the removal of beaver dams.	The proponent to clarify whether it has commitments to the following: a. notification of First Nations in whose traditional territory beaver dams will be removed prior to removing them. b. Identification with individual First Nations of expectations for appropriate conduct of beaver dam removal. c. Requirement to have environmental monitors on site to ensure that beaver dam removal is done according to appropriate regulations.	Coastal GasLink notes that the EMP in Appendix 2-A of the Application explains that approvals or authorizations to remove beaver dams will be obtained from the appropriate regulatory authorities and direction in the BC Best Management Practices for Beaver Dam Removal will be followed. Registered trapper(s) will also be engaged. During construction, site specific beaver dam removal plans will be developed in consultation with the appropriate regulatory		

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									authorities with input from potentially affected stakeholders.		
816	Application Section 7.5.1	p. 7-72 (Table 7-8)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>One of the proposed key mitigations is for no construction activity to occur outside of the instream work window of least risk for any watercourse crossing unless:</p> <ul style="list-style-type: none"> -it is dry or frozen to the bottom at the time of construction -trenchless techniques are employed -approval from the appropriate regulatory agency is obtained <p>From Table C-1 in the TDR, it would appear that many of the crossings will be done outside of the instream work window of least risk.</p> <p>In-stream works during operations have a risk of releasing plumes of sediment into streams.</p>	<p>Where possible, all in-stream works during operations should be conducted during the period of least impact.</p> <p>The Proponent needs to provide justification for why so many streams will be crossed outside of the instream work window of least risk as well as identify additional pre-construction data collection, monitoring and follow-up requirements for areas where activities are undertaken outside of the least risk window.</p>	<p>Coastal GasLink confirms that the Master Watercourse Crossing List in Appendix C of the Fish and Fish Habitat TDR and includes information about the recommended pipeline crossing installation method for each watercourse along the proposed route. Section 1.4.16 of the Application describes alternative construction methods for pipeline installations at watercourses including the considerations for determining the appropriate installation method for each location.</p> <p>Activities carried out in streams during the operations phase will comply with all applicable legislation and regulatory direction.</p>		<p>Figure 3-1 in the Fish and Fish Habitat TDR describes the decision making process that informs Coastal GasLink determination of the appropriate pipeline watercrossing installation method. Section 1.4.16 of the Application notes the considerations in determining methods and schedule for installation of pipelines at watercourses which includes species present at the time of construction, geotechnical and hydrogeotechnical characteristics, constructability concerns, access, pipeline integrity and input from various sources such as regulatory authorities, Aboriginal groups, communities and stakeholders. Data collection is continuing through 2014 and 2015 in support of permitting and construction planning and detailed engineering design. Opportunities continue to be provided for Aboriginal groups to participate in this field program through field crew support and through the TEK program. In addition to the environmental assessment phase, the schedule and method of watercourse crossing pipeline installation is also subject to permitting through British Columbia Oil and Gas Commission (BCOGC) in accordance with the OGAA and the <i>Environmental Protection and Management Regulation (EPMR)</i>, as well as and Fisheries and Oceans Canada (DFO) in accordance with the <i>Fisheries Act</i>, and there will also be regulatory oversight during construction.</p> <p>In addition to Aboriginal groups having the opportunity to provide input directly to regulatory agencies, Coastal GasLink will also continue to implement the approved Aboriginal Consultation Plan which includes sharing information about the installation of the pipeline at watercourses.</p>

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817	Application Section 7.5.1	N/A	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	First Nations need to be involved in site selection for crossings, to ensure that all cultural and traditional use values will be maintained.	The Proponent is asked to clarify whether it is committed to involve affected First Nations in stream crossing location finalization, additional pre-construction data collection, construction and post-construction monitoring; and to an Aboriginal Monitor from the appropriate First Nation(s) being present at all times during construction, in addition to the Environmental Inspector noted in the Application.	Coastal GasLink will develop site specific plans for watercourse crossings during construction planning and detailed engineering design in consultation with the appropriate regulatory authorities. Coastal GasLink will continue to follow the Aboriginal Consultation Plan approved by the EAO.		Figure 3-1 in the Fish and Fish Habitat TDR describes the decision making process that informs Coastal GasLink determination of the appropriate pipeline watercrossing installation method. Section 1.4.16 of the Application notes the considerations in determining methods and schedule for installation of pipelines at watercourses which includes species present at the time of construction, geotechnical and hydrogeotechnical characteristics, constructability concerns, access, pipeline integrity and input from various sources such as regulatory authorities, Aboriginal groups, communities and stakeholders. Data collection is continuing through 2014 and 2015 in support of permitting and construction planning and detailed engineering design. Opportunities continue to be provided for Aboriginal groups to participate in this field program through field crew support and through the TEK program. In addition to the environmental assessment phase, the schedule and method of determination of watercourse crossing pipeline installation is also subject to permitting through BCOGC in accordance with the OGAA and the EPMR and DFO in accordance with the Fisheries Act, and there will also be regulatory oversight during construction. In addition to Aboriginal groups having the opportunity to provide input directly to regulatory agencies, Coastal GasLink will also continue to implement the approved Aboriginal Consultation Plan which includes sharing information about the installation of the pipeline at watercourses. In response to interest in monitoring opportunities by Aboriginal groups, Coastal GasLink is developing a construction program to address requests from Aboriginal groups for implementation during construction of the Project. As the Program is developed, information will be shared with Aboriginal groups. Section 25.3 of the Application provides information about post-construction monitoring. In accordance with the Aboriginal Consultation Plan, information about post-construction monitoring will be shared with Aboriginal groups as plans are advanced.
818	Application Section 7.5.3	7-74 (Table 7-9) 7-77	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Table 7-9 notes that alteration or loss of riparian habitat function occurs only within the Project footprint. There is a high likelihood that impacts will extend into the LSA due to edge effects.	Please identify what literature was used to support the assertion that alteration of riparian habitat will be limited to the project footprint. Please provide an estimate based on scientific literature of the likely extent of riparian edge effects around the Project footprint, and adjust the spatial boundary for the assessment accordingly.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Section 4.3 of the AIR, defines spatial boundary for Project Footprint for the aquatic environment assessment as the land area that will be directly disturbed by Project construction activities, including associated physical works and activities.		Coastal GasLink acknowledges that there are concerns about the potential of edge effects from clearing vegetation in riparian areas. The assessment of potential adverse effects on vegetation provided in Section 8 of the Application acknowledges that clearing of forested vegetation, including riparian areas, has the potential to create

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											edge effects. The Vegetation LSA has been developed to represent the zone of influence of disturbance on vegetation, including edge effects. See Page 8-48 of the Application for an example of the consideration of edge effects in the characterization of residual adverse effects of the Project.
819	Application Section 7	7-74, 7-76, 7-85, 7-86, 7-118, 7-150	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Many of the potential residual environmental effects listed in Table 7-9 and Table 7-21 are listed as short-term. However, at least some effects will endure over a longer time period. For example, some portion of the riparian vegetation will remain in an early seral condition throughout the Project's life. This will have an impact on aesthetics, woody debris inputs into streams, stream shading, and stream temperature. This long-term residual effect has not been accounted for in the analysis. Other longer-term effects are associated with permanent road crossings, as another example.	Please revise the duration of improved access during operations to be long term, as it is unlikely that mitigations will prove successful in fully avoiding increased fishing pressure. Add this long term residual effect to the analysis and adjust findings accordingly. Since duration is likely to have a large impact on the relative significance of a disturbance, some impacts may have a higher residual environmental effect than is currently accounted for within the Application.	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. Immediate to short-term is the appropriate estimate of duration as maintenance activities during operations are a short-term event causing increased access which will be more than two days but less than one year. Information about the assessment methodology is provided in Section 3 of the Application.		To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. Immediate to short-term is the appropriate estimate of duration as maintenance activities during operations are a short-term event causing increased access, which will be more than two days but less than one year. The reversibility of residual adverse effects varied from short to long term depending on the residual adverse effect being discussed. For example, the Application indicates that the alteration or loss of riparian habitat function during construction activities is expected to be reversible in the medium-to long-term.
820	Application Section 7.5.3	7-77	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This section mentions the possibility of vegetation control using pesticides.	We assume this means herbicides. There should be no need to use pesticides for vegetation control. Proponent to clarify. Nak'azdli and Nadle have expressed that no herbicide or pesticides will be used in their Traditional Territory. The Proponent is asked to reconsider and revise its approach accordingly to remove use of herbicides and pesticides in Nak'azdli and Nadle territories. Please provide a written response.	Coastal GasLink respects the request by the affected First Nations to avoid the use of pesticides or herbicides within their traditional territory. As Coastal GasLink develops its invasive plant management plan, consideration will be given to other options of vegetation control.		
821	Application Section 7.5.3	7-80, 7-152	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Higher risks of HADD and fish mortality and injury are present with open-cut crossings. The document states that "Any exceedance of relevant guidelines will be reported to the appropriate regulatory agencies."	The Proponent is requested to consider and respond to the following with commitments: 1. Open-cut crossings should be avoided where red, blue, COSEWIC and SARA listed species are present or where other risk factors are present. 2. Extra monitoring efforts should be put in place at these types of stream crossings to ensure that TSS does not rise above an acceptable level. 3. The proponent should describe how often TSS will be monitored and be particularly careful when waterflows increase unexpectedly. 4. The ZOI should be extended for all open-cut crossings to account for potential further extent of downstream effects. 5. Water quality monitoring should be conducted with the participation of an Aboriginal Monitor from the appropriate First Nation to ensure that any high sedimentation events are reported and dealt with immediately and transparently.	Section 1.4.16 of the Application describes alternative construction methods for pipeline installations at watercourses including the considerations for determining the appropriate installation method for each location. Coastal GasLink will continue to implement the mitigation hierarchy. The EMP describes resource-specific mitigation for areas that require special attention or have unique characteristics regarding the protection of environmental resources, including watercourse crossings. Water quality monitoring plans, where warranted will be developed prior to construction. The water quality monitoring plan will also include appropriate response measures, should a harmful sedimentation event occur.		

Coastal GasLink Project: Working Group Comment Tracking Table

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822	Application Section 7.5.3	7-81	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The proponent claims a low risk of increased fish mortality and injury due to an increase in suspended sediment during in stream construction at trenched crossings. There is at least a moderate risk of increased fish mortality and injury at trenched crossings, as noted in the paragraphs above, and the risk may necessitate acquiring DFO authorization and implementation mitigation and compensation requirements.	Please provide evidentiary support from literature for the contention that there is a low risk of increased fish mortality and injury due to increased suspended sediment. If this evidence cannot be provided, please revise this rating.	Coastal GasLink provides the following information: A summary of open-cut watercourse crossing effects studies was published in by Reid and Anderson (1999). Various literature (e.g. Newcombe and Jensen (1996); Anderson, Taylor and Balch (1996); Newcombe and MacDonald 1991 etc.) describes a dose exposure relationship to predict effects to fish and fish habitat. Various models have been developed for different species and life stages that predict severity of ill effects to fish, including mortality, based on the duration and concentration of sediment exposure. These models used onsite with real time water quality monitoring data to predict effects on fish and fish habitat. Should an event occur that causes construction activities to exceed CCME and BC water quality guidelines, construction crews will be notified and additional mitigation will be initiated to reduce instream suspended sediment load. As a result the likelihood of increased fish mortality and injury is low. Reference: Scott M. Reid & Paul G. Anderson (1999) Effects Of Sediment Released During Open-Cut Pipeline Water Crossings, Canadian Water Resources, 24:3, 235-251.		
823	Application Section 7	7-74 and onward 7-120 and onward 7-158 and onward	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	A single blanket effects characterization and significance estimation for all stream crossings at once (i.e., not assessing the significance of impacts on individual streams) does not make ecological or environmental assessment sense, nor does it make sense within the context of existing impacts to these streams. Some specific areas have been identified as particularly sensitive, through the assessments conducted in for this application and from prior work. The Salmon River, Stuart River, and likely many others, are considered to be important habitat for various species. Any areas where salmon are present should be examined more closely.	At the very least, watercourses that are ranked at high risk should be subject to individualized effects characterization and significance estimations. If this watercourse by watercourse effects characterization and significance estimation is not completed, the overall averaging of effects will likely mask site specific significant adverse effects. One of the primary functions of this EA is to determine locations where a pipeline crossing (or a method of pipeline crossing) simply is not acceptable. That cannot be calculated by the EAO with the information base in the Application at this time.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The methodology used to characterize residual effects and determine significance is described and in Section 3.7 and 3.9 of the AIR. Coastal GasLink is confident that the methodology provides an accurate assessment of potential adverse effects of the proposed Project. The purpose of the Application is to provide an overall assessment of the Project effects on fish and fish habitat. Site-specific designs will be developed as construction planning and detailed engineering design advances. Required information will be provided to the appropriate regulatory authorities during permitting.		
824	Application Section 7.5.3	7-83	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The risk of an adverse effect is higher in streams where red, blue, COSEWIC and SARA listed species are present.	The Proponent is requested to identify all additional mitigations committed to be used at these streams to avoid higher magnitude adverse effects.	The EMP describes resource-specific mitigation for areas that require special attention or have unique characteristics regarding the protection of environmental resources, including watercourse crossings. Water quality monitoring plans, where warranted will be developed prior to construction. The water quality monitoring plan will also include appropriate response measures, should a harmful sedimentation event occur. Coastal GasLink will continue to consult with the appropriate regulatory authorities to develop additional resource-specific mitigation where warranted.		

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825	Application Section 7.5.3	7-84, 7-86	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Increased off-road vehicle access due to pipeline development was deemed to have a low likelihood since measures to prevent access will constrain new opportunities for recreational and off-road vehicle use. In the subsequent section, the likelihood of increased fish mortality and injury due to an increase in access was also deemed to be low, since appropriate mitigation will be implemented.	Current access-related mitigations listed in Table 7-9 are unlikely to be effective. The current assessment must be held in low confidence. The Proponent is requested to revisit and bolster its access management plans, re-conduct effects characterization, and identify appropriate monitoring of access to ensure that no increase in fishing pressure or damage to streams has occurred due to improved access to these sites.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has committed to developing and implementing the Access Control Management Plan and Traffic Control Management Plan. These plans will include access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. Additionally, Coastal GasLink will develop a post construction monitoring plan prior to construction in consultation with the appropriate regulatory authorities.		
826	Application Section 7.5.4	7-89 and throughout this section 7-120 (Table 7-22)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As in other sections of the report, the estimation of no significance with a high degree of confidence for all potential residual environmental effects, across all streams, is problematic.	Streams that are ranked as highly sensitive or above should be assessed individually in this analysis, with detailed plans including construction timing, construction method, fish and fish habitat protections plans, to ensure that mitigations are sufficient to address residual environmental effects. In all cases where methods other than HDD are used to cross highly sensitive streams, it should be assumed that residual effects will occur and additional mitigations/compensation plans must be prepared to offset these habitat losses.	Coastal GasLink will continue dialogue with the appropriate regulatory authorities about alternative mitigation strategies, such as compensation or offsets. Site specific plans will be developed for locations as required by DFO under its Fisheries Act authority. Such plans may include habitat enhancement or creation and reclamation.		
827	Application Section 7	7-94 and throughout this section, including Table 7-11 7-126 and throughout this section, including Table 7-29. 7-162 and throughout this section, including Table 7-35 7-178 and Table. 7-43	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This approach for cumulative effects assessment is flawed. Cumulative effects must be assessed across a more meaningful area, not across all streams that will be traversed by the proposed Project. The magnitude of existing and known future disturbances are bound to be quite different along each stream reach, although it may be possible to do some groupings (e.g., within watersheds) and still retain a meaningful cumulative effects analysis. In addition, ecological conditions and the resilience of streams in different areas will be quite different. The quantitative analysis of riparian habitat disturbance conducted for each major river basin appears to be a more meaningful way to look at cumulative effects. However, even for this analysis, the scale (by major river basin) is likely too coarse to be meaningful. A watershed scale would be more appropriate. This quantitative analysis does show that, for the Fraser River Basin drainage, existing impacts and cumulative future disturbance give it a high rating for riparian habitat disturbance. However, because the scale is so large, the relative impact of the pipeline appears small. However, it is the overall state of pre-existing and likely future damage and not the individual future Project contribution that should be the focus of any precautionary resource management decisions. Similar results are found for quantitative assessments of existing and predicted instream	It would be preferable to identify streams that have high existing impacts through some application of a disturbance threshold, and examine those streams – more likely to subject to existing heavy cumulative effects loading - individually for cumulative effects, to determine if a threshold of impacts has been crossed. As much of this analysis appears to be qualitative, there are issues with the introduction of opinion into the assessment. A qualified third party should be brought in to assess cumulative effects across streams that are deemed to have a high existing impact. EAO is requested to identify what government agencies or third parties are being brought in to conduct this independent review on behalf of the B.C. government. Recommend re-doing this habitat disturbance analysis at a finer scale (sub-basin or watershed) to understand where areas of existing disturbance may already be placing fish and fish habitat at risk. The quantitative analysis of stream crossing density must be done after plans for all associated roads (permanent and temporary) are known. A quantitative scale of risk associated with stream crossing density should be included in the analysis. To summarize, the existing cumulative effects analysis is flawed and must be redone at a much finer scale to really determine residual adverse cumulative effects to streams. Certainly within the Fraser Basin, it would appear that a threshold has already been crossed. Given existing impacts, analyses for residual cumulative effects should be conducted with particular rigour within the Fraser River Basins.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Locations for ancillary facilities will be selected during the detailed engineering and design process. The Application considers potential adverse effects associated with these temporary facilities in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the information will be provided to appropriate regulatory agencies during the permitting process.		Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that residual adverse effects may differ at specific streams and in different watersheds, and recognizes the fisheries values in all watersheds crossed by the proposed Project, including the Fraser River basin. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. Coastal GasLink confirms that the cumulative effects assessment was completed by an experienced and qualified team with experience in effects assessment using the methodology defined in the AIR, which are appropriate for understanding the context of the project in relation to previous disturbances, the current level of disturbance across the landscape, and reasonably foreseeable future projects. Stream crossing density calculations were not used to assess Project-specific water quality effects but were part of the cumulative effects assessment; an assessment conducted to identify how potential adverse effects from a proposed project could interact with impacts from other developments occurring in the same region. Using a quantitative metric allows an understanding of the potential cumulative effects of the proposed Project in relation to existing and reasonably foreseeable future developments. While there are other metrics that can be used for watershed assessment, stream crossing density was used for this assessment as an indirect measure of sediment and nutrient input resulting from land use.

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							disturbance within major river basins. A quantitative analysis of stream crossing density was used as an indicator of risk from erosion, habitat loss and improved access. This analysis was also done at the major river basin level. This analysis is an underestimate of effects because locations of temporary and permanent access roads were not yet known. There appears to be no quantitative thresholds of risk associated with particular stream crossing densities. The high density within the Fraser River basin is concerning.				Project-specific monitoring and mitigation measures, such as surface water quality monitoring are discussed in the environmental effects assessment (refer to Table 7-8 of Section 7.5.1). Stream crossing density is not used to guide surface water quality monitoring during construction. Coastal GasLink agrees that Equivalent Clear-cut Area (ECA), in combination with other factors, is a useful indicator of watershed disturbance (B.C. Ministry of Forests 2001). However, its applicability for cumulative effects assessment for the proposed Project is limited due to the lack of spatial data on future cutblocks. Instead, stream crossing density was used as an indicator of cumulative effects on surface water quality. As indicated in Porter et al. (2013): "Stream crossings at road intersections represent potential focal points for fine sediment input and intercepted flow delivery, as well as potential physical impediments to fish movements. In general the greater the density of road-stream crossings on forest land, the greater the potential risk to fish and their habitats." Coastal GasLink acknowledges that there is a high likelihood the proposed Project will contribute to cumulative adverse effects on surface water quality but notes that the residual cumulative increase in effects is not significant (Table 7-37, page 7-171).
828	Application Section 7.5.7	7-111	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that the determination of significance of residual cumulative adverse effects on riparian and instream habitat is based on the incremental increase in disturbance within the Aquatic Environment RSA.	This approach to cumulative effects analysis is fundamentally flawed as it ignores the existing impacts – in fact, higher existing impacts actually reduces the relative impact of new developments, which is the metric the Proponent is using to assess cumulative effects. As noted elsewhere, this "Project contribution" model must be rejected. It is also imperative that cumulative effects not be averaged like this across the entire Project area, but rather examined at a much smaller scale – particularly for sensitive streams, where individual assessments should be conducted. We request that the EAO require the Proponent to drop the use of project contribution as the metric for estimation of significance, and reassess the significance of effects on a finer scale for riparian and instream habitat and fish.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
829	Application Section 7.7.2	7-150	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Qualitative assessments are problematic as they introduce the possibility of bias into the analysis.	Where qualitative assessments are used, conclusions should be verified with qualified third-party professionals – preferably experts in their fields. This would ensure that objective opinions are used to determine potential residual adverse effects. EAO and DFO are requested to identify what expertise they will be using to independently assess the Proponent's methods, baseline data adequacy, analysis and estimations related to fish and fish habitat effects. We strongly suggest using experts with experience in assessment and monitoring of effects of pipeline water crossings, and strong knowledge of best practices for same.	Information about the assessment methodology is provided in Section 3 of the Application. Coastal GasLink will provide a list of professionals involved with the preparation of the Application to the EAO.		

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830	Application Section 7.7.2	7-152 7-154	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Proponent states that "Aboriginal community TEK participants did not raise any concerns about increased sedimentation in watercourses as a result of construction of the proposed route." This and other similar statements are revealing in that it shows how little effort has been placed into working with affected First Nations along the pipeline route. It seems hard to believe that no concerns would be raised about increased sedimentation due to construction. Nak'azdli and Nadleh are, indeed, concerned about increased sedimentation effects in watercourses.	It would be prudent to remove these statements suggesting that Aboriginal community members are not concerned about impacts to various streams until full ATK and consultation with affected First Nations has been undertaken. Nak'azdli and Nadleh invite the Proponent to engage in a more informed dialogue re: effects with the communities once ATK/TEK related to fish and fish habitat has been properly integrated into a revised Application.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink clarifies that concerns about water quality and sediment issues were raised by TEK participants during field studies. These concerns were noted on page 7-54 of Section 7.5 Protection of Recreationally, Commercially and Culturally Important Fish and Fish Habitat Effects Assessment and in the Technical Data Report Tables 4-6, 4-8, 4-10 and 4-12.		
831	Application Section 8	8-2; 8-24; 8-26; 8-86	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Insufficient methodology for collection of TEK means that the VC for traditional plants is unlikely to be sufficient. The insufficient methodology used for collecting TEK mean that there is not sufficient information to assess the traditionally important plant species occurring within the footprint, LSA and RSA of the proposed Project.	Without properly conducted TUS for each affected First Nation and a full honouring of the information collected through this process, including working with First Nations to select appropriate indicators, the Application cannot be considered to have integrated First Nations information into the assessment. We find the current level of effort with respect to integrating traditionally used plants into the Application wholly inadequate. This is part of Nak'azdli and Nadleh's request that the EA be suspended until this information can be collected and integrated into the Application in a meaningful way.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Sections 3.4 and 4.0 of the AIR and Sections 3.2.1 and 3.2.2 of the Application provide information about the approach to Aboriginal Traditional Knowledge for the assessment. Coastal GasLink notes that Nak'azdli Band and Nad'leh Whut'en First Nation are members of the EAO Working Group which provided opportunity for input to the development of the AIR.		Coastal GasLink understands that Nak'azdli Band and Nadleh Whut'en First Nation are concerned with the collection of ATK/TEK. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Opportunities continue to be provided to Aboriginal groups to share TEK during field program participation. Nak'azdli Band elected to provide field participants on biophysical field studies but not to share TEK. The field programs include discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. Should additional ATK/TEK be made available to Coastal GasLink, the information will inform advancing construction planning and detailed engineering design and the discussion of site-specific mitigation.
832	Application Section 8.2.2	8-4	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Invasive plant planning is essential along the proposed pipeline route. It needs to be proactive to avoid the risk of invasive plants establishing along the corridor.	The Proponent is requested to identify additional mitigations for invasive plants and have them reviewed by the Northwest Invasive Plant Council (NWIPC).	The Invasive Plant Management Plan will be prepared prior to construction in accordance with the applicable legislation and in consultation with the appropriate regulatory authorities. Coastal GasLink will engage appropriate local plant councils in the development of this plan.		
833	Application Section 8.3.1	8-8	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As noted previously, a major gap in the Application is a lack of information about where ancillary sites will be, and how many of these will be maintained or decommissioned, as well as how and when this decommissioning will occur. Some of these areas, particularly the access roads and construction camps, are large clearings that, depending on location, may cause substantial location-specific effects, including on traditional use and rare plants. Environmental assessment is the only appropriate setting for identification of whether these	Nak'azdli and Nadleh reiterate our request that the location of ancillary physical works and activities in our traditional territories be identified as part of, not subsequent to, the EA process. Anything else may be prejudicial to our rights and interests. For each ancillary physical work, the potential for adverse impacts on the environment should be assessed in a similar fashion to that conducted by the Proponent in its identification of revised ROW routing in the Addendum Report of March 2014.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. Further detail on temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the OGC's Environmental Protection and Management Regulation. Coastal GasLink is progressing discussion about project agreements with Nadleh and Nak'azdli which includes information about ancillary facilities located in the traditional territories.		

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							"temporary ancillary sites" are located where they are least likely to cause significant adverse impacts on the environment. It is currently impossible to assess the full impacts of the Project without knowing where these areas will be situated.				
834	Application Section 8	8-57; 8-93	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This is a related comment to the above regarding the current uncertainty surrounding the exact location of the full Project footprint. The lack of certainty about where the footprint will be has allowed the Proponent to be vague about the impacts of the pipeline on the indicators associated with this VC. This is also true for other VCs throughout the project application. Nak'azdli and Nadleah ask: how can a Project's true impacts be assessed without knowing exactly where the footprint will be? For example in section 8.5.3, the proponent states that "Red- and Blue-listed ecological communities are uncommon on the landscape and disturbance will be avoided or reduced. Once the Project Footprint is confirmed, Coastal GasLink will develop site-specific mitigation for these ecological communities of concern following the Ecological Community and Plant Species of Concern Discovery Contingency Plan (Appendix C of the EMP)." This in no way identifies the potential for the Project to interact with these ecological communities of concern and relies entirely on a Plan to be developed after the EA is complete. This is not good EA. Similar comments are made in Section 8.6.3 of the Application in relation to rare plants.	The Project footprint must be confirmed before the true magnitude of impact to all ecological communities and other indicators under this VC can be assessed. The Proponent should confirm the Project footprint and assess accordingly. Where the magnitude of impact is high, the proponent must commit to appropriate mitigations—which in most cases would be avoidance, either by realigning the route or changing the construction technique.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. Required information about temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the OGC's Environmental Protection and Management Regulation. As construction planning and detailed engineering design advances, Coastal GasLink will continue to apply the mitigation hierarchy.		

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835	Application Section 8.3.1	8-9	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	There are concerns about the validity of the proposed vegetation RSA. It seems like the RSA should vary in size along the route, depending on the area being traversed. In some areas (e.g., ecologically sensitive areas), the RSA should be widened to get a proper assessment of cumulative impacts within the area. The 1 km band on either side seems arbitrarily chosen. The 150 m band on either side for the LSA also seems very small, considering that the width of the pipeline is already 100 m in some areas. Suggest a varied width for both the RSA and the LSA, to be decided depending on a variety of factors, including: 1) width of the ROW; 2) ecology of surrounding area. E.g., if the pipeline is cutting through red or blue listed ecological communities, the LSA should be broadened to encompass the entire community, and the RSA broadened accordingly. If cutting through ecologically sensitive areas (e.g., OGMAs), likewise. Could establish a list of conditions that would broaden the LSA to be more ecologically appropriate (for example, using ecological communities of concern, as described on p. 8-17). In addition, the assessment should be conducted within defined areas that are ecologically based, rather than along the route as a whole. See comments below.	Nak'azdli and Nadleeh request the Proponent revisit the size of the RSA and LSA across the length of the pipeline and varying it depending on site-specific conditions. In some areas, a 1 km band on either side might be fine. In other areas, it's probably too small – especially for the cumulative effects analysis. As a further note, please add the total area (in ha) of the LSA to the report.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Required information about temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the OGC's Environmental Protection and Management Regulation. As construction planning and detailed engineering design advances, Coastal GasLink will continue to apply the mitigation hierarchy.		Coastal GasLink acknowledges the importance of understanding the regional context of the Project area in relation to the potential adverse effects of the Project. The LSA and RSA boundaries for the Coastal GasLink assessment were defined in the AIR issued by EAO in May 2013. The LSA and RSA boundaries were selected to be representative of the zone of influence of effects from the project (LSA), and in a regional context (RSA). Understanding that the cumulative effects assessment considers the Project's contribution to cumulative adverse effects, a larger RSA would dilute the contribution that the project has on the overall cumulative adverse effect. The RSA was selected using a precautionary approach that would allow for a conservative description of the Project's contribution to cumulative adverse effects. The LSA is approximately 20,000 ha in size.
836	Application Section 8.4	8-13	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Mountain Pine Beetle (MPB) information is out of date.	Update with recent information about infestations.	Coastal GasLink provides the following additional information about mountain pine beetle: The latest computer modeling projections indicate about 57% of the pine volume in the province may be killed by 2021. This is significantly less than the 80% of pine-kill that was being projected six years ago (BC MFLNRO 2013). Coastal GasLink confirms that this additional information does not change the conclusions of the environmental assessment. Reference: BC MFLNRO (British Columbia Ministry of Forests, Lands and Natural Resource Operations). 2013. Facts About BC's Mountain Pine Beetle. Available at: http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/Updated-Beetle-Facts_April2013.pdf . Accessed May 2014.		
837	Application Section 8.4	8-16 8-19	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	No cross reference maps showing where old forests are encountered, as well as where red/blue ecosystems are found.	Please provide a new map that provides a better summary of this information.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink provided a mapbook showing OGMAs along the Project in June 2014. Mapping of red-listed and blue-listed ecosystems was not a requirement to complete a comprehensive assessment of potential adverse effects on vegetation. The assessment of potential adverse effects on vegetation including red-listed and

Coastal GasLink Project: Working Group Comment Tracking Table

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											blue-listed ecosystems is provided in Section 8 of the Application
838	Application Section 8.4	8-17; 8-93; Vegetation TDR p. 21	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Baseline data collection is inadequate for vegetation. A higher level of survey intensity should have been selected for the Project footprint than a survey intensity of level 4 (RIC 1998). Only 261 "detailed" (as described on p. 21 of the Vegetation TDR) surveys were conducted, and it is not clear how many of these were in the footprint. 435 rare plant survey plots were completed, at two different times (June; July/Aug). Again, it is not clear how many were in the Project footprint. It is very likely that rare plant species will have been missed in this assessment. Do we have sufficient certainty about where whitebark pine will need to be removed for the Project? There should be a separate analysis of this, after the Project footprint has been determined and the potential for avoidance of all sites has been determined. SARA prohibits this species from being damaged or destroyed, so this is a serious issue for the Proponent to consider in its Application.	The Proponent should add information about the location of survey plots for vegetation (detailed, ground inspection, visual plots) and rare plants in the vegetation TDR so the adequacy of coverage within the footprint can be assessed. We find the current level of effort regarding vegetation to be inadequate and recommend an additional season of data collection in areas where there is a high likelihood of encountering rare species and rare ecological communities, particularly focused on the Project footprint and adjacent LSA. Without this, the adequacy of baseline information contained in the report is questionable. Potential information gaps with regard to whitebark pine occurrences are serious. The gaps call into question the current adequacy of information for making a decision about whether this Project should be approved.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 3.2.1 of the AIR identifies the standards and guidance used for TEM. Section 2.4 of the Vegetation Technical Data Report identifies the limitations of the study pertaining to plant species at risk. Appendix C.9 of the Environmental Management Plan is a Plant Species of Concern Contingency Plan that includes provisions for mitigating potential effects to plant species at risk. Coastal GasLink will continue surveying in 2014, including ground surveys of the whitebark pine areas identified by aerial survey to inform construction planning and detailed engineering design.		
839	Application Section 8.4.2	8-21	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	It is not clear whether cryptic paw or old growth specklebelly were encountered during field work.	Please clarify.	Coastal GasLink confirms that cryptic paw and old growth specklebelly were not encountered during fieldwork. Appendix F of the Vegetation Technical Data Report provides a list of species that were encountered in the RSA.		
840	Application Section 8.4.2	8-25	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Application states that there are "six locations to reclaim with pre-construction species." Many of our members would not consider an area growing on top of a pipeline to be an appropriate place to collect food or medicine. Therefore, the footprint area should be considered permanently lost as a traditional use area.	Please adjust the Application accordingly. In particular, this finding, shared by First Nations members in previous Working Group meetings for several of the LNG-related pipelines, should be carefully considered when assessing the amount of land alienated from traditional use as a result of the Project. Physical inaccessibility, reduced physical attributes, and perceived risk and stigma all play a role in determining how much land and waters are alienated from traditional rights practices. Currently, the Application does not reflect this reality.	Coastal GasLink confirms that only about 10m of the RoW over the operating pipeline will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. Table 1-14 of the Application provides a description of vegetation management activities that will be carried out during operations. Coastal GasLink will develop a Reclamation Plan prior to construction in consultation with the appropriate regulatory authorities. The Reclamation Plan will be informed by site-specific data collected prior to construction and will be updated during construction to reflect the current conditions. All areas disturbed by construction activities will be reclaimed.		
841	Application Section 8.5	8-26	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Other pathways of effects on ecological communities of concern could be soil compaction and altering hydrology. Table 25-2 in the Environmental Management Plan notes that soil degradation may have adverse effects on vegetation.	These other effects pathways should be noted here and their contribution to total effects loading assessed in Section 8.	Coastal GasLink acknowledges that soil compaction and alteration of hydrology can contribute to the alteration or loss of plants and ecological communities. The effects pathway of clearing of native vegetation is considered to be comprehensive of many potential adverse effects associated with vegetation clearing, and the potential for soil compaction and alteration of hydrology has been assessed as part of this effects pathway. The Ecological Communities and		

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									Plant Species of Concern Contingency Plan includes mitigation for these effects.		
842	Application Section 8.5	8-29 8-47	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states: A small portion of the Project Footprint will be retained as an early seral, low-growing plant community. It goes on to state: "during the operations phase, there will be occasional access and brushing that will cause intermittent disturbances to the vegetation communities." Similar question here about how much of the ROW will need to be retained in early seral.	How much of the footprint will be retained as early seral? How frequently will access/brushing be conducted, based on other similar pipelines? Some frequency (ha/km/year) would be useful to gauge the impact of this disturbance.	Coastal GasLink confirms that only about 10m of the RoW over the operating pipeline will be kept free of large woody vegetation during operations for monitoring, maintenance and pipeline integrity. Table 1-14 of the Application provides a description of vegetation management activities that will be carried out during operations. Coastal GasLink will develop a Reclamation Plan prior to construction in consultation with the appropriate regulatory authorities. The Reclamation Plan will be informed by site-specific data collected prior to construction and will be updated during construction to reflect the current conditions. All areas disturbed by construction activities will be reclaimed.		
843	Application Section 8.5	8-33; 8-48	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document notes that log and slash piles can be ideal habitat for many insect species, particularly the spruce bark beetle, and that provincial guidelines for levels of CWD on site and timing of slash removal will be adhered to. This is potentially problematic for species like fishers and marten, which depend on large coarse wood debris (CWD) for their habitat needs. The potential impact to marten habitat should be noted as an adverse effect of mitigating concerns with respect to the spread of insect pests.	Make sure this effect is noted in the wildlife section. One potential mitigation is a monitoring program for fisher and marten populations, to make sure they are not unduly impacted by slash removal along the pipeline route. Leaving more CWD in some areas and monitoring forest pest conditions could also be a useful mitigation. A related mitigation is noted in 8.5.2 suggesting that woody material will be replaced on the ROW following construction. Clarify how much woody debris will be replaced and where it will come from.	Coastal GasLink confirms that Section 10.6 of the Application includes mitigation to restore habitat connectivity by redistributing large-diameter slash (rollback) over select locations on the ROW (e.g., where high levels of CWD occur prior to construction) to provide cover and facilitate movement of wildlife (e.g., furbearers). Specific locations will be determined in the field by the Environmental Inspector and wildlife resource specialist in discussion with the appropriate regulatory authorities.		
844	Application Section 8.5	8-35 – 8-45	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Several key mitigations reference Section 9 of the EMP, which appears to be very sparse at the moment.	The Proponent should provide more clarity about what kinds of mitigations would be considered if adverse effects are observed. Mitigation options (here and in Section 9 of the EMP) are currently too vague to know if they will be effective.	Coastal GasLink clarifies that the referenced Ecological Community and species of Concerns Contingency Plan is provided as Section C.9 of Appendix C of the EMP.		
845	Application Section 8.5	8-46 (Table 8-8) 8-48 8-49 8-51 8-52 8-53 8-55 8-56 8-58 8-74 8-93 (Table 8-15)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The issue of duration of the effect must be addressed. Though clearing occurs over a relatively short duration, at least some portion of the footprint will be retained in an early seral stage throughout the life of the Project, and some access roads will be maintained. The duration cannot be considered short for these effects. This is also a relevant comment for the ratings of potential residual cumulative adverse effects on ecological communities of concern. This is also a relevant comment for all sections of the Application that refer to the residual adverse effects on plant species of concern associated with the proposed Project.	Please identify what portion of the footprint will be retained in early seral and change the temporal duration of effects rating accordingly. This could create an important change to the potential for significant residual adverse impacts and increase the emphasis on identifying proactive mitigations.	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. For all of the vegetation KIs, the duration was found to be short-term because the event(s) leading to the effect are completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer, and therefore the reversibility was assessed as medium-term or long-term for most Vegetation KIs.		

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846	Application Section 8.5	8-46	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As for other VCs, there are major issues with assigning a magnitude of low to medium for ecological communities of concern averaged across the entire length of the pipeline. In some areas, the magnitude of the potential effects may be high, and additional mitigations may be required. This is especially true for old forest, but also for other ecological communities of concern. It is hard to assess within the scale of the pipeline as a whole with the information currently available in the Application.	Effects should be assessed within defined areas (smaller chunks) of the pipeline that are biologically meaningful. Given the length that the pipeline traverses, it is not relevant to assess the magnitude of the effects across the entire length as though the ecology and existing impacts do not vary along the route. The analysis should be redone at a different scale – possibly using watersheds or landscape units defined for LRMPs, where they exist. Without redoing the analysis, we find that the Application does not do an adequate job of assessing the effects of the proposed pipeline across all areas; in other words, it is too generic to adequately assess or protect the sensitivities of particular sensitive sites.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that residual adverse effects may differ at specific sites. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are described. When characterizing the residual adverse effect, a range was often described for magnitude to acknowledge the variation. The determination of significance was made using a conservative approach that considers the worst-case scenario.
847	Application Section 8.5	8-47	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that "approximately 3,500 ha of native vegetation are expected to be disturbed or cleared to construct the proposed Project".	Please clarify what the Proponent considers to be "native vegetation", since this seems to be low compared to the total footprint of the ROW. Please also explain how this amount was calculated.	Coastal GasLink confirms that the amount of native vegetation cited on page 8-47 of the Application was calculated from Table 1-3 (excluding non-vegetated and anthropogenic areas) in the Vegetation Technical Data Report in Appendix 2J). This amount reflects hectares of mostly undisturbed native vegetation and does not include areas of cutblocks. Cutblocks are areas of native vegetation and they were considered as such in the assessment contributing to the percentage of native vegetation on page 8-13 cited as 97%. Native vegetation includes all lands other than non-vegetated areas (i.e., cutbanks, exposed soil, cliffs, lakes, ponds, rivers) and anthropogenic areas (i.e., cultivated fields, pastures, gravel pits, railway and road surfaces, pipelines, transmission lines and rural and urban areas). Ecosystem types within the Vegetation RSA were determined by TEM.		

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848	Application Section 8.5	8-49 8-51 8-52 8-53	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>The potential effects of old forest removal are large – the Project LSA includes 2407 ha of old forest, with 376 ha of legal OGMAs and 244 ha of non-legal OGMAs. The proponent suggests mitigations will aim to avoid old forests – but clearly this is not entirely possible. Mitigations include reducing temporary work space, narrowing the ROW, maintaining large stumps. Where old forests cannot be avoided, old structural elements will be retained, where practical. In practice, it will be very difficult to maintain standing dead trees where people will be working, as this puts people at risk. Downed logs may be hard to retain in large quantities, because of the risk of spreading insects and possibly increasing fuel load for fires. Many of these mitigations seem quite infeasible. Given the length of time that it will take for these old forests to regenerate—and particular concerns where MPB has already altered the landscape significantly—more effort should be made to retain old forests. As per other ecological communities of concern, the effect of removing of Douglas-fir forest will vary in magnitude across the length of the pipeline. As per other ecological communities of concern, the effect of removing aspen forests will vary in magnitude across the length of the pipeline. As per other ecological communities of concern, the effect of removing deciduous forest—though not as concerning as some of the others—will still vary across the length of the pipeline.</p>	<p>Additional mitigations must be introduced to reduce the impact in specific areas of the pipeline on ecological communities of concern. The Proponent should identify areas where it will use HDD to retain some portions of ecological communities of concern, particularly in areas where the impact of removing these forests is assessed to be high in magnitude (such as OGMAs or where the ecological community in question is rare; e.g., MPB infested areas). Allowing ecological communities of concern to naturally reseed seems like a recipe for disaster. Areas that will be allowed to regenerate should be replanted with an appropriate mix of trees. Areas that will be retained in early seral should be seeded with a native plant mix. Specific to deciduous forests, we suggest using appropriate equipment or hand-felling to reduce impact on soils and avoid compaction. Specific to alpine/subalpine – access control will be a major issue in these areas. Access must be tightly limited to avoid impacts to surrounding habitat. Since these areas will be permanently lost, the magnitude of effect should be considered high. Other mitigations will likely be necessary to offset this impact.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p> <p>Coastal GasLink continues to apply the mitigation hierarchy as construction planning and detailed engineering design advances. Coastal GasLink will avoid communities of concern where practical or will protect them with the suite of options listed in the Ecological Community and Species of Concern Contingency Plan provided in Section C.9 of Appendix C of the EMP. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in Old Growth Management Areas. Coastal GasLink will develop an Access Control Management Plan and a Traffic Control Management Plan prior to construction in consultation with the appropriate regulatory authorities.</p>		<p>Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding potential adverse effects of the project on ecological communities of concern. In addition to the information provided previously, Coastal GasLink provides the following information to address these concerns. Mitigation to avoid to reduce adverse effects on ecological communities of concern are diverse, and will differ depending on site specific condition. Measures are described in Section 8.5 of the Application, and include: realigning the route, relocating workspace or adjusting the equipment layout or location of the footprint, extending road or watercourse bores (or HDDs), provide alternative measures for equipment to travel past the area of concern, leaving gaps in the spoil pile to avoid plants or plant populations, creating a raised ramp, fencing/flagging community components or populations that are outside the footprint to prevent incidental damage. Coastal GasLink also acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation are concerned about the use of natural regeneration as a reclamation technique, and clarifies that natural recovery will be used to accelerate reclamation of disturbed habitat only if there are no invasive species or erosion concerns. Additional reclamation measures may also be used including: minimum disturbance construction; site preparation to create microsites suitable for seedling establishment and growth (e.g., mounding, spreading woody debris); planting tree seedlings; bio-engineering (e.g., shrub staking/planting); and access control. The techniques proposed for reclamation are based on a deep level of experience on projects of similar scale and complexity. Coastal GasLink also notes that the implementation of mitigation will be monitored during post-construction monitoring, and any issues will be addressed using adaptive management approaches. Coastal GasLink confirms that appropriate equipment and techniques will be applied for vegetation clearing, including in areas with deciduous forest, in order to avoid or minimize risk of erosion and soil compaction. Section 5.5 of the Application discusses potential adverse effects on soil capability, and describes mitigation to address soil compaction. Coastal GasLink also acknowledges the importance of access management and control, and will develop an Access Control</p>

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											Management Plan. As part of the ongoing implementation of the Aboriginal Consultation Plan, the Access Control Management Plan, Traffic Control Management Plan, Environmental Management Plan, Reclamation Plan, and Post-construction Monitoring Plan will be provided to Aboriginal groups for review.
849	Application Section 8.5	8-56 8-58	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Application admits that "in areas where grading occurs within Red-listed communities, the potential adverse effects may approach regulatory tolerance." It is hard to see how the magnitude of effect to red- and blue-listed ecosystems could not be considered high, unless the mitigations are avoidance.	Be clear about where avoidance or boring under the community will be used to ensure impacts are reduced.	Coastal GasLink confirms that as construction planning and detailed engineering design advances, consideration will be given to engineering and environmental factors and avoidance of environmental features of concern such as red-listed communities is considered first. Appendix C.9, Ecological Community and Species of Concern Discovery Contingency Plan of Appendix 2-A explains the procedures to be followed in the event that rare ecological communities or rare plants are discovered during vegetation studies along the Project Footprint or during construction of the proposed Project or ancillary facilities.		
850	Application Section 8.5	8-50	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Hard to find the metrics for each of the regions on the amount of each community of conservation concern that exists in the footprint, LSA and RSA.	Add a summary table for comparison, and refer to it in each subsection. Include a summary of the amount of habitat lost for the duration of the project to early seral, roads and permanent infrastructure, and yearly disturbance.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The requested table is outside the scope of the assessment.		

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851	Application Section 8.5	8-59; 8-99	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states "given the lack of established standards...a qualitative threshold has been developed to define a significant potential adverse effect for the proposed Project." The absence of a quantitative threshold defined prior to the analysis makes the introduction of bias into the judgment of significance inevitable, since it is based on an opinion about whether magnitude is high and the effect is reversible. There is no way to avoid this bias without either a third party review or quantitative thresholds that are defined prior to the analysis.	In the absence of quantitative thresholds, we believe that qualified, third-party specialists should be brought in to measure significance for each biologically relevant segmented portion of the length of the Project LSA. This should also include those portions of the LSA where ancillary physical works are required, which may or may not be physically linked to the pipeline ROW LSA. Where significant effects occur, additional mitigations should be introduced (e.g., HDD to avoid removing habitat or to reduce fragmentation of habitat).	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. .		Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding the use of qualitative thresholds in the determination of significance. Thresholds for significance need to be linked to regulatory requirements or some other established threshold. Where such an established biological or regulatory standard is not available to assess the significance of residual adverse effects, a qualitative significance threshold was defined. The qualitative threshold is supported by both qualitative assessment criteria and quantitative metrics, and is based on previous assessments of projects of similar scale and complexity. The assessment team is composed of qualified professionals who have worked on similar projects, and have experience with the management of potential adverse effects. The approach for defining threshold for significance is aligned with the scope of the assessment defined in the AIR issued by EAO in May 2013. Coastal GasLink also notes that Nak'azdli Band and Nad'leh Whut'en First Nation are concerned about the assessment of the ancillary facilities, and clarifies that the potential adverse effects of ancillary facilities were assessed in the Application using qualitative methods. In the absence of spatial data, the assessment team took a conservative approach that identified potential effects in a precautionary manner (i.e., worst case scenarios). Proposed mitigation approaches will be comprehensive, and will allow for the selection of appropriate mitigation depending on site specific conditions. The assessment team is composed of qualified professionals who have worked on projects of similar scope and complexity, and have the experience to understand the potential adverse effects and appropriate mitigation approaches. Coastal GasLink notes that ancillary facilities will also undergo a comprehensive review as part of the permitting process, and site specific detail will be provided at that time.
852	Application Section 8.5	8-60	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Our previous concern about bias is borne up by the unsupportable finding of not significant across the board for potential residual adverse effects of the project on ecological communities of concern (Table 8-9).	We find this assessment inadequate. A proper assessment of the impacts of the Project on ecological communities of concern cannot be done without: a) certainty about the location of the Project footprint; b) a finer scale of significance analysis, looking at significance within defined portions of the Project-affected area rather than averaging across the pipeline route as a whole; and c) quantitative thresholds for significance or a third-party professional judgment on significance, based on specific and committed-to mitigations in areas where the residual effect prior to mitigations is considered to be high.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. For each residual adverse effect characterized, Coastal GasLink provided a justification for each assessment criteria and conclusion about significance.		

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853	Application Section 8.5	8-65 (Table 8-10 and Appendix 3A in Volume 3 and Section 3.8.7)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Based on the analysis described in 3.8.7 of the Application, it seems surprising that only 4,765 ha of additional land will be disturbed by forest harvesting across the pipeline area by 2019. This analysis should be done across the life of the project (30 years) and should include cutblocks within landscape units crossed by the pipeline—or some other reasonable unit of analysis.	Given that forestry is a major land use across much of the area traversed by the pipeline, it would be reasonable to include an analysis of forest harvesting across the life of the project. This analysis could be aspatial (ha of disturbance) within a defined area (e.g., landscape unit). Adding this would provide a much more realistic analysis of cumulative effects across the landscape.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. As defined by Section 3.11.1 of the AIR only reasonably foreseeable future developments that may result in overlapping effects with the proposed Project are included in the Cumulative Effects Assessment. Future forest harvest locations to 2019 were predicted based on 2008 to 2012 data. Using this data to forecast forest harvest to 2042 would be uncertain and unreliable.		
854	Application Section 8.5	8-75; 8-102	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	For some ecological communities, it may not be possible to reverse adverse cumulative effects. In some cases, the application document admits that the level of disturbance is "approaching regulatory standards" or "approaching regulatory tolerance". This is also true for impacts to traditional use species and species at risk along the pipeline route.	The current cumulative effects analysis for ecological communities of concern is inadequate. Magnitude of cumulative effects for each community should be assessed within biologically-defined spatial "chunks" – not across the pipeline as a whole. Regulatory agencies and third-party biologists need to be involved in determining the risks to communities from the combined cumulative effects on these communities.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that residual adverse effects may differ at specific sites. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are described. When characterizing the residual adverse effect, a range was often described for magnitude to acknowledge the variation. The determination of significance was made using a conservative approach that considers the worst-case scenario. Coastal GasLink confirms that the cumulative effects assessment was completed by an experienced and qualified team with experience in effects assessment using the methodology defined in the AIR, which are appropriate for understanding the context of the project in relation to previous disturbances, the current level of disturbance across the landscape, and reasonably foreseeable future projects. To understand the proposed Project's contribution to cumulative adverse effects, a recognized and acceptable methodology (Hegmann et al. 1999) was applied to understand potential adverse effects of a pipeline project in the Application. Coastal GasLink acknowledges the importance of cumulative effects assessment in the context of regional land use planning, and recognizes that there may be other methods for cumulative effects assessment appropriate to such a regional planning exercise as compared to methods appropriate for project-specific environmental assessment.

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855	Application Section 8.5	8-828-868-1078-108	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As per above, qualitative assessments of the residual cumulative adverse effects on ecological communities of concern are problematic. As per above, qualitative assessments of the residual cumulative adverse effects on plant species of concern are problematic.	In the absence of quantitative thresholds, we believe that qualified, third-party specialists should be brought in to measure significance across biologically relevant segments of the pipeline. Where significant effects occur, additional mitigations should be introduced (e.g., HDD to avoid removing habitat or to reduce fragmentation of habitat). Without a more robust analysis, we cannot support the findings of this application with respect to impacts on ecological communities of concern. With respect to species of concern along the pipeline route, a major gap in the application is the certainty of encountering these species. While pre-construction surveys may be an appropriate mitigation, the timing of impacts along the route means that in some cases, pre-clearing surveys would have no chance of encountering a rare plant or rare ecosystems (e.g., if this survey is done outside of the growing season). Therefore, this mitigation is inadequate and the lack of an appropriate baseline is a glaring problem with the application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding potential adverse effects of the project on ecological communities of concern and plant species of concern. In addition to the information provided previously, Coastal GasLink provides the following information to further address these concerns. Mitigation to avoid to reduce adverse effects on ecological communities of concern are diverse, and will differ depending on site specific condition. Measures are described in Section 8.5 of the Application, and include: realigning the route, relocating workspace or adjusting the equipment layout or location of the footprint, extending road or watercourse bores (or HDDs), provide alternative measures for equipment to travel past the area of concern, leaving gaps in the spoil pile to avoid plants or plant populations, creating a raised ramp, fencing/flagging community components or populations that are outside the footprint to prevent incidental damage. The techniques proposed for reclamation are based on a deep level of experience on projects of similar scale and complexity. Coastal GasLink also notes that the implementation of mitigation will be monitored during post-construction monitoring, and any issues will be addressed using adaptive management approaches. Coastal GasLink will complete pre-construction surveys during the appropriate time of year to identify the presence of rare plants. The EMP also includes an Ecological Community and Species of Concern Discovery Contingency Plan (Appendix C9 of the EMP), which describes the approach should a rare ecological community or rare plant be discovered during vegetation studies along the Project Footprint or during construction of the proposed Project. As part of the ongoing implementation of the Aboriginal Consultation Plan, the Environmental Management Plan, Reclamation Plan, and Post-construction Monitoring Plan will be provided to Aboriginal groups for review.
856	Application Section 8.6	8-90 (Table 8-14)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Suggested mitigation for whitebark pine is planting seedlings and moving trees up to 75 cm tall.	What is the efficacy of this type of mitigation? Has it been tried before? Please provide more information on whether this is possible. A quick review of available information seems to suggest that it's not been very effective to date (see for example: http://www.firelab.org/research-projects/fire-ecology/62-restoring-whitebark-pine).	Coastal GasLink will continue consultation with the appropriate regulatory authorities as construction planning and detailed engineering design advances. Coastal GasLink continues to implement the mitigation hierarchy.		Coastal GasLink acknowledges concerns regarding potential adverse effects of the project on white-bark pine, and is aware of the challenges associated with reclamation of this species. Coastal GasLink's technical specialists are in ongoing dialogue with regulatory authorities regarding white-bark pine, and is exploring additional alternative mitigation strategies. This information will be described in the Reclamation Plan. Coastal GasLink will also implement a

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
											Post-Construction Monitoring Program with the purpose of monitoring the effectiveness of mitigation, and taking an adaptive management approach where issues are identified. As part of the ongoing implementation of the Aboriginal Consultation Plan, the Reclamation Plan and Post-construction Monitoring Plan will be provided to Aboriginal groups for review.
857	Application Section 8.6	8-92 (Table 8-14)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Effects on traditionally important plant species: as noted above, a lack of a proper methodology for collecting traditional use information means this analysis is inadequate.	Full traditional use studies with affected First Nations, including on-territory mapping components and the collaborative development of a series of indicators of relevance to their use of traditional plants, would be required to make this analysis adequate.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Nak'azdli Band and Nad'leh Whut'en First Nation chose to conduct a TLU study for the Project with a third-party consultant. This TLU study was summarized from the preliminary draft study, received before project filing. A final study had not been provided to Coastal GasLink at the time of filing. Permission to use this report in the Assessment was granted to Coastal GasLink on October 16, 2013. This information contributed to the overall effects assessment of the Project, and is available in Section 23.8 of the application.		
858	Application Section 8.6	8-97	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Effects to whitebark pine are listed as medium. It is hard to see how these could not be assessed as high, particularly given the legislation that prohibits damage to or destruction of the trees, as well as the lack of information about potential locations of whitebark pine across the pipeline.	The impact should be assessed as high and additional, specific mitigations that ensure no damage to this species should be proposed.	Coastal GasLink will continue consultation with the appropriate regulatory authorities as construction planning and detailed engineering design advances. Coastal GasLink continues to implement the mitigation hierarchy.		
859	Application Section 8.6	8-98; 8-104	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Effects to traditional use species are assessed as low to medium in magnitude, not significant, with high confidence.	The confidence must be considered low, given the current absence of information on traditional use species and the lack of an appropriate way to measure the impact. With this low confidence, additional data collection is critical to a defensible estimation of effects on traditional use plants.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that a summary of traditional plant use for potentially affected First Nations communities, as identified to Coastal GasLink, can be found in Table 4-1, Section Volume 2J of the Vegetation Technical Discipline Report TDR. This table summarizes the issues and concerns raised related to Vegetation Resources, as well as the mitigation identified by Aboriginal groups. Issues tables for each Aboriginal group are found in Section 23 of the Application. These tables list each Aboriginal group's issues and concerns regarding vegetation as well as Coastal GasLink's responses to the issues raised. Coastal GasLink's responses to these issues point to individual sections within the Application that address the issues and concerns raised by each Aboriginal group. Coastal GasLink confirms that a determination of significance for residual adverse effects on current use of land and resources for traditional purposes (including the traditional use of plants) can be found in		Coastal GasLink understands that that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns about the methodology for determining confidence in the significance conclusion. In addition to the information previously provided, Coastal GasLink clarifies that Section 3.7 of the Application outlines the methods applied to determine confidence in the characterization of residual adverse effects. Level of confidence is influenced by numerous factors, including the availability of data, precedents, and degree of scientific uncertainty or other factors beyond the control of the assessment team. A conclusion was based on either a low, moderate or high level of confidence (as defined in Section 3.7 of the Application), and each of the characterizations of residual adverse effects presented in Sections 4 to 20 of the Application provide a justification for the determination of confidence made.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									Table 16-6 of Section 16. Further detail regarding the determination of significance and confidence, please refer to Section 16.6.5.		
860	Application Section 9.2.5	9-11	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document notes that quantitative thresholds have not been established so a qualitative significance threshold has been defined for the wetland function VC.	A lack of a quantitative threshold for assessing impacts means that there is a risk of bias entering the determination of significance. In the absence of quantitative thresholds, third-party professionals should be asked to review and provide their assessment of the significance of impacts.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding the use of qualitative thresholds in the determination of significance. Thresholds for significance need to be linked to regulatory requirements or some other established threshold. Where such an established biological or regulatory standard is not available to assess the significance of residual adverse effects, a qualitative significance threshold was defined. The qualitative threshold is supported by both qualitative assessment criteria and quantitative metrics, and is based on previous assessments of projects of similar scale and complexity. The assessment team is composed of qualified professionals who have worked on similar projects, and have experience with the management of potential adverse effects. The approach for defining threshold for significance is aligned with the scope of the assessment defined in the AIR issued by EAO in May 2013.
861	Application Section 9.4	9-16	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The proposed route is close to two IBAs: the Stuart River IBA and the Fraser Lake IBA. Stuart River is only 1 km from the proposed route; Fraser Lake is 1.5 km.	LSA should be extended to include these IBAs, since disturbance – particularly during construction – may be a factor that affects waterfowl use of these areas. Proximity of pipeline to Fraser Lake IBA is a concern. How will this area be impacted? A specific analysis of the impact of the proposed pipeline on Fraser Lake IBA, including location-specific estimation of effects significance, should be included.	Coastal GasLink confirms that an assessment of the potential adverse effects of the proposed Project on birds is provided in Section 10 of the Application. Relative to the Stuart River and the Fraser Lake Important Birds Areas, the proposed Project is outside of the recommended setback distances for wetlands and birds in British Columbia (BC MWLAP 2004, BC MOE 2012, BC OCG 2013). Reference: British Columbia Ministry of Water, Land and Air Protection. 2004. Wildlife Habitat Features Summary of Management Guidelines Northern Interior Region - Draft. Victoria, BC. British Columbia Ministry of Environment. 2012. Develop with Care 2012: Environmental Guidelines for Urban and Rural Land Development in British Columbia. Website: http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2012/index.html . Accessed: July 2013. British Columbia Oil and Gas Commission. 2013. Environmental Protection and Management Guide. June 2013. Website:		

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									http://www.bcogc.ca/document.aspx?documentID=927&type=.pdf . Accessed: July 2013.		
862	Application Section 9.4	9-21 - 9-24	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>413 TEM plots were located in wetland ecosystems. In addition, 541 wetlands were surveyed for staging waterfowl; 591 were surveyed for breeding waterfowl; 52 for pond-dwelling amphibians; 9 for American bittern or yellow rail. Wetland estimates from aerial imagery interpretation are 5.8% of the LSA; TEM estimated 6.7% of the LSA. RSA estimates are based on projections from the LSA, using the premise that the percentage of wetland area calculated in the LSA will be representative of wetland area in the Wetlands RSA.</p> <p>20 wetland ecological communities at risk were identified in the wetlands LSA: two red-listed wetland communities and 18 blue-listed wetland communities. According to TEM, red and blue-listed wetland communities cover 4,041 ha of the wetland LSA. Rare plant surveys identified 14 provincially listed wetland plant species in the wetlands LSA: two red-listed and 12 blue-listed species. Wildlife surveys identified wetland habitat in the Wetlands LSA that provides suitable habitat for vertebrate species at risk. No field data were collected in the Stuart River Crossing – Alternate Corridor (KP 289+400 to 300+000). This is approximately 108 ha of land. The corridor contains a total of approximately 6.7 ha of wetland.</p> <p>Approximately 67% of the total area of wetlands in the Boreal Plains ecoprovince are listed, 37% in the Sub-Boreal Interior ecoprovince, 60% in the Central Interior ecoprovince, and 29% in the Coast and Mountains. In total, 5,628 ha of ecological communities at risk were identified throughout the Wetlands LSA (45%). 5238 of these are blue-listed, while 390 ha are red-listed.</p>	<p>Projecting wetland occurrence in RSA based on LSA is a huge assumption. Is there any confidence in this approach? What is the science to support this approach? If it overestimates wetlands in the RSA, the end result could be an underestimate of the significance of losing wetlands in the LSA. Why not back up estimates with aerial imagery interpretation of the RSA?</p> <p>It seems confusing that the aerial wetland interpretation results are not quoted in the Wetlands TDR as part of the overviews in part 3. For example from section 3.2.3, the TDR notes that broad ecosystem mapping delineated 25,392 ha of wetlands and floodplains in the Wetlands RSA. Of this area, only 4% is in the LSA</p> <p>A conservative approach would suggest additional work to characterize the potentially over 4000 ha (or over 5000 ha, depending on which set of numbers is believed) of red and blue-listed wetlands in the wetland LSA. Further field work should be done in the upcoming season to characterize these areas.</p> <p>Table 3-17 in the TDR: what are the areas of each wetland type in the footprint and LSA based on? Which methodology? Same question for Table 3-19.</p> <p>Overall, the combination of different sources of information for estimating wetland distribution is confusing. It would be helpful to be very clear at the outset which methodology is used and why, to avoid conflicting information.</p> <p>More focused additional data collection is required in red and blue-listed wetland ecosystems in the LSA.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p> <p>During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for pipeline route selection is provided in Section 1.4.4 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy.</p> <p>Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.</p>	<p>Coastal GasLink acknowledges that the assessment uses multiple data sources; however, different data sources are used to address different assessment needs. For example, TEM is a standard method for vegetation mapping in BC, but since TEM allows larger complex polygons, the specific locations of small wetlands (e.g., less than 2 ha) may not be identified within a larger upland polygon. TEM does identify site associations, which are used to determine conservation status of communities in BC, which addresses the need for information on Ecological Communities of Concern, discussed in the Vegetation section (Section 8). The projected wetland areas in the Wetland RSA are presented to compare estimates between different datasets (i.e., in Table 9-4) and conceptualize the occurrence of wetlands on a landscape scale. For analysis of cumulative effects, a spatial dataset is required to identify the area of wetland affected existing and future disturbance in the Wetland RSA. The mapping of the Wetlands RSA for the cumulative effects assessment uses an accepted BC government database, the BC Freshwater Atlas wetlands layer, which is considered an authoritative source for mapping freshwater resources in BC (ILMB 2010). Using provincial databases is an accepted methodology for assessing effects on a regional scale. The BC Freshwater Atlas is the best known data source currently available for mapping wetlands on a watershed scale; the Wetland RSA covers more than 6,000,000 hectares.</p> <p>The wetland aerial imagery interpretation at a 1:6,000 scale is included in Section 9.4.3 of the Application.</p> <p>Red and Blue-listed communities are characterized through TEM, which follows provincial standards for scale and survey intensity level. In Table 3-17 and Table 3-19 in the Wetland TDR are based on TEM, a standard method for vegetation inventory in BC.</p>	

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											Integrated Land Management Bureau. 2010. Freshwater Water Atlas User Guide. GeoBC Integrated Land Management Bureau. Victoria, BC. iv + 70 pp.
863	Application Section 9.4	9-24 9-30 p. 1 p. 23 p. 25 p. 42 p. 48, p. 54 p. 115 9-37	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Wetlands are important traditional use areas to First Nations located along the proposed pipeline route. They filter water and provide habitat for culturally important plants and animals. Insufficient methodology for collection of TEK—including the complete lack of information from the Nadleh First Nation—means that the data used for assessing traditional use in wetlands located within the Project footprint and LSA are insufficient.	Without properly gathered and integrated TEK re: wetlands for each affected First Nation, the application cannot be considered to have integrated First Nations information into the assessment. We find the current level of effort with respect to integrating traditional use of and values associated with wetlands into the application inadequate. The Application should be found deficient until this information can be collected and integrated.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Aboriginal participation during the wetlands field surveys identified wetlands of special interest and concern. Related wildlife and vegetation specific TEK can be found in Sections 10 and 8 respectively. Nak'azdli Band elected to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies.		
864	Application Section 9.5.1	9-31	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that permanent facilities (compressor stations and meter stations) and temporary disturbance (stockpiles, laydowns, camps) have been sited to avoid wetlands wherever feasible. This is clearly an incomplete statement, given that the locations of many ancillary facilities have yet to be decided.	Was avoidance feasible in all cases? If not, where exactly will wetlands interact with Project components and activities? Please provide a detailed map, including all physical works and activities that may have interactions with wetlands. Please identify whether the Proponent is committed to situate all yet-to-be defined ancillary facilities at an appropriate (defined) distance away from wetlands.	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of temporary workspace and access roads is provided in Section 1.4.13 and 1.4.15 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.		
865	Application Section 9.5.1	9-35 9-43	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that tree removal around forested wetlands during forestry operations has been shown to increase sediment and nutrient loads. One of the key mitigations in Table 9-8 is to conduct ground level	Please clarify this mitigation. Since this is Coastal GasLink's Application, one would expect Coastal GasLink would approve of and commit to all listed mitigations.	Coastal GasLink will comply with all applicable legislation and follow regulatory direction for the Project including implementation of mitigation deemed appropriate by the regulatory authorities. The mitigation to avoid or reduce potential adverse effects presented in the Application		Coastal GasLink notes that the statement "the method of wetland vegetation removal is subject to approval by Coastal GasLink" refers to the construction management oversight role of Coastal GasLink in determining construction methods.

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							cutting/mowing/mulching of wetland vegetation instead of grubbing. The document states that "the method of wetland vegetation removal is subject to approval by Coastal GasLink".		is included in the comprehensive assessment completed in accordance with the AIR issued by the EAO in May 2013.		
866	Application Section 9.5.1	9-369-44	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	There are potential adverse effects from ancillary sites such as stockpile sites and laydown areas. The document states that "if dust control includes application of dust control compounds, there could be potential residual adverse effects on biogeochemical function."The document discusses the possibility of using herbicides (presumably to control invasive plants).	Any application of chemicals at or near wetlands is a huge concern for First Nations living along the pipeline route. Coastal GasLink must prohibit use of such chemical and look for alternatives that will not impact water quality and traditional use species.Nak'azdli and Nadleh have expressed that no herbicide or pesticides will be used in their traditional territories. The Proponent needs to reconsider and revise its approach accordingly to remove use of herbicides and pesticides in Nak'azdli and Nadleh territories.	Coastal GasLink respects the request by the affected First Nations to avoid the use of pesticides or herbicides within their traditional territory. As Coastal GasLink develops its invasive plant management plan, consideration will be given to other options of vegetation control.		
867	Application Section 9.5.1	9-44	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that water quality monitoring plans will be developed "as needed" to monitor for sediment events during instream construction activities. There is little information in the mitigations table (9-8) detailing how the restoration of wetland function (all three components) will be monitored.	How will restoration of wetland function (all three components) be monitored? Each wetland that is crossed by the pipeline must have a full monitoring program implemented to ensure wetland function is returned to pre-disturbance conditions. In the event that wetlands are lost, compensation should be required. Please provide more detail on the proposed monitoring program to ensure wetland function is not impaired along the pipeline route.	Coastal GasLink will develop a Post Construction Monitoring Plan as described in Section 9.0 of the EMP in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.		
868	Application Section 9.5.1	9-45	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document uses a qualitative assessment of wetland function to assess the significance of potential residual adverse environmental effects, though it is informed by a quantitative assessment of the wetland area affected by the proposed Project – the assessment quantifies the total area of wetland and the area of treed wetland habitat disturbed by the proposed route. No thresholds (qualitative or quantitative) have been established for what would define a significant effect.	In the absence of clear thresholds defined prior to the analysis, it is hard to avoid the possibility of bias in judgment calls about the relative significance of losing wetland habitat and function in specific areas traversed by the pipeline. The document should define clear thresholds or have the significance of residual impacts judged independently by third-party biologists.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns regarding the use of qualitative thresholds in the determination of significance. Thresholds for significance need to be linked to regulatory requirements or some other established threshold. Where such an established biological or regulatory standard is not available to assess the significance of residual adverse effects, a qualitative significance threshold was defined. The qualitative threshold is supported by both qualitative assessment criteria and quantitative metrics, and is based on previous assessments of projects of similar scale and complexity. The assessment team is composed of qualified professionals who have worked on similar projects, and have experience with the management of potential adverse effects. The approach for defining threshold for significance is aligned with the scope of the assessment defined in the AIR issued by EAO in May 2013.

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869	Application Section 9.5.2	9-45	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that the proposed route and associated facilities encounter approximately 234 ha of wetlands, including 108 ha of treed wetland habitat. 219 ha will be temporarily altered. Treed wetlands will be lost to shrub vegetation until decommissioning and abandonment. Permanent facilities are expected to disturb 15 ha, including 8 ha of treed habitat. Three compressor stations (Wilde Lake, Sukunka Falls and Raccoon Lake) include some wetland area in their proposed footprints. The document suggests that Coastal GasLink will, if warranted, develop a compensation plan in conjunction with appropriate regulatory agencies. The area of wetland expected to be disturbed (234 ha) is approximately 3% of the total area of wetlands in the LSA. The current condition of these wetlands is unknown. The amount of wetland within the LSA and RSA that will be impacted by the proposed development is unknown.	Has the total amount of wetlands been identified using aerial photographic interpretation? Please confirm where these numbers came from. It is lower than expected if the numbers from the LSA were proportional to the numbers from the footprint. Nak'azdli and Nad'leh note that again, without the location of ancillary physical works and activities defined, it is impossible to identify whether those physical works are included in this number. How will the Wetlands Compensation Plan development and implementation be monitored to ensure that loss of wetland function will be fairly compensated and First Nations inputs incorporated? Coastal GasLink should include a wetland habitat compensation plan in its Application for a) all of the wetland permanently lost to structures such as the compressor stations or new roads; b) some portion of the wetlands that occur within the project footprint.	Coastal GasLink confirms that the 234 ha of expected disturbance of wetlands on the proposed route noted in Section 9.5.2 of the Applications, is the area of wetland identified in the construction footprint. The 2 km wide Wetland LSA includes wetlands that will not be crossed by the construction footprint, so the area disturbed by the construction footprint would not necessarily be directly proportional to the wetland area in the Wetland LSA. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of temporary workspace and access roads is provided in Section 1.4.13 and 1.4.15 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.		
870	Application Section 9.5.2	9-48 9-49 9-51	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The estimation of impact duration as short is problematic. Though clearing and construction occurs over a relatively short duration, at least portions of wetland that are crossed or impacted by the project will be permanently altered until the project is decommissioned. The duration cannot be considered short for these effects.	Define how much wetland will be lost permanently or for the life of the Project and change this duration rating accordingly. This could create an important change to the characterization of residual impact significance and extent of required mitigation and monitoring/follow-up.	The area of wetland estimated to be permanently affected by compressor and meter stations is approximately 15 ha. The definition of duration is presented in Section 3.7 of the AIR. The AIR defines short-term as "the event occurs during the construction phase or is completed during any one year in the operations phase." As permanent facility construction would be completed in the construction phase, duration is deemed short-term. Reversibility reflects the time period over which residual effects extend, and is deemed long-term to reflect that wetland function in some locations may be altered or lost until appropriate alternative mitigation strategies such as compensation are implemented. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.		
871	Application Section 9.5.2	9-48 9-50 9-52	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	There are major issues with assigning a magnitude of low to medium across the entire length of the pipeline. In some areas, the magnitude of the potential effects may be high, and additional mitigations may be required. It is hard to assess within the scale of the pipeline as a whole, with the information currently available in the application. The document states: Wetlands in all regions crossed by the proposed route are affected by forestry activities, and wetlands in areas that have seen heavy logging pressure might be more sensitive to further disturbances and less likely to recover to pre-disturbance function. This statement supports the need for	Effects should be assessed within defined areas (smaller chunks) of the pipeline that are biologically meaningful or better represent the landscape conditions. Given the length that the pipeline traverses, it is not relevant to assess the magnitude of the effects across the entire length as though the ecology and existing impacts do not vary along the route. The analysis should be redone at a different scale – possibly using watersheds or landscape units defined for LRMPs, where they exist. Until the analysis is re-conducted in this manner, we find that the Application does not do an adequate job of assessing the effects of the proposed pipeline on sensitive wetland areas located along the pipeline route. In some cases, further analysis may reveal a significant impact to wetland function from the proposed pipeline. In these areas, Coastal GasLink must be open to the option of using HDD or rerouting to avoid wetlands that are deemed too sensitive to disturb.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of compressor and meter stations is provided in Section 1.4.14 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.		Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that residual adverse effects may differ at specific sites. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are described. When characterizing the residual adverse effect, a range was often described for magnitude to acknowledge the variation. The determination of significance was made using a conservative approach that considers the worst-case scenario.

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							finer scale analysis of the impact on wetland function in some areas that the pipeline crosses. Earlier in the document, there is detailed information about red and blue-listed wetlands that occur within the Project LSA and could be impacted by the proposed pipeline. These are areas in which the loss of hydrologic function should be further assessed. There are likely other areas (e.g., important moose habitat) that should be included for more detailed analyses of the relative importance of losing wetland function in these areas.				
872	Application Section 9.5.3	9-53	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The finding of not significant for all three potential residual adverse effects across the entire pipeline is hard to support.	As above, the problem here is scale. In some areas, wetlands may recover function after disturbance but in others, wetland function may be permanently lost. This risk must be accounted for within the Project application, either through improved mitigations or some form of compensation. A blanket assessment of not significant with high confidence across the entire 650 km length of the pipeline shows a blatant disregard for the variation in existing conditions and relative wetland values along the proposed route. Additional work should be done to characterize the wetlands along the route, document what will be lost permanently and what is likely to recover, determine the significance of loss (temporary or permanent) in consideration of existing wetland conditions and incorporating other factors such as important habitat functions and rarity, and propose mitigations and compensations based on these findings. Without this type of analysis, the findings of "not significant, high confidence" across the entire route cannot be supported.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 9.5.3 provides information about the determination of significance in accordance with the methodology defined in the AIR in Section 3.9.		Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that residual adverse effects may differ at specific sites. Characterization of wetlands along the proposed route was addressed in the ground-survey fieldwork performed as part of Terrestrial Ecosystem Mapping (TEM). Mitigation for Red-and Blue listed ecological communities not identified in ground-surveys is addressed through mitigation in the Environmental Management Plan (EMP) and the Ecological Community and Species of Concern Discovery Contingency Plan described in Appendix C of the EMP (Appendix 3-A). The assessment identifies that temporary disturbance due to pipeline construction and operations are not expected to result in a loss of wetland function. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are described. When characterizing the residual adverse effect, a range was often described for magnitude to acknowledge the variation. The determination of significance was made using a conservative approach that considers the worst-case scenario. Coastal GasLink will also implement a Post-Construction Monitoring Program to monitor the recovery of wetland function at wetlands affected by the proposed Project. Remedial mitigation measures will be prescribed to address loss or alteration of wetland function observed in post-construction monitoring. Wetland exhibiting loss or alteration of wetland function following the post-

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											construction monitoring program will be addressed at that time in consultation with appropriate regulatory agencies.
873	Application Section 9.5.5	9-56	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Given the intensive forestry that has occurred within MPB affected areas along the pipeline route, there may well be pre-existing significant cumulative effects on wetlands in these areas.	As above, these areas should be assessed at a more detailed spatial scale to determine if wetland compensation is needed.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of compressor and meter stations is provided in Section 1.4.14 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.		
874	Application Section 9.5.5	9-59	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Approximately 20% of the total wetland area in the wetlands LSA will have been disturbed, with the Project and reasonably foreseeable developments. Within the wetlands RSA, approximately 13% of the wetland area has been affected by existing activities, and with the proposed project and other foreseeably developments, this goes up slightly but the total stays at 13%. The document states that loss of wetland ecosystems is not anticipated to result from pipeline installation or maintenance (construction and operations phases) in wetlands. Similar statements are made for other proposed Projects (see p. 9-60).	This is not a valid statement for all areas, especially where permanent structures will be placed or where permanent roads will be built. Wetland function can also be lost in areas that are particularly sensitive to development. Though the document acknowledges these losses from permanent structures, it does not account for some portion of the wetlands along the pipeline route being permanently lost because of the pipeline. The Proponent is requested to identify evidence from published literature that wetland ecosystems loss is not caused by pipeline installation or maintenance.	Coastal GasLink expects that loss of wetland function resulting from pipeline construction and operation will be appropriately mitigated, which may include implementation of alternate mitigation strategies. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted. The discussion of potential effects in Section 9.5 presents a review of literature that identifies the expected effects of temporary disturbance on wetland function. Temporary disturbance as a result of pipeline construction and operations is not expected to result in a loss of wetland function.		

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875	Application Section 9.5.6	9-62 9-66	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As per the analysis of project effects above, the analysis of cumulative effects suffers from a lack of detail in specific areas of the proposed pipeline route. A finding of low/medium magnitude, and insignificant cumulative effects, cannot be supported across all areas of the pipeline. This is particularly true in areas that have been highly impacted by forestry (e.g., MPB salvage) and where other disturbances are also creating impacts to wetlands. Some of these areas may well already be in a state of pre-existing significant adverse effects on wetland ecosystem function, which needs to be understood by looking at location-specific attributes in areas where the pipeline Project is most likely to impact on sensitive wetland areas. Averaging the loss of wetlands across the pipeline as a whole is not a valid way to conduct a cumulative effects analysis and is likely to mask existing and potential significant cumulative adverse effects.	Additional work should be done to characterize the wetlands along the route, document what will be lost permanently and what is likely to recover, determine the significance of loss (temporary or permanent) in consideration of existing wetland conditions and incorporating other factors such as important habitat functions and rarity, and propose mitigations and compensations based on these findings. Without this type of analysis, the findings of "not significant, high confidence" for cumulative effects on wetlands across the entire route cannot be supported.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of compressor and meter stations is provided in Section 1.4.14 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns regarding the approach taken to assess cumulative adverse effects. In addition to the information previously provided, Coastal GasLink confirms that the cumulative effects assessment was completed by an experienced and qualified team with experience in effects assessment using the methodology defined in the AIR, which are appropriate for understanding the context of the project in relation to previous disturbances, the current level of disturbance across the landscape, and reasonably foreseeable future projects. To understand the proposed Project's contribution to cumulative adverse effects, a recognized and acceptable methodology (Hegmann et al.1999) was applied to understand potential adverse effects of a pipeline project in the Application. Coastal GasLink acknowledges the importance of cumulative effects assessment in the context of regional land use planning, and recognizes that there may be other methods for cumulative effects assessment appropriate to such a regional planning exercise as compared to methods appropriate for project-specific environmental assessment.
876	Application Section 10.2.2	N/A	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Insufficient methodology for collection of TEK—including the complete lack of information from the Nadleh First Nation—means that the data used for assessing traditional use in wetlands located within the Project footprint and LSA are insufficient. Note: This is a widespread concern throughout the Application for Nak'azdli and Nadleh.	The methods for collecting TEK have produced information that is in no way representative of the knowledge of land, water, wildlife and other values held by Nak'azdli or Nadleh people. Identify what measures Coastal GasLink will take to address the large deficit in TEK information, which holds critical information for the EA phase of approvals.	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Nak'azdli Band chose to provide field participants on biophysical field studies but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. Review of discussions of potential Project-related adverse effects and mitigation strategies described in this report were conducted directly with participating community members during the field surveys. Confirmation of the accuracy of discussed information in Project planning occurred during community results review as described in Section 3.2.2 of the Application.		Coastal GasLink understands that Nak'azdli Band and Nadleh Whut'en First Nation are concerned with the collection of ATK/TEK. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Opportunities continue to be provided to Aboriginal groups to share TEK during field program participation. Nak'azdli Band elected to provide field participants on biophysical field studies but not to share TEK. The field programs include discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. Should additional ATK/TEK be made available to Coastal GasLink, the information will inform advancing construction planning and detailed engineering design and the discussion of site-specific mitigation.

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877	Application Section 10.2.2	10-14 (Table 10-3)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	No traditional knowledge is referenced in this table on caribou use of land, sensitive timing windows or most important habitat. The proponent uses caribou ranges identified by the Province as spatial boundaries for the assessment of impact to this species. Caribou throughout Nak'azdli and Nadleh Whut'en lands are predominately in low density (not captured by the cited ranges), likely due to cumulative impacts of current developments and interactions with moose. These caribou are historically harvested and are of cultural importance (for example one of the five Nak'azdli's clans is called caribou or Kwun Ba Whuten, as is one of the Nadleh Whut'en's five clans (Luk sil yoo)).	1. Nak'azdli and Nadleh request the proponent integrate traditional knowledge into best practices to avoid impacts to caribou, both in terms of timing and most sensitive habitats. 2. The Proponent should be required to work with the First Nations to identify and incorporate meaningful mitigations to reduce potential Project impacts to caribou, which Nak'azdli and Nadleh are hoping to re-establish in preferred areas of former abundance throughout our territories.	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Information regarding caribou and caribou habitat gathered from TEK participants on biophysical field studies as well as information identified through review of publically available literature is available in sections 4.2 and 4.3 of Volume 2L of the Application. This information was considered in the assessment of potential adverse effects on caribou presented in Section 10. Issues and concerns regarding caribou and caribou habitat identified through engagement with potentially affected Aboriginal communities are presented in Section 23. Coastal GasLink will continue to follow its Aboriginal Consultation Plan approved by the EAO which includes discussing mitigation with Aboriginal groups.		Coastal GasLink understands that Nak'azdli Band and Nadleh Whut'en First Nation are concerned with the collection of ATK/TEK. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Opportunities continue to be provided to Aboriginal groups to share TEK during field program participation. Nak'azdli Band elected to provide field participants on biophysical field studies but not to share TEK. The field programs include discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. Should additional ATK/TEK be made available to Coastal GasLink, the information will inform advancing construction planning and detailed engineering design and the discussion of site-specific mitigation.
878	Application Section 10.2.2	10-14 (Table 10-3)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Provide a map showing all UWR, OGMAS and WHAs, as well as protected areas, in relation to the proposed pipeline route.	There is a map in the wildlife TDR; however, it should be clearly cited in the main Application and OGMAs should be added to figures in Section 10.	Coastal GasLink has provided mapping of the Application corridor and OGMAs to EAO. Figure 4-6 in the AIR shows the provincially identified wildlife areas.		Figure 4-1 in the Wildlife and Wildlife Habitat TDR shows proposed and designated UWRs as well as proposed and designated WHAs. Protected areas are shown in Figures 1-1, 1-2, 1-3 and 1-4 of the Social Technical Report.
879	Application Section 10.3.1	10-20	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Project footprint is defined as a 100 m wide corridor, which would encompass the permanent ROW and likely temporary workspace, in addition to proposed permanent facility locations. Missing from the Project footprint and LSA are specific locations of many of the ancillary required physical works and activities.	As requested previously: 1. Provide a review of edge effects literature, identify how far edge effect are likely to extend into the adjacent forest around the ROW. 2. Provide appropriate footprint and LSA locations for all ancillary physical works and activities which are not inside the current LSA.	Coastal GasLink confirms that potential effects of edge habitat are discussed in Sections 10.5.1 (related to reduced habitat effectiveness, predation, parasitism, changes in vegetation communities), and 10.5.2 (related to movement). Section 10.9 provides information about edge effects specific to mammal KIs, and Section 10.11 provides information about edge effects specific to bird KIs. References are listed in Section 10.18 of the Application. Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application and evaluation criteria for selection is described in Section 1.4. The assessment considers potential adverse effects associated with temporary facilities, including roads, in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the information will be provided to appropriate regulatory authorities during permitting.		

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880	Application Section 10.5	10-29 10-33 10-95 10-107 Pg. 31 Pg. 25 and 27 Various other locations	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document refers to "ATK shared during wildlife field studies" – generally any information or opinions shared by First Nations members during field work should not be considered ATK.	Nak'azdli has made it clear that this is not considered an adequate way to collect traditional knowledge. Additional ATK/TEK data collection is required. The application must note these inadequacies in TEK data collection and not imply that the ATK data were verified when several First Nations rejected that data outright. Remove references to ATK unless there was a systematic, community-led process for collecting traditional knowledge.	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Nak'azdli Band chose to provide field participants on biophysical field studies but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadle Whut'en First Nation chose not to participate in biophysical field studies. Review of discussions of potential Project-related adverse effects and mitigation strategies described in this report were conducted directly with participating community members during the field surveys. Confirmation of the accuracy of discussed information in Project planning occurred during community results review as described in Section 3.2.2 of the Application. Issues and concerns identified through engagement with potentially affected Aboriginal communities are presented in Section 23. Coastal GasLink will continue to follow its Aboriginal Consultation Plan approved by the EAO which includes discussing mitigation with Aboriginal groups.		Coastal GasLink understands that Nak'azdli Band and Nadle Whut'en First Nation are concerned with the collection of ATK/TEK. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Opportunities continue to be provided to Aboriginal groups to share TEK during field program participation. Nak'azdli Band elected to provide field participants on biophysical field studies but not to share TEK. The field programs include discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadle Whut'en First Nation chose not to participate in biophysical field studies. Should additional ATK/TEK be made available to Coastal GasLink, the information will inform advancing construction planning and detailed engineering design and the discussion of site-specific mitigation.
881	Application Section 10.5	10-30	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	That document quotes Harper et al. 2001 to suggest that the creation of a small portion of young seral habitat, in most cases, is not expected to influence most wildlife populations and might result in habitat enhancement effects. This statement is not useful because it is generally the rare species, and the ones that require old forest, that are impacted by permanent conversion to young seral stages. It is uncertain what a 60 m corridor will do to the ability of small mammals to move across this opening. Habitat enhancement usually only happens for habitat generalists, mixed habitat or early successional species. The creation of early seral stages may destroy rare and endangered flora, introduce weeds and/or prevent the regeneration of suitable vegetation. While perhaps this is considered an acceptable risk, certainly some species will be impacted by it, and the application must make this clear.	Please improve this section with a more recent literature review of the potential adverse effects of pipeline right of ways on rare species, small mammals and species that require old forest. If there are impacts, mitigations such as regular use of HDD to maintain habitat connections ("bridges") could reduce the significance of the impact.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR. Coastal GasLink will develop a Reclamation Plan prior to construction in consultation with the appropriate regulatory authorities.		
882	Application Section 10.6	10-34	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states one of the ways they have avoided or reduced potential adverse effects from the proposed Project on wildlife is through following existing linear disturbances. The proponent should be required to provide a summary of other pipelines proposed across northeastern and how routes have been aligned. Surely impacts will be less if all routes can be aligned to the extent	The cumulative effects of multiple, privately owned pipelines crossing what is currently relatively intact, functioning habitat must be assessed by government.	EAO to respond. Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		

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							possible and mitigation measures pooled by respective companies.				
883	Application Section 10.6	10-46	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document lists a number of sensitive windows for raptor species and owls. It is hard to assess whether construction timing will respect these windows.	Recommend adding a diagram showing timing windows for all sensitive species (including songbirds, raptors, owls, ungulates) and how construction will respect these timing windows.	Coastal GasLink will continue to consider sensitive timing windows as construction planning and detailed engineering design advances. Coastal GasLink will consult with the appropriate regulatory agencies to develop alternate mitigation measures to address potential Project effects on sensitive wildlife species if timing windows cannot be practically adhered to.		
884	Application Section 10.6	10-46	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	How will personnel on the ground know that they need to protect nests and apply for a Nest Removal Management and Compensation Plan if a nest needs to be removed?	Explain how personnel, including all contractors, will receive training on these wildlife feature mitigations, and how quality control will be implemented. Recommend adding incentives to ensure nests are identified to appropriate personnel.	Coastal GasLink will provide orientation about environmental issues for all construction personnel. Section 25.2 of the application provides information about implementation of the EMP, including compliance monitoring. The EMP contains information about environmental compliance in Section 4.		
885	Application Section 10.6	10-48	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	How will bat hibernacula and maternity roosts be identified?	Explain the training that personnel will receive to identify bat hibernacula and maternity roosts.	Coastal GasLink will provide orientation about environmental issues for all construction personnel. Section 25.2 of the application provides information about implementation of the EMP, including compliance monitoring. The EMP contains information about environmental compliance in Section 4.		
886	Application Section 10.6	10-48	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	How will listed species or sensitive species be identified during construction?	Please explain how construction personnel will identify listed species, sensitive species, or species with special conservation status. Suggest implementing measures that encourages the reporting of important wildlife features and species. Recommend that a qualified professional biologist be retained at all times to ensure that any identified wildlife features or species are dealt with as appropriate. Without these measures, it seems hard to believe that these mitigations will be implemented with any kind of certainty.	Coastal GasLink will provide orientation about environmental issues for all construction personnel. Section 25.2 of the application provides information about implementation of the EMP, including compliance monitoring. The EMP contains information about environmental compliance in Section 4.		
887	Application Section 10.6	10-49	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As a whole, these mitigations do not go far enough to reduce residual effects to the extent possible.	The proponent should look at innovative measures for avoiding wildlife and wildlife habitat impacts. Some innovative measures might include wildlife bridges over the ROW to connect habitat, HDD under features such as OGMAs, WHAs or portions of UWR, and rerouting to avoid UWRs altogether.	Coastal GasLink will continue to implement the mitigation hierarchy as construction planning and detailed engineering design advances.		
888	Application Section 10.9	10-64	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The report states that ATK was considered in characterizing potential residual adverse effects	ATK was not sufficient for characterizing residual effects. This statement should be removed or a full TEK study, including a properly structured on-territory mapping component, should be conducted with each First Nation in their respective traditional territories.	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Nak'azdli Band elected to provide field participants on biophysical field studies but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleleh Whut'en First Nation chose not to participate in biophysical field studies. Review of discussions of potential Project-related adverse effects and mitigation strategies described in this report were conducted directly with participating community members during the field surveys. Confirmation of the accuracy of discussed information in Project planning occurred during community results review as	Coastal GasLink understands that Nak'azdli Band and Nadleleh Whut'en First Nation are concerned with the role of ATK in the characterization of potential adverse effects. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued May 2013. A comprehensive review of available information was compiled to support the assessment. Opportunities continue to be provided to Aboriginal groups to share TEK during field program participation. Nak'azdli Band elected to provide field participants on biophysical field	

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									described in Section 3.2.2 of the Application. Coastal GasLink will continue to follow its Aboriginal Consultation Plan approved by the EAO which includes discussing mitigation with Aboriginal groups.		studies but not to share TEK. The field programs include discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies.
889	Application Section 10.9	10-67	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Significance thresholds are hard to find	Pull out significance thresholds for all species into a separate column	Coastal GasLink confirms that Section 10.12.1 of the Application provides information about Significance Thresholds. Biological thresholds used to inform the characterization of magnitude are discussed in the assessment where relevant to the KI being evaluated.		Coastal GasLink understands that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about the challenge for identifying significance thresholds for all species. In accordance with the AIR issued by EAO in May 2013, Coastal GasLink provided thresholds for significance for each VC. As such, the thresholds of significance is defined for the wildlife and wildlife habitat VC as a whole, rather than the individual key indicator species. Section 10.12.1 of the Application describes the significance threshold for wildlife and wildlife habitat.
890	Application Section 10.9	10-70 10-91 Pg. 121	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Nak'azdli and Nadleh have conservation concerns about moose, as the population of this critical harvested species has been observed to be in decline. The Application notes that moose populations have declined in some areas.	The document should make clear that First Nations are concerned about recent declines in quantity of moose within their territories. Please add to the baseline and trend-over-time context analysis for moose, including reference to scientific research and Nak'azdli and Nadleh ATK/TEK re: moose population abundance and health changes over time. Please show in a systematic way which moose populations are in decline in BC, based on available data. It is hard to assess project effects to moose currently.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink confirms that information on moose population abundance and health is provided in Section 10.9 of the Application and Section 3.6.7 of the Wildlife and Wildlife Habitat TDR in Appendix 2-L of the Application. The baseline information provided on moose population status and trends is sufficient to support the characterization of potential effects. Issues and concerns identified by Nadleh Whut'en First Nation and Nak'azdli Band regarding wildlife, including potential effects of the Project on ungulates and ungulate habitat, are listed in Tables 23-35 and 23-40 of the Application. Concerns identified by Aboriginal groups potentially affected by the Project informed the assessment of Project effects on TLRU, provided in Section 16 of the Application.		
891	Application Section 10.9	10-70	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The report states that moose use forestry roads and cutblocks, presumably due to better forage availability and lower wolf densities.	Explain with reference to additional literature why wolf densities would be lower in cutblocks and along forestry roads. This seems counter-intuitive and the citations provided for this statement are not strong.	Coastal GasLink provides the following additional information. The literature referenced in the statement (Kunkel and Pletscher 2000) provides a discussion to support why wolf densities may be lower in cutblocks and along forestry roads. Specifically, although roads may ease travel and increase hunting efficiency by wolves, sensory disturbance and the risk of mortality resulting from human presence on and near roads (e.g., snowmobile and vehicle use, legal and illegal harvest) may outweigh such benefits (Kunkel and Pletscher 2000). In addition, high road density areas often occur in areas of timber harvest which provide good moose foraging habitats and as a result moose in these areas may be in better		

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									condition, decreasing the predation risk by wolves (Kunkel and Pletscher 2000). Reference Kunkel, K.E. and D.H. Pletscher. 2000. Habitat factors affecting vulnerability of moose to predation by wolves in southeastern British Columbia. Canadian Journal of Zoology 78:150-157.		
892	Application Section 10.9	10-90; various places in Table 10-10	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Document states that the duration of all impacts is short term, even though the effects are recognized as being felt during both construction and operations.	How can these be short term in duration when portions of the habitat is permanently lost for at least 30 years and most likely much longer? Please revise the duration to medium-to-long term duration of effects.	Coastal GasLink completed a comprehensive assessment following methodology defined in the AIR issued by the EAO in May 2013. In Section 3.7 of the AIR, duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is expected to last longer, and therefore the reversibility was assessed as long-term. The reversibility of the effect includes the time over which the effect extends.		
893	Application Section 10.10	10-102	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Research summarized in this section is from areas much further south than the proposed project location. It is doubtful that these findings will be applicable to the project area.	Please review available literature to see if information exists from more local area. If not, it seems like the literature summarized in this section is not relevant to the project area and further detailed primary data collection is recommended to fill this gap.	Coastal GasLink characterized residual adverse effects, Coastal GasLink in accordance with the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to extend beyond the operations phase of the Project (>10 years), and therefore the reversibility was assessed as long-term.		A comprehensive literature review was conducted for the Project. Research specific to the Project area relevant to changes in amphibian movement is lacking. The literature compiled in the Application is the best available information, and provides sufficient information to identify how the Project may affect amphibian movement, inform development of mitigation measures, and support the characterization of potential effects.
894	Application Section 10.10	10-103	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Mortality risk for amphibians could include risk of cutting off amphibian access between breeding and hibernation locations. This is hard to assess without knowing more about specific amphibian movements along the corridor.	This risk should be explicitly noted and mitigation measures should be detailed.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 7 of the Environmental Management Plan states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species. Alignment sheets that will be developed for construction will also indicate locations of wildlife habitat features that may be subject to site specific mitigation.		

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895	Application Section 10.10	10-103	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The report states that operations and maintenance of the rest of the proposed Project is not expected to affect amphibian movement. However, ROW maintenance and any need to dig up the pipeline could both affect amphibian movement and direct mortality.	These effects should be noted and additional appropriate mitigations detailed.	Coastal GasLink confirms that operations activities will be carried out in compliance with applicable legislation and regulatory direction. Coastal GasLink will consult with the regulatory authorities to identify appropriate mitigation.		Coastal GasLink understands that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns about the effects of ongoing operations and maintenance activities associated with the project in relation to amphibian movements, and confirms that potential effects of integrity or maintenance digs during operations mirror those of pipeline construction. Mitigation will be implemented as described in the Application.
896	Application Section 10.10	10-104	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	One of the proposed mitigations for avoiding impacts to hibernation is "avoiding sensitive amphibian locations, or protection with mats, where practical".	Is this a realistic mitigation over the extent of the project area? Are sensitive amphibian areas delineated for contractors to know where to use mats? At present, low certainty that this mitigation will be implemented effectively means a finding there are likely residual effects on hibernating amphibians is warranted.	Coastal GasLink confirms that Section 7 of the Environmental Management Plan states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species. Alignment sheets that will be developed for construction will also indicate locations of wildlife habitat features that may be subject to site specific mitigation.		In addition to the information provided previously, Coastal GasLink notes that Tables 10-6 and 10-7 of the Application outline a comprehensive approach to mitigation for wildlife and wildlife habitat, including mitigation to address potential adverse effects on amphibians. Avoidance of sensitive amphibian habitat, where practical, is the first step in the ongoing application of the mitigation hierarchy. In cases where avoidance is not practical, other mitigation outlined in Tables 10-6 and 10-7 will be applied, depending on the site specific conditions encountered during pre-construction surveys. The overall approach to mitigation is realistic and has been developed according to industry accepted best practices and is based on previous project experience on projects of similar scale and complexity.
897	Application Section 10.10	10-105	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Duration is again listed as short-term.	This is an issue that requires discussion. Some of the effects (e.g., the corridor can cut off access between breeding and hibernation sites) may be long-term to permanent.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. In Section 3.7 of the AIR, duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer, and therefore the reversibility was assessed as long-term.		
898	Application Section 10.10	10-105 10-106	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Magnitude of effect is low. It is hard to see how the proposed mitigations will reduce the magnitude of the effect to low, especially when amphibian movement corridors are largely unknown. Same issues for western toad as for pond-dwelling amphibians. The estimated magnitude of low is hard to support without more information about specific western toad movement corridors.	Provide detailed plans for avoiding impacts to specific amphibian migration routes to reduce the potential effect to low.	Coastal GasLink confirms that in addition to mitigation presented in Section 10 of the Application, Section 7 of the Environmental Management Plan states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species. Alignment sheets that will be developed for construction will also indicate locations of wildlife habitat features that may be subject to site specific mitigation.		
899	Application Section 10.11	10-117	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	At least some bird species listed will be impacted by a reduction in prey (e.g., northern goshawk). Small mammal abundance may be reduced if the pipeline ROW blocks movements of small mammals across the corridor.	This effects pathway should be added and assessed.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology		The proposed Project is not predicted to result in a material loss of prey abundance. The proposed mitigation (e.g. redistributing large-diameter slash (rollback) at select locations along the ROW) and revegetation of the footprint is expected to mitigate the potential adverse effects on

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									defined in Section 3 of the AIR.		movement of small mammals. While some species may avoid the proposed pipeline corridor due an increased perceived predation risk, it is expected that as vegetation regenerates on the ROW, the abundance of bird species preferring early seral habitats will increase.
900	Application Section 10.11	10-118	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states "new edge effects will be minimal where the proposed route parallels existing linear disturbances." Having this sentence here implies that this is an effective mitigation but it may not be if the proposed route does not parallel existing linear disturbances over much of the area.	Identify how much of the pipeline in Nak'azdli and Nadleh territories, respectively, follow existing linear disturbance. Please do the same for all ancillary physical works in Nak'azdli and Nadleh territories, including areal and linear disturbance. It is critical to identify for each Nation's territory how much new disturbance and edge effects are likely from all of the Project's physical works and activities, not merely some portion of same.	Coastal GasLink confirms that the proposed route crosses Nak'azdli Band traditional territory from approximately KP 230.1 to KP 345.4. Approximately 34 km of this distance parallels existing pipeline RoWs, and approximately 9 km parallels existing roads. Coastal GasLink confirms that the proposed route crosses Nadleh Whut'en First Nation traditional territory from approximately KP 328.3 to KP 407.4. Approximately 9 km parallels existing roads. Section 1.4 of the application includes evaluation criteria for the location of temporary ancillary facilities. Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the Oil and Gas Activities Act and regulations, as well as the OGC's Environmental Protection and Management Regulation.		
901	Application Section 10.11	10-119	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document notes that there is evidence to suggest that edge effects resulting from oil and gas linear corridors have a minimal effect on birds. What is the average width of a seismic line compared to the proposed ROW? This may not be a good comparison. In addition, we have seen evidence to the contrary, including evidence that many forest bird species avoid using habitat within 100 metres of roads, pipelines, well pads and other gas industry facilities (Cumming and Schmiegelow 2002). This begs questions about the breadth of the Proponent's literature review. Cumming, S. and F. Schmiegelow (2002). The Remote Areas Project: a Retrospective Study of Avian Indicators of Forest Change. A Sustainable Forest Management Network Project Report. Accessible at http://hdl.handle.net/10402/era.33553	Assess whether this is a good comparison given the size of the ROW relative to seismic lines. Many of the bird species chosen as indicators are sensitive to edge effects. Will monitoring be done to assess impacts to these species from the relatively larger ROW, and what additional mitigations will be introduced if effects are found?	Coastal GasLink clarifies that Page 10-119 of the Application, presents information about edge effects and the potential adverse effects on wildlife. Information also exists that suggests edge effects resulting from oil and gas linear corridors have a minimal effect on birds. A study by Machtans (2006) on seismic lines and boreal forest songbirds found that most birds were able to incorporate seismic lines into their territories, resulting in no change in bird abundance, average location and size of territories. Similarly, a study of edge effects on breeding songbirds in forested habitat concluded that species richness and abundance did not differ between edge habitats along pipeline ROWs and forested control areas (Fleming and Schmiegelow 2002). It is important to note, however, that Fleming and Schmiegelow (2002) did not differentiate between interior forest specialists and more generalist species. Coastal GasLink will develop a post construction monitoring plan prior to construction as described in Section 25.3 of the Application.		Coastal GasLink will carry out post-construction monitoring as described in Section 25.3 of the Application. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach
902	Application Section 10.11	10-127 10-128	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Effects characterization for mature/old seral forest birds is listed as low magnitude. This is hard to support given the removal of old forest habitat in key areas.	Suggest additional mitigations to conserve old forest habitat and keep habitat connectivity across the pipeline route. Specifically consider using HDD in key areas to maintain old forest connectivity. For p.10-128, mitigation for young seral could include creation of young seral habitat.	Coastal GasLink continues to apply the mitigation hierarchy. Section 7 of the EMP provides resource-specific mitigation for old forest. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in old forest managed through aspatial biodiversity orders and forest stewardship plans.		

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903	Application Section 10.11	10-129	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Magnitude of effects for wetland birds is considered low.	While this amount of effective wetland habitat removal might be low for some wetland bird species, it could be high for others, depending on location. There is insufficient detail to know if this is a good estimate of significance for all species assessed. Suggest pulling out key indicators for a full assessment and perhaps adding an at-risk wetland bird species such as yellow rail.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.		Coastal GasLink understands that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns about the key indicators used to assess potential adverse effects of the Project on wetland birds. The Application includes an assessment of potential adverse effects on VCs and KIs as defined by the AIR issued by EAO in May 2013. Field surveys indicated there is little potential for interaction between Project activities and yellow rail.
904	Application Section 10.11	10-130	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Canada warbler: how can duration be short term?	The removal of habitat occurs over a short period of time but the effect will be felt for a long period of time, unless additional mitigations (such as HDD to conserve valuable old growth habitat) are used. Please revise assessment or provide more detailed rationale for current estimate.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. In Section 3.7 of the AIR, duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer, and therefore the reversibility was assessed as long-term.		
905	Application Section 10.11	10-131	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Magnitude is estimated to be low for Canada warbler. The proponent needs to make sure scientifically defensible quantitative – or even qualitative – thresholds for significance are established before the analysis concludes that all magnitudes of effect are low for all species. Otherwise this is just an arbitrary statement that holds no weight when it is used across all species assessed.	What is the biological justification for a low magnitude when 6.9% of habitat will be removed? If the LSA is included, how much more Canada warbler habitat will be removed or altered because of the Project?	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. In Section 3.9 of the AIR, Section 10.12.1 of the Application provides a description of the thresholds for significance used in the assessment of wildlife. Section 10.8 of the Application describes the method used to characterize residual adverse effects on wildlife KIs, including a discussion of how biological thresholds, where available, and quantitative analyses were used to inform the characterization of magnitude.		
906	Application Section 10.11	10-132	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Magnitude of effects is estimated as low for Rusty blackbird.	See comments and questions above re: Canada warbler.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. In Section 3.9 of the AIR, Section 10.12.1 of the Application provides a description of the thresholds for significance used in the assessment of wildlife. Section 10.8 of the Application describes the method used to characterize residual adverse effects on wildlife KIs, including a discussion of how biological thresholds, where available, and quantitative analyses were used to inform the characterization of magnitude.		
907	Application Section 10.11	10-132	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Selection of common nighthawk as an indicator species seems out of place considering that the threats to the species are not exacerbated by the development of the pipeline.	Add a KI species that is more likely to be adversely affected, such as a wetland-dependent species that is not a songbird (e.g., yellow rail).	The VCs and KIs selected for wildlife are identified in Section 4.6 of the AIR.		Coastal GasLink confirms that the approach to identify VCs is provided in the "Selection of Valued Components" dated February 2013 and available on the EAO's website. The VCs are identified in the AIR issued by the EAO in May 2013.

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908	Application Section 10.11	10-134	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Same issues with lack of justification for deeming a 4.6% effect to interior northern goshawk habitat as low. Earlier the document noted that the pipeline goes through key interior northern goshawk habitat.	Provide additional justification for finding of low magnitude of effect or revision of the estimation.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. In Section 3.7 of the AIR, duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. Coastal GasLink clarifies that the Application does not identify key interior northern goshawk habitat along the proposed corridor.		Coastal GasLink understands that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns about the characterization of residual adverse effects on Northern Goshawk. Table 10-14 of the Application includes a summary of ecological context for northern goshawk. The proposed route is not predicted to cross key interior northern goshawk habitat. The characterization of magnitude is informed by, but not solely dependent on, results of quantitative habitat change metrics. Quantitative analyses were completed assuming habitat conditions immediately following construction (i.e., assuming that habitat has not regenerated beyond very early seral stages). The proposed mitigation is expected to reduce the magnitude of the residual effect on habitat change, movement and mortality risk. Characterization of the magnitude of the residual effects considers the quantitative information at post-construction conditions, but equally important, the capacity of the effects to be alleviated with application of the proposed mitigation is an essential component of the magnitude rating. Regulatory context (e.g., conservation and management objectives) and ecological context (e.g., baseline information, including resilience of the KI) are also key considerations for the characterization of magnitude. This information is provided throughout Section 10.0 of the Application, and is supported by scientific literature and baseline field surveys (please see the Wildlife and Wildlife Habitat Technical Data Report [TDR] in Appendix 2-L of the Application). As described in Section 3 of the Application, a low magnitude residual adverse effect is detectable, but well within environmental and/or regulatory standards. In other words, a residual adverse effect with a low magnitude is not predicted to exceed an accepted biological threshold or standard, or affect the indicator population such that stated management or conservation objectives might not be attainable. Environmental and regulatory standards are described throughout the Application, particularly in Section 10.2 (regulatory and policy setting) and in Sections 10.9 to 10.11 (characterization of potential residual adverse effects on mammals, amphibians and birds, respectively).
909	Application Section 10.12	10-139 onwards	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	No mention of First Nations involvement in construction monitoring process or any follow-up monitoring is another indication that TEK/ATK is not considered adequately alongside western science.	Provide all plans, policies and programs the Proponent has to involve Aboriginal monitors in all stages of Project monitoring and follow-up, should the Project proceed.	Coastal GasLink confirms that the Aboriginal Consultation Plan approved by the EAO outlines the phases of engagement. Consistent with this plan, Coastal GasLink is currently developing a monitoring program to commence with the construction phase of the proposed Project. Coastal GasLink will continue to engage with Aboriginal groups as		

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									the monitoring program develops.		
910	Application Section 10.12	10-138	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	A critical question is whether sufficient baseline data has been collected to inform the PCM Program in its efforts to catalogue change and respond accordingly. Technical appendices detail baseline data collection. Overall, the pipeline covers a large area and survey coverage for most KIs is relatively minimal. Most sites were only visited once and data were only collected over one field season. It is hard to know how much useful information has been collected over the length of the pipeline.	We recommend that another season of data collection be conducted in key areas to ensure the pipeline routing and proposed mitigations are based on actual habitat use. We further recommend that these field data are augmented with a proper, systematic and community-led collection of TEK relative to the KIs of cultural significance, including moose, grizzly bears, furbearers, and wetland bird species. Timing of construction and mitigations could then be based on actual data, rather than relatively uncertain habitat models.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Nak'azdli Band chose to provide field participants on biophysical field studies but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadle Whut'en First Nation chose not to participate in biophysical field studies. Coastal GasLink confirms that Section 7 of the Environmental Management Plan states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species.		Coastal GasLink acknowledges that Nak'azdli Band and Nadle Whut'en First Nation have concerns regarding the collection of wildlife field data, and would like to see additional field data collection. While the field data collected to date is sufficient for understanding the potential adverse effects of the project, and identifying proposed mitigation, Coastal GasLink is continuing to collect detailed information to inform permitting, as well as ongoing construction planning and detailed engineering design. Coastal GasLink has also committed to undertaking pre-construction surveys to identify important wildlife habitat features which warrant site-specific mitigation (see Table 10-6 of the Application). When discovered, mitigation measures will be applied to these sites as described in the Environmental Management Plan. Coastal GasLink confirms that Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. Information shared by Nak'azdli Band representatives during discussions about potential project-related effects and mitigation amongst field program participants is not considered TEK. Should additional ATK/TEK be made available to Coastal GasLink, the information will inform advancing construction planning and detailed engineering design and the discussion of site-specific mitigation.

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911	Application Section 10.12	Table 10-17, 10-142 onwards	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This statement applies to all findings of "not significant" within Table 10-17. Findings of not significant are qualitative and based at least partly, if not primarily, on a finding of low magnitude of effect in the previous section. There has been no documented justification of this low magnitude finding for all species, so the finding of not significant is not based in science.	Add a summary of how habitat loss can be considered to have a low magnitude of impact for each wildlife species considered. For many species, additional mitigations (including ensuring connectivity between old forest habitats by using HDD to avoid fragmenting these areas) should be considered.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns regarding the determination of significance for the VC Wildlife and Wildlife Habitat. The residual effect that was evaluated for significance for each Key Indicator (KI) is the combined suite of potential adverse effects of the Project on habitat, movement and mortality risk. Section 10.7 of the Application describes the methods used for assessing combined effects. The effects criteria characterizations and significance determinations apply to combined effects, and should not be interpreted to apply only to habitat change. Section 10.12.1 of the Application describes the threshold for significance for the Wildlife and Wildlife Habitat VC. Significance determination considers all of the assessment criteria, though for numerous KIs, the magnitude and reversibility (which includes the duration of the effect) are the most influential criteria. A low magnitude residual adverse effect is detectable, but well within environmental and/or regulatory standards. In other words, a residual adverse effect with a low magnitude is not predicted to exceed an accepted biological threshold or standard, or affect the indicator population such that stated management or conservation objectives might not be attainable. Environmental and regulatory standards are described throughout the Application, particularly in Section 10.2 (regulatory and policy setting) and in Sections 10.9 to 10.11 (characterization of potential residual adverse effects on mammals, amphibians and birds, respectively). An iterative process was used in the assessment, whereby residual adverse effects that were considered likely to be approaching or to cause a high magnitude residual effect underwent further consideration to develop and recommend additional mitigation to reduce the magnitude of the effect. These measures have been included in the Application in Section 10.6 and in the EMP (Appendix 2A of the Application). Where further measures were deemed warranted to address residual effects (e.g., detailed mitigation plans, offsets), these are noted in the Application under the discussion of the relevant KIs.

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912	Application Section 10.12	10-141	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	For moose, one of the biggest potential impacts probably comes from increased hunting pressure due to access. If access control is not managed the likelihood of adverse impacts on moose will rise.	Please identify what monitoring of access will be conducted by the Proponent to ensure that non-aboriginal hunting pressure does not increase in the LSA. Please also discuss any controls on access available as mitigation options. If access cannot be controlled, please reconsider estimates of likelihood and magnitude of impacts on moose in relation to this long linear development.	Coastal GasLink confirms that mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. The EMP (Appendix 2-A) includes an Access Control Management Plan (Appendix D.3). The Access Control Management Plan provides guidelines for blocking and/or controlling access to previously inaccessible portions of the ROW following construction and throughout the operations phase of the Project. The intent is to reduce disturbance resulting from pipeline construction on these lands and particularly in sensitive wildlife areas, riparian areas and in areas of potential high erosion hazard.		The post-construction monitoring activities will include monitoring the integrity of access control measures during the operations phase. Should there be issues identified with the access control measures, Coastal GasLink will implement an adaptive management approach to address the concern.
913	Application Section 10.12	Table 10-17	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Bats have not been well monitored in the project area.	Suggest adding a full bat monitoring program as a mitigation, to find out more about bats in the area and how they are using the pipeline vs. surrounding forest. Set a target of identifying hibernacula for protection.	Coastal GasLink confirms that Section 7 of the Environmental Management Plan states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species. Alignment sheets that will be developed for construction will also indicate locations of wildlife habitat features that may be subject to site specific mitigation.		
914	Application Section 10.12	10-145; Table 10-18	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Findings of not significant for all amphibian species must be treated with caution, as it is based on little information about how amphibians are moving around the habitat and how the pipeline may affect that movement.	Suggest that the proponent notes that significant impacts may occur across some areas of the pipeline, but it is unknown as this time which areas. This is necessary because regulators should make an informed decision based on risk as to whether this project should go ahead. There is most certainly a risk to all species (in terms of direct mortality or a reduction in distribution) across the pipeline because of constructing a project like this. The Proponent should be upfront about this risk so the regulators can understand where the uncertainties lie.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.		Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding the inherent uncertainty associated with significance conclusions. Coastal GasLink completed the Application using assessment methodology described in the AIR issued by EAO in May 2013, and recognizes that there is a certain level of uncertainty inherent in all significance determinations. As a result, confidence was described for each significance determination presented. Section 10.12 of the Application, describes the characterization of confidence, and provides rationale for each determination. Coastal GasLink notes that Table 10-18 of the Application acknowledges a range of confidence determinations for the Amphibian KIs, and outlines follow up and monitoring programs accordingly. Given the uncertainty in effects predictions, a conservative and precautionary approach was applied to the assessment in order to identify appropriate mitigation and arrive at reliable effects predictions, and uncertainty will be further reduced through monitoring.

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915	Application Section 10.12	Table 10-19, 10-147 onwards	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This statement applies to all findings of "not significant" within Table 10-19. Findings of not significant are qualitative and based at least partly, if not primarily, on a finding of low magnitude of effect in the previous section. There has been no documented justification of this low magnitude finding for all species, so the finding of not significant is not rooted in science.	Add a rationale for how habitat loss can be considered to have a low magnitude of impact for each wildlife species considered. For many species, additional mitigations (including ensuring connectivity between old forest habitats by using HDD to avoid fragmenting these areas) should be considered.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. In Section 3.7 of the AIR, duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends.		Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding the determination of significance for the VC Wildlife and Wildlife Habitat. The residual effect that was evaluated for significance for each Key Indicator (KI) is the combined suite of potential adverse effects of the Project on habitat, movement and mortality risk. Section 10.7 of the Application describes the methods used for assessing combined effects. The effects criteria characterizations and significance determinations apply to combined effects, and should not be interpreted to apply only to habitat change. Section 10.12.1 of the Application describes the threshold for significance for the Wildlife and Wildlife Habitat VC. Significance determination considers all of the assessment criteria, though for numerous KIs, the magnitude and reversibility (which includes the duration of the effect) are the most influential criteria. A low magnitude residual adverse effect is detectable, but well within environmental and/or regulatory standards. In other words, a residual adverse effect with a low magnitude is not predicted to exceed an accepted biological threshold or standard, or affect the indicator population such that stated management or conservation objectives might not be attainable. Environmental and regulatory standards are described throughout the Application, particularly in Section 10.2 (regulatory and policy setting) and in Sections 10.9 to 10.11 (characterization of potential residual adverse effects on mammals, amphibians and birds, respectively). An iterative process was used in the assessment, whereby residual adverse effects that were considered likely to be approaching or to cause a high magnitude residual effect underwent further consideration to develop and recommend additional mitigation to reduce the magnitude of the effect. These measures have been included in the Application in Section 10.6 and in the EMP (Appendix 2A of the Application). Where further measures were deemed warranted to address residual effects (e.g., detailed mitigation plans, offsets), these are noted in the Application under the discussion of the relevant KIs.

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916	Application Section 10.13	10-150	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This analysis of thresholds is far too generalized for all species included in the assessment. Some species are going to be very sensitive to additional habitat loss within their ranges.	The section should look at thresholds (if indeed they exist) relevant to each species, not make generalizations about the amount of habitat lost in the Wildlife RSA. These generalizations are not relevant to specific species in specific areas. Because the pipeline traverses such a large area, the wildlife RSA should be broken down into smaller, more manageable pieces to look at cumulative effects in a biologically relevant way.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.		Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that residual adverse effects may differ at specific sites. Species-specific biological thresholds relevant to the study area and effects mechanisms are not available for all of the wildlife KIs. The best available scientific information regarding thresholds was compiled to inform the characterization of potential residual adverse effects of the Project. The ecological and regulatory context, as well as quantitative analyses specific to each KI was considered in the characterization of effects. Where biological thresholds are available, they were used to inform the assessment. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are described. When characterizing the residual adverse effect, a range was often described for magnitude to acknowledge the variation. The determination of significance was made using a conservative approach that considers the worst-case scenario.
917	Application Section 10.13	10-151	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Literature reviews in this application seem to be very selective, rather than a comprehensive review of literature.	The Proponent should include a more detailed and comprehensive literature review of how the pipeline ROW could act as a barrier to small mammals, for example, and what the implications are for other species if this occurs.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.		Much of the available information that relates to wildlife response to effects is relevant to both the residual effects of the Project as well as the Project's contributions to cumulative effects. Given the information that is provided for the individual VCs that precedes the cumulative effects assessment discussion, the cumulative effects section presents less information to avoid repetition. Please refer to sections 10.5.2, 10.8 and 10.9.2 for additional information regarding changes in movement of mammals.
918	Application Section 10.13	10-151	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Here the Application notes that linear corridors are attractive to predators as easy travel routes. This seems to contradict earlier statements in the Application that moose may be attracted to cutblocks and forest roads because predators avoid them (Table 10-8).	Investigate potential effects on linear corridors in more detail. How will moose use them? Will wolves be attracted to them or not? What kinds of mitigations can be put in place to ensure that ungulates attracted to the pipeline will not end up more vulnerable because of the risk of predation? The literature review in the Application needs to be clear and avoid contradictory statements between sections—unless uncertainty exists, in which case these should be noted and a monitoring program put in place.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.		Coastal GasLink understands that Nak'azdli Band and Nad'leh Whut'en First Nation seek further information regarding wildlife use of linear corridors. Section 10 of the Application describes three inter-related effects pathways by which wildlife KIs may be affected by the Project, relating the changes in habitat, movement, and mortality risk. A comprehensive review of available scientific literature relevant to wildlife response to linear developments was conducted and summarized information is provided in Section 10 of the Application, and the Wildlife and Wildlife Habitat TDR. The scientific literature shows a variety of results relating to the use of linear corridors, influenced by specific factors associated with each study. The variability in documented wolf use of

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											roads depending on levels of human use is noted in Table 10-8, and specifically refers to roads over other types of linear corridors. Sections 10.9 and 10.14 of the Application include information regarding moose and predator use of linear developments, and potential changes in predator-prey dynamics. Table 10-6 and Section 10.9.3 of the Application describe mitigation to reduce the increased risk of predation for ungulates.
919	Application Section 10.13	Table 10-21	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This table is one of the only places where location-specific effects are mentioned (e.g., with specific compressor stations).	To get a true picture of location-specific significance, it is important to look at the interaction of all physical works and activities required by the Project (primary and ancillary) in relation to definable ecological "chunks" including especially specifically agreed upon sensitive ecotypes and other areas of higher sensitivity to change. Different habitat types have different degrees of existing and foreseeable habitat effects around them. In order to facilitate a proper reassessment of the "most sensitive receptor" locations, we recommend the EAO convene a Working Group meeting to identify specific locations of higher sensitivity that merit additional scientific and ATK data collection and reassessment.	EAO to respond. Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
920	Application Section 10.14	p. 10-164	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document makes reference to a quantitative species-specific threshold for grizzly bears (access density). Interestingly, grizzly bears are the only mammal for which the report states "additional mitigation and strategies to address potential cumulative adverse effects of the proposed Project in combination with existing and future disturbances is warranted". This would appear to be connected to the fact that there is a measureable, quantitative threshold. Qualitative thresholds do not appear to be as rigorous since none of them result in a finding of significance.	The analysis conducted for each KI is not good enough. It is recommended that the EAO use the Working Group to identify more appropriate quantitative thresholds for significance and require the Proponent to integrate them into a revised analysis.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
921	Application Section 10.14	10-174	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	How is the defined grizzly bear threshold for habitat fragmentation being applied in this analysis? The original quote indicates that this open road density threshold is important not just for direct mortality from roads but also for habitat fragmentation and habitat effectiveness for grizzly bears.	Provide an analysis of how much grizzly bear habitat in the area will exceed the road density threshold of 0.6 km/km2, as noted in Table 10-8 of the Application.	Coastal GasLink confirms that the results of the grizzly bear motorized access density analysis are provided in Section 10.14.3.		
922	Application Section 10.14	10-174	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The report states that "it is assumed that the core patches fragmented by the proposed Project will remain linked"	Is this a fair assumption? Use available literature or input from a grizzly bear biologist to back this up.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		It is a fair assumption that the core patches fragmented by the proposed Project will remain linked. Grizzly bears are known to use pipeline rights-of-way (McKay et al. 2013). High traffic volume is a key factor in changes of habitat connectivity for grizzly bear (Hamilton pers. comm.). With implementation of effective access control mitigation, there will be little motorized traffic along the proposed ROW except for occasional operational access. Therefore, it is unlikely that the proposed route would create a barrier to grizzly bear movement that would isolate core patches.

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											Reference McKay, T. K. Graham and G. Stenhouse. 2013. Grizzly bears and pipelines: response to unique linear features. Year 1 (2012) Final Report. Alberta Upstream Petroleum Research Fund (#09-9203-50). Hamilton, A.N. Large Carnivore Specialist, BC Ministry of Environment, Ecosystems Branch. Victoria, BC.
923	Application Section 10.14	10-177	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The report states that "it is understood that the majority of access will utilize existing access roads." However, the project description indicates that 60 km of new access roads are required, and another 400 – 550 m of access roads will use existing infrastructure or will be "shoo-flies". Current information is not adequate to estimate significance of these proposed access roads.	Make a reasonable estimate of increases in roads as a result of the project – can be non-spatial within a defined spatial area.	Coastal GasLink confirms that the construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during the detailed engineering and design process and evaluation criteria are presented in Section 1.4 . The assessment considers potential adverse effects associated with these temporary facilities in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the required information will be provided to appropriate regulatory agencies during the permitting process.		Coastal GasLink understands that Nak'azdli Band and Nadlel Whut'en First Nation are concerned about the assessment of the ancillary facilities, including access roads, and notes that the potential adverse effects of ancillary facilities were assessed in the Application using qualitative methods. In the absence of spatial data, the assessment team took a conservative approach that identified potential effects in a precautionary manner (i.e., worst case scenarios). Proposed mitigation will be comprehensive, and will allow for the selection of appropriate mitigation depending on site specific conditions. The assessment team is composed of qualified professionals who have worked on projects of similar scope and complexity, and have the experience to understand the potential adverse effects and appropriate mitigation approaches. Coastal GasLink notes that ancillary facilities will also undergo a comprehensive review as part of the permitting process, and site specific detail will be provided at that time.

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924	Application Section 10.14	10-179	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>The Application indicates that, with the exception of the Parsnip GBPU, the existing open motorized access density in the GBPUs intersected by the proposed Project currently exceeds the threshold of 0.6 km/km². The threshold will be crossed for Bulkley-Lakes (currently sitting at 0.6 km/km²).</p> <p>This finding is important for a number of reasons. First, it illustrates the importance of having a quantitative basis for defining thresholds. As noted in Table 10-8 of this section, open road density of 0.6 km/km² is adopted in this assessment as a biological threshold for a high-magnitude effect. It would appear that quantitative assessments are more likely to find a significant effect than qualitative assessments – particularly when the professionals who are conducting the assessments are working for the pipeline companies. Second, it illustrates the importance of having smaller geographical areas for analyzing the significance of a proposed development such as a pipeline. The pipeline crosses 650 km of extremely diverse habitat. Much of it is undeveloped but other parts have been heavily impacted by mountain pine beetle salvage and other, smaller scale disturbances. The significance of the additional pipeline development might be small in some areas but very large in other areas, for completely different reasons. In areas where little development has occurred, the significance of habitat loss associated with the pipeline ROW might be small. In areas where a lot of development has already occurred, the significance of additional habitat loss and fragmentation might be very large. For some sensitive species (e.g., caribou, where habitat exists but much of it is not functional), the additional habitat loss and fragmentation associated with the pipeline ROW might be the final straw.</p>	<p>1) The analysis of significance (both for the project itself and as part of the cumulative effects analysis) for all indicators should be done on a smaller, ecologically-based area – not across the LSA as a whole.</p> <p>2) Quantitative thresholds using the best available science should be developed to indicate significance before the analysis is carried out, to prevent bias.</p> <p>3) In the event that quantitative analyses are not available, all qualitative assessments should be reviewed by independent third-party specialist biologists to determine if findings are valid. Otherwise, qualitative assessments of no significance in a process like the one conducted for Coastal GasLink should be treated with low confidence and additional work required.</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		<p>1) Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that there may be some variation across the Project area. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are described. When characterizing the residual adverse effect, a range was often described for duration, frequency, reversibility, and magnitude to acknowledge the variation. The determination of significance was made using a conservative approach that considers the worst-case scenario. The assessment was completed using the spatial boundaries identified in the Final AIR.</p> <p>2) Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding the use of qualitative thresholds in the determination of significance. Thresholds for significance need to be linked to regulatory requirements or some other established threshold. Where such an established biological or regulatory standard is not available to assess the significance of residual adverse effects, a qualitative significance threshold was defined. The qualitative threshold is supported by both qualitative assessment criteria and quantitative metrics, and is based on previous assessments of projects of similar scale and complexity. The approach for defining threshold for significance is aligned with the scope of the assessment defined in the AIR issued by EAO in May 2013.</p> <p>3) Coastal GasLink confirms that the effects assessment was completed by an experienced and qualified team with experience in effects assessment using the methodology defined in the AIR.</p>
925	Application Section 10.14	10-179	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The proposed mitigation plan to reduce the Project's contribution to potential cumulative adverse effects on grizzly bear must be reviewed by a) independent third party grizzly bear biologist; b) appropriate representatives of First Nations within relevant traditional territories.	Identify whether the Proponent is committed to the recommendation at left.	Coastal GasLink will comply with all applicable legislation and follow regulatory direction for the Project including implementation of mitigation deemed appropriate by the regulatory authorities. The mitigation to avoid or reduce potential adverse effects presented in the Application is included in the comprehensive assessment completed in accordance with the AIR issued by the EAO in May 2013.		

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926	Application Section 10.14	p. 10-181; Table 10-27	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Duration of residual cumulative adverse effects on grizzly bear is listed as short-term.	This assessment is an example of a fundamentally flawed Project-contribution focus to the cumulative effects assessments conducted throughout the Application. Nak'azdli and Nad'leh request that all cumulative effects assessments be re-conducted to focus effects characterization and significance estimation on total effects loading (in which case the duration of cumulative effects on grizzly bears will more appropriately be listed as long-term to permanent given the large amount of roads that will likely be open long-term through grizzly bear habitat, for example). Please note: this is merely one example of a fundamentally flawed and non-precautionary approach to cumulative effects assessment taken by this Proponent in relation to this Project. The EAO cannot allow different standards of cumulative effects significance to be conducted for different Projects, and we know of other Projects where significance of cumulative effects is being assessed on the basis of total effects loading on VCs, not this flawed "project contribution" model.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014 Project-specific cumulative effects assessments must determine if that particular project is incrementally responsible for adversely affecting a given element (Hegmann et al. 1999). Coastal GasLink completed the CEA analysis to provide baseline information on both the project's contribution to the cumulative effect as well as the cumulative effect overall, however, the cumulative effects assessment must also make clear to what degree the project under review is contributing to that total effect. In accordance with the AIR, the characterization of cumulative adverse effects for each VC focused on the Project's contribution to the effect.		
927	Application Section 10.14	p. 10-183	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As per the comments above, the scale of assessment for moose is too large. Some areas might be adversely impacted while others may not.	The regional scale must be broken down further to allow for a biologically meaningful assessment.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges the diverse nature of the landscape of the project corridor and that there may be some variation across the Project area. The purpose of the Application is to provide an overall assessment of the Project effects on the valued components listed in the AIR, issued by EAO in May 2013. A conservative approach was applied when describing and characterizing the potential and residual adverse effects, and all characterizations are described. When characterizing the residual adverse effect, a range was often described for duration, frequency, reversibility, and magnitude to acknowledge the variation. The determination of significance was made using a conservative approach that considers the worst-case scenario. The assessment was completed using the spatial boundaries identified in the Final AIR.
928	Application Section 10.15	p. 10-189	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As per previous comments related to amphibians, without more knowledge about amphibian use of the habitat and in particular, movement between hibernation areas and breeding areas, it is hard to determine whether the effect is significant. Also, the analysis should look at smaller, biologically relevant areas to determine significance, as the effects are diluted at the scale of the full pipeline length.	Recommend doing another season of amphibian monitoring prior to construction, and selecting a more biologically meaningful set of scales for assessing impacts to amphibians across the entire pipeline. If no quantitative thresholds have been established, it would be good to get a third-party biologist to review the qualitative assessment of significance to make sure any risk of bias is removed.	Coastal GasLink confirms that Section 7 of the Environmental Management Plan (EMP) states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species. Alignment sheets that will be developed for construction will also indicate locations of wildlife habitat features that may be subject to site specific mitigation.		

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929	Application Section 10.16	p. 10-193	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that there is a lack of quantitative thresholds for most wildlife species.	Significance determination should be reviewed by a third-party qualified professional, at biologically relevant spatial scales, across the length of the pipeline to make sure there are not areas of significance that have been missed in this analysis. Of particular concern is the 2.9% decrease in high quality habitat for early seral birds, and the 2.6% decrease in effective habitat for Canada warbler. Additional mitigations may be necessary to offset these cumulative impacts.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation have concerns regarding the use of qualitative thresholds in the determination of significance. Thresholds for significance need to be linked to regulatory requirements or some other established threshold. Where such an established biological or regulatory standard is not available to assess the significance of residual adverse effects, a qualitative significance threshold was defined. The qualitative threshold is supported by both qualitative assessment criteria and quantitative metrics, and is based on previous assessments of projects of similar scale and complexity. The approach for defining threshold for significance is aligned with the scope of the assessment defined in the AIR issued by EAO in May 2013. The Application presents an assessment of potential adverse effects on birds, and notes that metrics around habitat loss are only one input to understanding the potential adverse effect (see Sections 10.5.1 and 10.11.1 of the Application). Mitigation measures that will be implemented to reduce the Project's residual effect on early seral forest birds and Canada warbler are presented in the Application (refer to Table 10-6 and Section 10.7 of the Application). Coastal GasLink confirms that the effects assessment was completed by an experienced and qualified team with experience in effects assessment using the methodology defined in the AIR.
930	Application Section 10.16	p. 10-198	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The document states that research has shown no evidence of increased nest predation for many bird species as a result of forest edges.	Cite relevant research to support this statement. Surely the effects must vary depending on the ecology of the area.	Coastal GasLink confirms that Section 10.11.3 provides information about literature related to nest predation associated with forest edges.		
931	Application Section 10.17	p. 10-209 onwards	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	For all species in tables 10-32, 10-33 and 10-34, the criticism that the scale for these assessments is too large stands.	Change analysis of significance, both for the project alone and cumulatively, to biologically meaningful assessment scales across the length of the pipeline for all KIs.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
932	Application Appendix 2L	121	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Effort should have been made to apply TEK to use of habitat by moose, particularly to identify movement corridors and key habitat features.	This is a short-coming of the application. Ideally, a study of TEK associated with wildlife use would be done prior to the proposed Project route being approved.	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. A review of collected TEK and discussions of potential project-related adverse effects and mitigation strategies described in the Wildlife and Wildlife Habitat TDR was conducted directly with participating community members during field surveys. Confirmation of the accuracy of the information incorporated and approval of the inclusion of the confidential and proprietary information to plan the Project occurred during community		

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									results review meetings held on January 16, 2013. Nak'azdli Band chose to provide field participants on biophysical field studies but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies		
933	Application Appendix 2L	172 177	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	See previous comments about TEK in this document. This is a summary of some generic First Nations land uses and concerns, not a systematic presentation of aboriginal knowledge and use of the land. By way of example, pg. 177 provides an incredibly vague summary of traditional knowledge related to wildlife. The document repeatedly refers to signs of various species "throughout the area". Throughout which area? There are no spatial data attached to this information and no indication that data were collected systematically with qualified knowledge holders from the various communities. Section 11 of the AIR requires that Coastal GasLink identify present, past and anticipated future uses and traditional uses of the proposed Project areas, identify specific aboriginal interests provided by Aboriginal communities, identify potential effects of the proposed Project on identified Aboriginal Interests for each Aboriginal group, and describe mitigation measures or environmental management strategies to address identified effects. The primary and preferred source for this information is affected Aboriginal communities, and TEK is an important constituent element for addressing these information requirements.	Any TEK collected without a systematic methodology should be removed from the Application. Proper TEK studies with affect First Nations must be conducted in order to fulfill the requirements of Section 11 and the project AIR.	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. TEK about wildlife was collected by following the methodology outlined in section 3.5.2 of the Wildlife and Wildlife Habitat TDR.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns with the methodology used to collect TEK. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Coastal GasLink confirms that Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. Information shared by Nak'azdli Band representatives during discussions about potential project-related effects and mitigation amongst field program participants is not considered TEK. Should additional ATK/TEK be made available to Coastal GasLink, the information will inform advancing construction planning and detailed engineering design and the discussion of site-specific mitigation.
934	Application Section 12	N/A	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Metrics and statistics used in throughout this section do not adequately disaggregate data to the Band/Nation level and do not consider metrics associated with traditional or subsistence economies.	Coastal GasLink to incorporate Band/Nation specific data from TUS and SEIA reports in order to more accurately show the likely distribution of impacts across these very difference sub-populations. We strongly recommend the Proponent be required to reconsider its economic effects assessment and make it more meaningful for the most sensitive receptors – affected area First Nations.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5 . Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment.		

Coastal GasLink Project: Working Group Comment Tracking Table

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935	Application Section 12	N/A	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The ability to practice traditional economy and livelihoods is expressed as a key value in the Nak'azdli and Nadleh socioeconomic scoping reports. This is not reflected in the VCs addressed in this section of the Application. Traditional and mixed economies are not mentioned or characterized (e.g., level of Nak'azdli and Nadleh reliance on) in any meaningful way anywhere in this section of the Application. VCs and KIs addressed are not comprehensive in considering the important and crucial role that First Nations traditional and mixed economies play. Findings from SEIA baseline and scoping reports not adequately incorporated.	Coastal GasLink to incorporate discussion of the role of traditional and mixed economy on in a more fulsome way. Coastal GasLink to review socioeconomic baseline and scoping reports submitted by affected First Nations and integrate VCs and KIs to reflect the values documented. Coastal GasLink to review and incorporate baseline and scoping data presented in relevant socioeconomic reports by Nak'azdli and Nadleh.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5 . Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment.		
936	Application Section 12	N/A	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This section of the Application glosses over or ignores many of the most important impact pathways/project interactions with the First Nations' receiving environments. For example, Aboriginal traditional economy should be treated with the same level of importance as that for non-Aboriginal wage economic activities. Country foods critical to economy as well as cultural and society. These economic factors are ignored here and only weakly dealt with in sections 16 and 23 of the Application. Also totally missing is consideration of impact inequity for Aboriginal people, Aboriginal employment and ability to take advantage, and cost of living-inflationary pressures of large workforce influx.	Please gather additional information and conduct a revised economic effects assessment on: 1. The role played by subsistence and mixed economy in the well-being and quality of life, and economic survival, of affected First Nations 2. Impact equity and inequity for marginal sub-populations from the Project and other cumulative economic effects causing agents, including on Aboriginal people and especially in relation to cost of living in general and housing costs 3. Barriers and opportunities for Aboriginal people to increase their ability to take advantage of this Project, especially in light of the short construction stage opportunity window and workforce training and education deficits for First Nations communities	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5 . Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment. The potential adverse economic effect of disruption of hunting, trapping, and gathering activities in the proposed Project area is assessed in Section 14.		Coastal GasLink gathered information from available sources to complete the economic effects assessment presented in Section 12 of the Application, including information from communities about traditional economy, and community reports developed by Aboriginal groups. Additional community-specific information on traditional economy is provided in Section 23 of the Application. The potential adverse economic effect of disruption of hunting, trapping, and gathering activities in the proposed Project area is assessed in Section 14 of the Application. The ability to sustain livelihoods, including subsistence harvesting activities conducted by Aboriginal groups, was considered in the description of the potential adverse effects on community quality of life (Section 15.7.1). An assessment of economic survival is beyond the scope of the assessment conducted for the Application. Coastal GasLink identified various barriers and opportunities for Aboriginal groups to obtain employment and contracts in relation to the Project in Section 12 of the Application. Section 12 of the Application also describes mitigation measures for these identified potential barriers, including Coastal GasLink's efforts to support training and education programs. As implementation of the Aboriginal Consultation Plan continues, Coastal GasLink will continue to share Project information, including information about opportunities for employment and contracting as well as education and training.

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937	Application Section 12	12-1	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The KI "Community economic resilience" is not an appropriately defined or operationalized indicator in the Application.	Further breakdown this KI to appropriate and measurable metrics.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
938	Application Section 12	General 12-29, 12-31	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Opportunities for recruitment and retention of Nak'azdli and Nadleh members in employment positions are not adequately articulated. Proper KIs ignored by the Proponent include measures of recruitment levels of Aboriginal workers, retention levels of Aboriginal workers, and development of transferable skills for Aboriginal workers (a measure of potential future career path development – advancement potential). None are considered in any meaningful way in the Application because Aboriginal employment is dealt with in an inadequate level of detail. Same with contracting/procurement capacity.	Coastal GasLink to review socioeconomic baseline and scoping reports submitted by affected First Nations and integrate VCs and KIs to reflect the values documented. Coastal GasLink to identify barriers to Aboriginal recruitment, retention and advancement in relation to pipeline projects and other large industrial projects, as identified in previous EAs and socioeconomic literature. Coastal GasLink to identify all plans, policies and training/education programs to maximize Nak'azdli and Nadleh members' ability to take advantage of employment and contracting opportunities.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 12 of the Application provides information about Coastal GasLink activities to support employment and contracting opportunities with the Project. Coastal GasLink has committed to continuing discussions with economic development representatives from Aboriginal and local communities to communicate Project requirements, potential contract opportunities and related qualifications and to identify qualified Aboriginal and local businesses interested in provided relevant goods and services as noted in Table 12-8.		
939	Application Section 12	N/A	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink incorporated selective data from SEIA scoping and baseline reports as descriptive prose but fails to adequately address these concerns through appropriate mitigation measures.	Coastal GasLink is requested to revisit the SEIA scoping and baseline reports and address potential impacts identified in a meaningful way.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns regarding the selection of VCs for the social effects assessment. The Socio-economic Scoping and Baseline Profile prepared by The Firelight Group was provided to Coastal GasLink on April 30, 2014 and such information provided will inform ongoing construction planning and detailed Project design. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan, and looks forward to ongoing discussions with Nak'azdli Band and Nadleh Whut'en First Nation..
940	Application Section 12	12-57 to 12-60	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Local and regional cost of living and inflationary pressures are not raised, regardless of the extremely large incoming workforce into a low population region, and associated increased competition for available trades and service provision workers and companies. This is a serious gap in the defensibility of the Application's treatment of economic effects.	Coastal GasLink is requested to do further assessment to predict and mitigate the effects of Project-associated inflation and pressures on availability of physical infrastructure maintenance during the construction period.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about local and regional cost of living and inflationary pressures. Evaluation of these issues is beyond the scope of the assessment.
941	Application Section 12	12-2	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Application references numerous LRMPs and OCPs for the districts and municipalities it proposes to cross, yet it fails to reference an adequate number of First Nations LUPs. The Application references LUPs for only four of the several dozen First Nations Territories' that the proposed pipeline seeks to cross. The Application goes on to state that "No economy and employment objectives are outlined in these plans..." (p.12-2). This is likely	Coastal GasLink to consider and implement information provided by Nak'azdli and Nadleh in their respective socioeconomic reports re: economic development and other community plans. Coastal GasLink to consult further with Nak'azdli and Nadleh re: community economic development and community planning goals, and provide addendum to the Application identifying potential beneficial and adverse effects of the Project on these goals.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5. Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal		Coastal GasLink provided funding to Nak'azdli Band and Nadleh Whut'en First Nation to carry out a Socio-economic Scoping and Baseline Profile. The preliminary results of this work, including community profiles and key project-related issues, were summarized in the Application, where appropriate. Section 12.4.1 of the Application provides an economic profile for each community as well as a description of project-related economic concerns. As part of the ongoing implementation of the

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							because this type of information is generally found in either and Economic Development (EcDev) Plan or a Comprehensive Community Plan (CCP). No First Nations CCPs or EcDev Plans are referenced.		group representatives, are reflected in the effects assessment.		Aboriginal Consultation Plan, Coastal GasLink will continue to engage with each Aboriginal community to address outstanding concerns and discuss community-specific needs and initiatives such as community economic development and community planning goals. Coastal GasLink appreciates the efforts of Nak'azdli Band and Nadleh Whut'en First Nation to provide the final Socio-economic Scoping and Baseline Profile on April 30, 2014 and such information provided will inform ongoing construction planning and detailed Project design and the development of site-specific mitigation.
942	Application Section 12.4	12-6, 12-9, 12-10, 12-12, 12-13, 12-14, 12-15, 12-16, 12-17	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Numerous communities are described as wanting to diversify their economies to include tourism, ecotourism and guide outfitting. These industries are inherently incompatible with the proposed project, and resource-development in general as they cater to a demographic that seek to experience pristine wilderness. The Application does not make mention of this incompatibility, let alone attempt to mitigate the potential effects the proposed project might have on economic diversification plans.	The Proponent should be required to discuss all potential futures foregone associated with the proposed Project. There is abundant literature on this critical topic to work from.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
943	Application Section 12.4	12-8, 12-9, 12-10, 12-11, 12-13, 12-15, 12-16, 12-17, 12-21, 12-46, 12-47	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Skilled worker shortage and small community "brain drain" are not meaningfully addressed. Additionally, worker influx, the Proponent's remedy to skilled worker shortage, can have dramatic results on social and economic well-being and quality of life, especially for relatively marginal sub-populations like First Nations. Skilled labour shortage mitigation offers few details.	Effects on skilled labour shortage must be considered more precisely. No useful information has been provided in this report that gives First Nations any sense of how their members will be affected by a skilled labour shortage. More information on "alternative sources of skilled workers" and exact kind of potential "disruption of the local employment market" is required.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about skilled labor shortage. Section 12.6 of the Application characterizes the potential adverse effects of skilled labor shortage and lack of time to train local workers for skilled positions. Table 12-9 outlines mitigation to address these potential adverse effects. In support of data collection, Coastal GasLink provided funding to Nak'azdli Band and Nadleh Whut'en First Nation to carry out a Socio-economic Scoping and Baseline Profile. The preliminary results of this work, including community profiles and key project-related issues, were summarized in the Application, where appropriate. Section 12.4.1 of the Application provides an economic profile for each community as well as a description of project-related economic concerns. As part of the ongoing implementation of the Aboriginal Consultation Plan, Coastal GasLink will continue to engage with each Aboriginal community to address outstanding concerns and discuss community-specific needs as well as to provide information on employment opportunities. Coastal GasLink appreciates the efforts of Nak'azdli Band and Nadleh Whut'en First Nation to provide the final Socio-economic Scoping and Baseline Profile on April

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											30, 2014 and such information provided will inform ongoing construction planning and detailed Project design and the development of site-specific mitigation.
944	Application Section 12.4	12-29 and 12-30 (Nak'azdli) 12-31 Nadleh	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	A number of challenges to Nak'azdli and Nadleh members successfully attaining training, employment and contracts are listed, although this is still only a partial list. The Application does not adequately consider or address these challenges.	The Proponent is requested to actually identify the implications of these barriers on Nak'azdli and Nadleh's capacities to take advantage of the proposed Project.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 12 of the Application provides information about Coastal GasLink activities to support employment and contracting opportunities with the Project. Coastal GasLink has committed to continuing discussions with economic development representatives from Aboriginal and local communities to communicate Project requirements, potential contract opportunities and related qualifications and to identify qualified Aboriginal and local businesses interested in provided relevant goods and services as noted in Table 12-8.		
945	Application Section 12.4	12-29	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Statistics quantifying participation in the wage economy and labour workforce are used, but there is no accounting of traditional economy participation rates and value this brings to the community.	Further work needs to be done to better understand the role that the traditional economy and harvesting play in Nak'azdli and Nadleh. Further, the findings from this need to be addressed with impact pathway identification, mitigation proposition and significance estimation.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered information from available sources for Section 12, including information from communities on traditional economy. Additional community-specific information on traditional economy is provided in Section 23. The potential adverse economic effect of disruption of hunting, trapping, and gathering activities in the proposed Project area is assessed in Section 14. Potential adverse effects on the current use of lands and resources for traditional purposes, including harvesting, are assessed in Section 16. Coastal GasLink believes that the economy effects assessment meets the requirements of the AIR.		

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946	Application Section 12.4	12-29	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Nak'adzli concerns about increased disposable income having the potential to exacerbate addiction and social issues was included in this section of the report yet no mitigation measures were proposed.	Identify mitigation measures to the potential impact. In the case that this impact is dealt with in a different section of the application, provide a reference to where these mitigation measures can be found.	Coastal GasLink confirms that Section 12.4.1 presents the local economic setting of the proposed Project. The economy effects assessment is located in Section 12.5.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about increased disposable income having the potential to exacerbate addiction and social issues. In Section 15 of the Application, Coastal GasLink notes that some Aboriginal groups identified that participating economically in the proposed Project will provide some benefit to their community, although depending on situations and the choices made by individuals, these benefits could exacerbate existing conditions, such as community cohesiveness and addictions. Coastal GasLink recognizes that the issues that have been raised by Aboriginal groups with respect to increased employment from the proposed Project and related disposable income. However, Coastal GasLink cannot predict the choices that may be made by individuals as a result of the employment opportunities made available to Aboriginal group members. Should workers require medical or support services beyond what is made available at the construction camps, Coastal GasLink will support workers in accessing appropriate services. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project, and participate in dialogue with communities about identified issues and concerns.
947	Application Section 12.4	12-31	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Work camp social environment, Proponent and prime contractor employment policies, and work scheduling are all critical to determination of degree to which First Nations can take advantage, but are subject of little discussion in the Application. For example, racism and discrimination in hiring policies and practices is not addressed in this section of the application. Further, negative experiences on the job site and in work camps can lead to high First Nations worker turnover, a "barrier" issue not broached in the application.	Coastal GasLink needs to work with primary and secondary contractors to ensure that codes of conduct at work camps are in place so that the workplace is free of racism and discrimination against First Nations employees (or any other minority group). Coastal GasLink is requested to engage with Nak'azdli and Nadleh to identify barriers and concerns related to the communities' abilities to take advantage of the Project, during not after, the EA Application Review period.	Coastal GasLink confirms that all employees and contractors are required to comply with Company policies including: <ul style="list-style-type: none"> • Alcohol and Drug Policy, • Harassment-free Workplace Policy, • Aboriginal Relations Policy, • Code of Business Ethics Coastal GasLink confirms that the selected Pipeline Contractor(s) will be required to submit an Aboriginal Participation Plan (APP) to TransCanada. Subcontractors, as designates of the Pipeline Contractor, will be obligated to adhere to the APP. Coastal GasLink has conducted an assessment on various economic and social value components in Sections 12 and 15, supported by data in Appendix 2N and 2M. In alignment with the Aboriginal Consultation Plan approved by the EAO, dialogue will continue with Aboriginal groups. It is expected this dialogue will include topics such as camps.		
948	Application Section 12.4	12-47	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The proponent inadequately addresses the 'boom and bust' nature that the proposed project will have on local economies and communities, as most employment opportunities, and any potential economic spin-offs, are short term.	Coastal GasLink is requested to identify and characterize the scope of potential "bust" effects on the local and Aboriginal workforce after the relatively short construction window, and identify all plans, programs and policies to work with First Nations to reduce adverse "bust" effects.	Coastal GasLink confirms that predicted economic and social benefits, including total Project expenditures estimated to generate labour income and training and education opportunities, are provided in Section 1.5 of the Application. Potential adverse economic effects including: limited participation in contract opportunities, alteration of existing community economic		

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									patterns and disruption of guide outfitting, hunting, trapping, and agricultural activities were identified and are addressed in Section 12 of the Application.		
949	Application Section 12.4	12-50	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Large work camps staffed with mainly out of region workers may have specific adverse impacts on First Nations workers, families, communities, economies and social function. These concerns have not been addressed in any fashion in the Application.	Proponent to identify, using readily available literature on this topic, benefits and adverse effects of long-distance commuting and work camp employment on First Nations workers, families and communities. Lessons learned from the literature and associated mitigation commitments are essential information that should be provided in the Application. Proponent to identify all work shift alternatives considered for camp employees and a rationale for the preferred 6 on:1 off rotation, which may have adverse effects on residents and families of local First Nations.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about the large construction camps. The evaluation of individual perceptions about long-distance commuting and work camp employment on First Nations workers, families and communities is beyond the scope of the social effects assessment. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns and discuss appropriate issue-specific mitigation. In addition, Coastal GasLink will work with its construction contractors to consider Aboriginal worker participation in cultural functions that may require modification to the individual's work schedule to the extent practical.
950	Application Section 12.4	12-51	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Contractors and subcontractors are expected to adhere to Coastal GasLinks guidelines related to local and aboriginal hiring. This is inadequate, as it does not ensure compliance.	Coastal GasLink to identify its committed-to compliance and/or accountability mechanism for contractors and subcontractors to adhere to guidelines related to local and aboriginal hiring.	Coastal GasLink confirms that the selected Pipeline Contractor(s) will be required to submit an Aboriginal Participation Plan (APP) to TransCanada. Subcontractors, as designates of the Pipeline Contractor, will be obligated to adhere to the APP. Coastal GasLink expects that the majority of the hiring will take place through the clearing, camp and catering, security and medical contractors directly by Coastal GasLink which has identified these services as Designated Services. Coastal GasLink will nominate the contractual responsibility to co-ordinate and support these contractors to the Prime Construction Contractors (Prime).		
951	Application Section 12.4	12-52, 12-63 (Table 12-9)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink is in the process of developing training and education programs independent of First Nations and local community input. Aboriginal groups have little of substance to guide assessment of likely ability to take advantage of the Project without more information on: - specific First Nations preferential hiring and/or targets; - specific and detailed commitment to advance training for First Nations; and - evidence from TCPL case studies of the proportion of workers from Aboriginal communities in previous TCPL pipeline construction projects. The absence of detailed evidence of Project-related training and education programs at the time of Application, for a Project planned	Coastal GasLink is requested to identify in more detail how it is developing in a timely fashion training and education programs and workforce engagement opportunities in consultation with local First Nations.	Coastal GasLink confirms that an overview of the Aboriginal Participation Strategy is included in Section 1.5.7 of the Application. Coastal GasLink developed two programs to support community capacity building, namely, 'Pathways to Pipeline Readiness' which focuses on Local workforce readiness training directly related to the Project; and TransCanada 'Education Legacy Program' which aims for long-term community capacity building through education. Dialogue will continue with Aboriginal groups to enable and facilitate participation in these programs. Coastal GasLink is also supporting the development of community capacity including providing capacity funding for communities to engage with Coastal GasLink and building collaborative community partnerships focused on long-term community capacity building.		

Coastal GasLink Project: Working Group Comment Tracking Table

EAO has reviewed and considered these comments and responses in preparing the referral package for the Minister's response.

Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
							to break ground in 2015, is very troubling. More details are required in the final Application. At present, the lack of a detailed training plan makes the impact raised in Table 12-9 "Lack of time to train local workers for skilled positions" an inevitable outcome, making the Proponent's estimation that there will be no residual effect related to this issue un-credible.				
952	Application Section 12.4	12-45	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Economic benefits to the province and regional districts are estimated, but this section of the application fails to address how First Nations may be able to benefit.	Further analysis must be conducted in order to determine whether or not the project benefits outweigh the project costs in the area of economics. The analysis must provide a breakdown of KIs for Aboriginal and non-Aboriginal populations at the very least. As it stands, there is insufficient information for First Nations to understand how this project might provide net benefits (or not) to their communities.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink notes that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about Project impacts and benefits for Aboriginal communities. The Application includes a comprehensive assessment of potential adverse effects on the economy VC identified in the AIR and includes discussion about efforts to create opportunities for benefits through participation in Project activities, employment and contracting opportunities, education and training initiatives, and Coastal GasLink's community investment efforts. Coastal GasLink will continue to implement the approved Aboriginal Consultation Plan which includes sharing information about opportunities for Aboriginal groups to participate in the Project.
953	Application Section 12.5	Table 12-8 on p.12-56	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Mitigation strategies identified to enhance participation in contract opportunities are inadequate. Despite this, in Table 12-8, the Proponent suggests that there will be no residual adverse effect in the form of "limited participation in contract opportunities". This statement is not credible based on the mitigation put forward. This finding is subject to a high degree of uncertainty, and no evidence put forward to support the efficacy of this mitigation or the likely magnitude of this impact. This is poor SEIA, especially as it relates to the ability to take advantage of such developments of capacity constrained and barrier-ridden First Nations.	The Proponent is requested to reconsider its assessment of the ability of Aboriginal companies to participate equitably in contract opportunities with hard evidence from plans, programs, experience and case studies from the pipeline sector. Please show evidence of the degree to which Aboriginal companies will be able to compete with an influx of outside companies and still participate in an equitable fashion.	Coastal GasLink confirms that Section 12.5.2 of the Application states that Coastal GasLink is committed to supporting local and Aboriginal participation in the proposed Project. Coastal GasLink believes that with the application of extensive mitigation described on pages 12-58 to 12-60, with particular focus on Aboriginal groups, there will be no potential residual adverse effect related to limited participation in contract opportunities.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
954	Application Section 12.5	Table 12-8 on p.12-56	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The economic effects assessment does not include consideration of "differential ability to take advantage" between Aboriginal and non-Aboriginal sub-populations and does not do so. This is not acceptable practice of SEIA where there are Aboriginal sub-populations with clearly different socio-economic starting points from surrounding populations and the population at large.	Include consideration in the economic effects assessment of "differential ability to take advantage" between Aboriginal and non-Aboriginal sub-populations.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 12 of the Application provides information about Coastal GasLink activities to support employment and contracting opportunities with the Project. Coastal GasLink has committed to continuing discussions with economic development representatives from Aboriginal and local communities to communicate Project requirements, potential contract opportunities and related qualifications and to identify qualified Aboriginal and local businesses interested in provided relevant goods and services as noted in Table 12-8.		
955	Application Section 14	14-1, Table 14-1	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Spiritual/healing uses are not listed as a land use type.	Include spiritual/healing use in the list of Key Indicators, here and/or in Section 16.	The VCs and KIs selected for the social effects assessment are identified in Section 6 of the AIR.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns that specific spiritual healing uses are not identified as a land use type in Section 16 of the Application. The VC Cultural Sites includes the KI Sacred Areas. The assessment of the potential adverse effect "Disturbance of Sacred Areas" addresses potential adverse effects on locations that are of spiritual importance to Aboriginal communities. This characterization is presented in Section 16.7 of the Application. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns and discuss appropriate site-specific mitigation.
956	Application Section 14	14-3 14-49 14-53	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Consulting land use plans is an incomplete information review when assessing designated current and future land use. Comprehensive Community Plans (CCPs) and Economic Development Plans should also be reviewed as these can also dictate current and future land use. Desire future use as laid out by First Nation's LUPs, CCPs, Economic Development Plans and municipal/regional LRMPs and OCPs are not addressed. The Proponent concludes at 14-53 that "No conflicts were identified between management directions for the land use zones crossed and the proposed Project". This conclusion is based on an incomplete review of relevant documents. The proposed project crosses areas that are addressed as part of Nak'azdli's Stewardship Policy.	Review, analyze and integrate information published in CCPs and Economic Development Plans for communities where they are available. For example, Nak'azdli has recently developed community visioning materials related to land use planning in its Stewardship Plan that should be considered. The potential impacts to Nak'azdli's Stewardship Policy must be addressed and proposed mitigation strategies put forth. The Application should include research, assessment of potential impacts and proposition of mitigation measures on the desire future land use as laid out by First Nation's LUPs, CCPs, Economic Development Plans and municipal/regional LRMPs and OCPs.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered information from available sources to inform the assessment presented in Section 14, including available Aboriginal land use plans and policies such as the Nak'azdli Stewardship Policy as noted on pages 14-3, 14-4. Section 3.2.4 of Volume 2M Social Technical Report discusses the proposed Project's compatibility with available plans, including the Nak'azdli Stewardship Policy.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
957	Application Section 14	14-27, 14-30	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Relevant community identified VCs are not addressed as part of the 'key issues and concerns' discussion.	Incorporate community identified VCs into this discussion to ensure that they are addressed in subsequent portions of the Application.	The VCs and KIs selected for the social effects assessment are identified in Section 6 of the AIR. Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have identified VCs in the Socio-economic Scoping and Baseline Profile. VCs for the purpose of the Application were defined in the AIR, issued by EAO in May 2013. In support of data collection, Coastal GasLink provided funding to Nak'azdli Band and Nadleh Whut'en First Nation to carry out a Socio-economic Scoping and Baseline Profile. The preliminary results of this work, including community profiles and key project-related issues, were summarized in the Application, where appropriate. Coastal GasLink appreciates the efforts of Nak'azdli Band and Nadleh Whut'en First Nation to provide the final Socio-economic Scoping and Baseline Profile on April 30, 2014. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.
958	Application Section 14	General, 14-1, Table 14-1	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Healthy and undisturbed nature and healthy and abundant wildlife are recorded as key values in the Nak'adzi and Nadleh Socioeconomic scoping document. These are not reflected in the list of VCs and KIs presented by the proponent	The proponent should include VCs and KIs put forth by the Nations in a revised assessment.	The VCs and KIs selected for the social effects assessment are identified in Section 6 of the AIR. Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have identified VCs in the Socio-economic Scoping and Baseline Profile. VCs for the purpose of the Application were defined in the AIR, issued by EAO in May 2013. The Application contains an assessment of potential adverse effects on ecological health is provided in Section 20 of the Application, and an assessment of potential adverse effects on wildlife and wildlife habitat is presented in Section 10 of the Application. In support of data collection, Coastal GasLink provided funding to Nak'azdli Band and Nadleh Whut'en First Nation to carry out a Socio-economic Scoping and Baseline Profile. The preliminary results of this work, including community profiles and key project-related issues, were summarized in the Application, where appropriate. Coastal GasLink appreciates the efforts of Nak'azdli Band and Nadleh Whut'en First Nation to provide the final Socio-economic Scoping and Baseline Profile on April 30, 2014. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.

Coastal GasLink Project: Working Group Comment Tracking Table

EAO has reviewed and considered these comments and responses in preparing the referral package for the Minister's response.

Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
959	Application Section 14.2.2	14-3	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Nadleh provides directive for proposed industrial development in their territory that is not referenced here.	Nadleh's policies with respect to industrial development need to be acknowledge and adhered to: http://www.nadleh.ca/projects/policies/ . Please revise Application accordingly.	Coastal GasLink gathered information from available sources for Section 14, including available Aboriginal land use plans and policies. The link provided by the reviewer states: "The Nadleh Whut'en First Nation is actively working on developing policies that are consistent with our traditional laws, within a modern context". Coastal GasLink will continue to consider available information as construction planning and detailed engineering design advances.		
960	Application Section 14.4.5	pg. 14-84 onwards	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The ROW will be a long-term visual feature on a variety of First Nations' cultural landscapes, however VQOs were not established with inputs from affected First Nations or conducted with involvement of same.	Establish VQOs in First Nations territory, where the ROW plans to intersect the territory and ensure First Nations participation in establishing these VQOs and actually evaluating visual quality changes, which will differ between different culture group observers. Distinguish between visual quality/aesthetics impacts on Aboriginal vs. non-Aboriginal observers in effects characterization and significance estimation.	Coastal GasLink confirms that VQOs are established by the BC Ministry of Forests, Lands and Natural Resource Operations. Coastal GasLink reviewed the overlap between established VQOs and the Project route as presented in Section 14.4.5.		
961	Application Section 14.5.1	pg. 14-87 to 14-104	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Effects identified in independent reports are generally absent in the effects assessment without explanation. Reference to issues raised by CSTC are included in section 14.4 but are not carried forward to effects assessment. This issue was raised in Nak'adzi's Application Evaluation (dated Feb. 19th, 2014)	More detailed integration of critical considerations raised in the Nak'azdli and Nadleh SEIAs is required.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered information from available sources to inform the assessment presented in Section 14, including available community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives .. Community-specific issues identified from available sources, such as community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are included in the effects assessment.		Coastal GasLink appreciates the efforts to develop the Socio-economic Scoping and Baseline Profile, prepared by The Firelight Group and provided to Coastal GasLink on April 30, 2014. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.
962	Application Section 14.5.3	pg. 14-106 to 14-131	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The evaluation of significance is misinformed and based on inaccurate assumptions. For each section, the estimated duration of the impact is short-term. However, there are many impacts that will be felt longer term and thus the significance estimate must be revisited. For example: Increased access along the proposed route is a longer-term impact that could open up harvesting areas to more and more people causing declines in hunted species.	Coastal GasLink to revisit effects characterizations, preferably with more engagement of individual First Nations, who will feel effects differently depending on a variety of factors that have not been appropriately integrated into the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered information from available sources to inform the assessment presented in Section 14, including available community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives .. Community-specific issues identified from available sources, such as community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are included in the effects assessment.		To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. Short-term is the appropriate estimate of duration since the event causing the effect is construction. Reversibility addresses the length of time the effect can be detected, and varies from short to long term for residual adverse effects on current use of land and resources. Information about the assessment methodology is provided in Section 3 of the Application.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
963	Application Section 15	General	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	A general concern with the assessment of social impacts is that impacts of the proposed six days in, one day out, work camp schedule on local First Nations communities, with expected "pulses" of workers coming into communities on their day off, are never mentioned let alone properly assessed. For Fort St. James and Fraser Lake First Nations members, there are legitimate public safety and social function/dysfunction issues that need to be assessed alongside the economic benefits mentioned in some detail in Section 1. Also, consideration of in-migration of job seekers during the labour intensive construction window is important and appears largely to be ignored herein.	Please provide a proper social impact assessment of the effects of in-migration and "off shift" worker traffic in local communities, during the construction phase of the Project.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about in-migration and "off shift" worker traffic in local communities. Section 15 of the Application addresses the potential effects of the Project on Community and Regional Infrastructure and Services, including an assessment of the VCs Community Utility and Services (KIs are Emergency Services, Health Care Services, Recreational Facilities, Waste Management Facilities, Housing and Commercial Accommodations, Social Services, Education Services, and Government Services), Transportation, Infrastructure and Services (KIs are Traffic and Navigability of Waterways), and Community Quality of Life (KI is Community Quality of Life). The focus of the effects assessment is on the increased demand on services as a result of the Project construction. Project workers and contractors will be housed in Construction Camps, and are required to adhere to the Trans Canada's policies about employee conduct. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.
964	Application Section 15	General	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	There is no consideration in the Application given to social stresses placed on First Nations communities during the EA and regulatory stages of approvals. Project announcement and EA process can put psychological stress on individuals and local communities, resulting in avoidance behaviours, intrusive recollections, and low self-efficacy ¹ . Project assessment is hugely resources intensive and draws capacity away from other projects and routine operations.	Coastal GasLink should refer to socioeconomic literature on these psycho-social and other stresses associated with multiple and/or extremely large industrial projects being proposed in First Nations territory, and incorporate analysis of these impacts into social effects assessment.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about social stresses placed on First Nations communities during the EA and regulatory stages of approvals. Section 3.3 of the Order issued under Section 11 of the BC <i>Environmental Assessment Act</i> states that "the scope of the assessment for the proposed Project excludes activities required to prepare the Application, whether or not these activities are subject to authorization under other enactments". Through implementation of the approved Aboriginal Consultation Plan, Coastal GasLink has shared information about the Project and engaged in discussion about concerns. Nak'azdli Band and Nadleh Whut'en First Nation have participated in the EAO Working Group which provides opportunities for input during the development of the AIR and the review of the Application. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
											site-specific mitigation.
965	Application Section 15.4.1	pg. 15-12, 15-15, 15-16	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	RCMP, BCAS and medical services professionals have all noted concerns about a shortage of staff and ability to provide services but no adequate mitigation measures are put forth.	Coastal GasLink needs to work with each service provider to ensure that an increased number of employees are hired to staff the region during construction.	Coastal GasLink will communicate with service providers to identify potential issues, such as staffing requirements as noted in Table 15-18.		
966	Application Section 15.4.1	pg. 15-19, 15-21, 15-44	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	First Nations' health services infrastructure and social support services are already over capacity. Dealing with increased population, mental and physical health issues associated with the proposed project would further overload these services. This is not explicitly recognized or mitigated for in the Application.	Coastal GasLink needs to further research, consider and integrate impact pathways and effects on First Nation's health and social support services. Coastal GasLink needs to put forth adequate mitigation measures to effects on First Nation's health and social support services	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		The community and regional infrastructure and services effects assessment meets the requirements of the AIR and the measures identified in the assessment will be implemented to mitigate potential adverse effects associated with health care services.
967	Application Section 15.4.1	pg. 15-21	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink states that they have not confirmed the provision of social support services in construction camps and suggest that workers can access services in nearby communities. Placing added stress and capacity on services that are already operating at or beyond capacity is simply unacceptable.	Coastal GasLink should commit to provide social and health services at work camps and/or support increased pressures on those services in local communities. Responsible government agencies are requested to work with Coastal GasLink and First Nations governments to identify and manage against any gaps in local service provision First Nations can expect to face as a result of this Project, alone or in combination with other reasonably foreseeable future developments, including additional proposed LNG-related pipelines.	Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.		
968	Application Section 15.4.1	pg. 15-30, 15-98 (Table 15-32)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Construction camps are noted as a solution to housing shortages but the negative impacts associated with construction camps, as highlighted in the Nak'azdli and Nad'leh Socioeconomic Scoping Reports, are not noted in this subsection. Increased demand for rental housing and therefore increased pricing for rental housing will likely still occur despite construction camps being built.	Coastal GasLink needs to give proper consideration to the issues associated with construction camps in the reports noted at left, and meaningfully integrate these into the Application. Coastal GasLink is requested to properly assess the likelihood and magnitude of this Project, alone and cumulatively, to contribute to inflation of rental housing prices in Fort St. James, Fraser Lake and Vanderhoof, and assess implications for affected First Nations.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink believes that with the provision of construction camps to house temporary workforce, as well as the temporary nature of the construction workforce, it is not expected that an influx of temporary workers will put a strain on rental housing supply or rental prices as noted in Section 15.4.1.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
969	Application Section 15.5.1	pg. 15-45 to 15-47 (Table 15-8)	N/A	22-Apr-14	N/A	Nak'azdli and Nad'leh Whut'en First Nation	<p>Potential Adverse Social Effects listed in table 15-8 are incomplete. Mitigation measures suggested do not adequately address the limited number of effects listed</p> <ul style="list-style-type: none"> - E.g. "Increased demand on community social services" is very high level and has a wide range of impacts that are not addressed by the mitigation options put forth. Providing access to additional social services at the construction camp is one example of a basic mitigation strategy that is not considered. - E.g. Increased cost of rental housing is not considered as a potential adverse effect, yet this has the potential to exacerbate homelessness and poverty in many communities and should be mitigated for. - E.g. Increased demand for educational services is noted as an adverse effect but mitigation measures do not include ensuring access by First Nations. 	<p>Coastal GasLink to engage in further consideration of potential impact pathways and development of appropriate mitigation measures, in relation to the issues noted at left.</p> <p>Coastal GasLink to engage with Nak'azdli and Nadleh in a proactive way to identify potential mitigation and monitoring mechanisms for issues raised by the Nations in their Socioeconomic Reports, and revise EA commitments accordingly.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO.</p>		<p>Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nations have identified concerns about certain potential adverse social effects.</p> <p>Section 15 of the Application assesses the potential effects of the Project on Community and Regional Infrastructure and Services. Potential effects related to increased demand on emergency services, social services health care services and education are addressed in Section 15.</p> <p>Coastal GasLink will use camps to house project workers, thereby reducing the potential effects on the available housing stock in communities. In addition, all project workers and contractors will be required to adhere to the Project code of conduct, which outlines expected behaviour while working on the Project, and while in communities.</p> <p>Coastal GasLink has and will continue to engage with each Aboriginal community to address concerns and discuss community-specific needs.</p>
970	Application Section 15.5.3	pg. 15-48 to 15-59	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>The characterization of potential residual effects is inadequate and relies on thin and unreliable reasoning.</p> <p>E.g. Increased demand on health care and social services is said to have 'accidental or isolated frequency'. This is arguable as the demand for these services will evidently increase due to two factors: increased population in the region and increased stress, anxiety and health of local residents.</p>	<p>Coastal GasLink needs to revisit, reconsider and more accurately defend its rationale for residual effects characterization for this VC.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p>		<p>The Social and Economic Effects Assessments were prepared by professionals with experience on major projects in the Project area and elsewhere. The EA was prepared in accordance with the AIR and accepted as complete by the EAO in March 2014.</p> <p>Coastal GasLink provided funding for socio-economic studies for Nak'azdli Band and Nadleh Whut'en First Nation. The results of the preliminary studies, including community profiles and key project-related issues, were used in conducting the EA, where appropriate. Coastal GasLink has and will continue to engage with each Aboriginal community to address concerns and discuss community-specific needs as well as to provide information on employment opportunities.</p>
971	Application Section 15.5.4	pg. 15-60, 15-75, 15-88, 15-104, 15-111	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Significance determination is based on qualitative thresholds that are poorly defined and rationalized.</p> <p>Significance estimates are based on inaccurate effects assessment (Table 15-20)</p>	<p>Coastal GasLink needs to work with impacted communities to co-develop appropriate significance thresholds for social effects assessment and then apply co-developed thresholds to the significance determination exercise. The EAO is encouraged to set up appropriate Working Group meetings to provide the Proponent more detailed guidance on additional social effects assessment.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p>		<p>The Social and Economic Effects Assessments were prepared by professionals with experience on major projects in the Project area and elsewhere.</p> <p>The EA was prepared in accordance with the AIR and accepted as complete by the EAO in March 2014.</p> <p>Coastal GasLink provided funding for socio-economic studies for Nak'azdli Band and Nadleh Whut'en First Nation. The results of the preliminary studies, including community profiles and key project-related issues, were used in conducting the EA, where appropriate. Coastal GasLink has and</p>

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972	Application Section 16.1.1	pg. 16-1	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>The effect pathways are not clearly described, and are generic, and several are missing. It is not clear what specific Project components/activities and receptors are interacting. As noted above, Section 4 should include a clear description of this interaction in a matrix with more precise definitions of indicators and Project activities. This is missing from the Application. Coastal GasLink decided instead to express these interactions in each VC-specific section, Section 16.1.1 in this section. This information is all provided as a generic written description. The EAO's VC Selection Guide also recommends a diagram be used to convey particularly complex pathways like TLRU (bottom of p. 21).</p> <p>The description of the effect pathway does not adequately describe the likely effect that will be experienced by Nadle and Nak'azdli members:</p> <p>a) There is no description or assessment of the effect pathway related to effects on social, economic, health, and cultural receptors that have effects on TLRU activities. Increase in waged economy activities has an effect on participation in TLRU activities. (Note: efforts implied in these comments are to clearly document the effect as accurately as possible, within the time restrictions of an EA.)</p> <p>b) There is no description of the effect pathway related to perception of risk related to construction and operation activities that produce noise, dust, and other pollution on perceived contamination of food and medicine. This is a well-known and studied effect relationship that is considered in EA (Candler et al., 2011) and is known to lead to avoidance of an area at a much greater radial extent than the biophysical effect (Gibson, 2004).</p> <p>c) Long-term effects on loss of traditional knowledge in locations destroyed, locations where project impacts sense of place, reduces enjoyment of engaging in TLRU practices on land and water, and/or</p>	<p>1. Effects pathways should be updated to indicate which Aboriginal groups are likely to be influenced by which pathways.</p> <p>2. Add the following effect pathways to the TLRU effects assessment:</p> <ul style="list-style-type: none"> - Impacts on TLRU effects resulting from Project and cumulative effects on social, economic, health, and culture. - Increase perceived risk (safety or contaminant related), and resulting impacts on TLRU resulting from Project activities for all phases of the proposed Project - Loss of traditional knowledge and TLRU practices related to specific geographic areas where enjoyment of being on the land and water is diminished and/or access is reduced or altered permanently or over a long period of time. 	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		will continue to engage with each Aboriginal community to address outstanding concerns and discuss community-specific needs.

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							access is reduced or altered permanently. Candler, C. with the Athabasca Chipewyan First Nation. (2011, April 20). Athabasca Chipewyan First Nation Integrated Knowledge and Land Use Report and Assessment for Shell Canada's Proposed Jackpine Mine Expansion and Pierre River Mine. Gibson G, Froese K. 2004. Hazardous Waste: Disrupted Lives. First Nation Perspectives on the Alberta Special Waste Treatment Centre . Edmonton: Environmental Health Sciences, University of Alberta.				
973	Application Section 16	pg. 16-2 and general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink states that "[t]he selected KIs represent components of the environment that are of particular value or interest to Aboriginal groups" (p. 16-2), yet the KIs are never measured or operationalized in any way to reflect these values. It appears that the assessment was done without attention to baseline data. In addition, there is no indication that these KIs were agreed upon by or presented to the Proponent by Aboriginal groups. In fact, neither Nadleh nor Nak'azdli agreed with the VCs as presented in the dAIR as noted in previous letters and correspondence re: the dAIR.	The proponent should be required to reconsider and resubmit its assessment in section 16 at the level of individual Aboriginal Groups once adequate baseline data is available. In light of the fact that neither Nak'azdli nor Nadleh agreed with the selected KIs, please identify how the Proponent came to the determination that these KIs were the appropriate ones of particular value to Aboriginal groups.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		

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974	Application Section 16	General	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Proponent appears to have made a number of errors in its characterization of residual effects in section 16. The AIR for the Project. (p. 23) states: "Likelihood refers to whether a residual effect is likely to occur. Likelihood must be stated for all residual effects after the significance determination has been made, because likelihood of an occurrence is not a determinant of significance", but throughout section 16 the proponent has considered likelihood as part of their characterization of residual effects and prior to significance determination, and actually explicitly includes likelihood in its definition of significance. The definition of Significance used by the Proponent (Application, s. 16.6.4) states: A residual adverse social effect is considered significant if the effect is predicted to be: high magnitude, high likelihood, short to medium-term reversibility and regional, provincial or national in extent that cannot be technically or economically mitigated; high magnitude, high likelihood, long-term or permanent reversibility and any spatial boundary that cannot be technically or economically mitigated. The Proponent also appears to have systematically underestimated the magnitude and duration of residual effects on Aboriginal use of lands and resources.	1. The Proponent has included likelihood in its definition of significant effects (application S. 16.6.4). This is in direct opposition to section 3.8 of the Project AIR. As a result, and in addition to other reasons, all significance determinations in section 16, should be considered invalid. The Proponent should be required to: a) engage with each First Nation regarding a relevant threshold for determining significance that is consistent with professional standards, and with the AIR, b) update and improved baseline data, including data on context consistent with the AIR and using a pre-development baseline. c) characterize effects on each aboriginal group, and in consultation with each group along the proposed right of way with attention to specific preferred locations, preferred species or resources, and preferred means of practice. 2. The Proponent should be required to consider alteration of resources with a duration of 30+ years to have a permanent and irreversible effect on Aboriginal use because of multi-generational impacts on use and knowledge transmission. 3. The Proponent should be required to justify magnitude of impact on each Aboriginal group based on the criteria included in the AIR (p. 22-23), and with attention to the most sensitive receptors, or most vulnerable sub-populations (family groups, houses, youth, etc.).	Appendix 1A of the Application includes the AIR issued by the EAO and the September 23, 2013, letter from Coastal GasLink updating the AIR, which were accepted by the EAO. The letter included an update of the information under heading 3.8. It now reads: "Likelihood refers to whether a residual effect is likely to occur. The application will describe the likelihood of the potential residual adverse effect using appropriate quantitative or qualitative terms, and describe the rationale for the stated conclusions." Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
975	AIR	AIR, p. 16	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	AIR for Coastal Gas Link, p. 16, bulleted list in section 3.4 requires that the Application include a Traditional Lands and Resource Use Technical Report: "Baseline information will be compiled based on the following technical reports: ... Traditional Land and Resource Use Technical Report ..." This appears not to have been included in the body or appendices of the Application.	Please indicate where the Traditional Lands and Resource Use Technical Report, required in the AIR, is located, or otherwise produce it.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The AIR does not require the submission of a "Traditional Lands and Resource Use Technical Report".		
976	Application Section 16	pg. 16-4	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Characterization of cultural sites and practices of FN is historically based and broad. It does not reflect current practices or provide an indication that the Proponent is familiar with contemporary practices within the Nak'azdli and Nadleh communities.	Please provide the above-noted Traditional Lands and Resource Use Technical Report, including meaningful literature and primary data collection from the culture groups themselves, to provide an acceptable picture of cultural values and areas of high cultural value that may intersect with the proposed Project.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The AIR does not require the submission of a "Traditional Lands and Resource Use Technical Report". Coastal GasLink facilitated the collection of TLRU information with potentially affected Aboriginal groups that focused on the current use of Crown lands for traditional activities potentially disturbed by proposed Project Coastal GasLink provided funding to assist Aboriginal groups that chose to conduct their		

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									own community-directed third party TLU studies. Coastal GasLink will continue engagement with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO. Coastal GasLink will continue to facilitate TLU studies with interested Aboriginal groups and the results will inform construction planning and detailed engineering design. Section 23 provides information about the development and progress of each participating Aboriginal groups' TLU study conducted for the proposed Project.		
977	Application Section 16.4	pg. 16-5 to 16-8	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Spatial extent: On page 16-3, Coastal GasLink states that the "spatial and temporal extents of known subsistence resources are often defined by the action of the harvest itself and, consequently, examples of these traditional features are provided above". It is agreed that the extent of the TLRU VC must be defined based on actual Aboriginal use and occupancy (e.g. the "action of the harvest"). However the justification of study area boundaries on page 16-6 is not consistent with this statement on page 16-3, nor is it credible. Separate assessment areas reflecting the intersection of the Project footprint and LSA with EACH Aboriginal group's territory should have been use. The decision to use other VC spatial boundaries (see table 16-3) as a proxy for TLRU VC is not a credible approach. As a result, the LSA established by proponent is too small.	1. Coastal GasLink should be required to revise the spatial boundaries for TLRU assessment and redo its assessment using relevant spatial boundaries. The boundaries should be based on the extent of "project effects", as per the EAO VC Selection Guide, and the assessment should be done at the scale of individual Aboriginal group territories, or at least a reasonable approximation thereof. Territories or reasonable estimates of them are readily available for most of the proposed line. To fail to do this is to reduce the assessment to a meaningless jumble of generalities and template statements. See CEAA 1999 (practitioner's guide) for guidance on determination of spatial boundaries for assessment. 2. Coastal GasLink should be required to demonstrate how Aboriginal groups were consulted regarding appropriate spatial boundaries for assessment, and either delete Table 16-3 and references to proxy spatial boundaries for TLRU, or demonstrate how these were considered alongside definition based on information regarding Aboriginal use and occupancy and the "action of the harvest itself.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
978	Application Section 16.2	pg. 16-5	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink states that "[w]hile the LRMPs and OCPs do not specifically address traditional land and resource use with respect to pipeline development (Appendix 2-M of this Application), most of these plans provide broad guidance for the inclusion of Aboriginal peoples in land and resource use planning to ensure that land use decisions do not infringe on Aboriginal or Treaty rights, and identify existing and potential areas of traditional use (Integrated Land Management Bureau 1997, Government of British Columbia 1999a,b, 2000, 2002, 2007)." This statement is misleading, the very old, usually Provincial-led LRMPs that exist for some of the LSA and RSA of the Project, do not "ensure that land use decisions do not infringe on Aboriginal or Treaty rights". Further, these plans generally do not provide meaningful description of the areas used to exercise Aboriginal rights and interests, preferred species, or means and	1. Delete entire section of sentence: "...to ensure that land use decisions... of traditional use" (p. 16-5). 2. Coastal GasLink should be required to demonstrate how their assessment meets Nak'azdli's stewardship policy objectives, and how the policy influenced Coastal GasLink's assessment 3. The proponent should be required to indicate what further effort it made to identify "anticipated future uses and traditional use of the proposed Project area", as required in the AIR.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered information from available sources to inform the assessment presented in Section 14, including available Aboriginal land use plans and policies such as the Nak'azdli Stewardship Policy as noted on pages 14-3, 14-4. Section 3.2.4 of Volume 2M Social Technical Report discusses the proposed Project's compatibility with available plans, including the Nak'azdli Stewardship Policy.		

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							are generally not adequate for considering anticipated future use of lands and resources at a level useful for Project specific evaluation. The description of the Nak'azdli Nation Stewardship Policy on page 16-5, provides a brief description for the document but offers no explanation for how it is used or considered by the proponent.				
979	Application Section 16.4	pg. 16-8	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Temporal boundaries for the Project are provided, but not for the VC TLRU. As required by the EAO's VC Selection Guide (p. 16), a temporal boundary must also be established for VCs. As indicated in Section 11.3 of the AIR, the assessment is required to consider "identification of present, past and anticipated future uses and traditional use of the proposed Project area".	Coastal GasLink must establish temporal boundaries for TLRU that consider the annual round of Aboriginal communities, including identification of present, past and anticipated future uses and traditional use of the proposed Project area, and that allow for information to be collected to establish key cycles and trends over time for each KI.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the temporal boundaries for the assessment in Section 3.2.2. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
980	Application Section 16.5	pg. 16-9	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink states that "[t]he results of the literature and desktop review were verified and augmented through field data collection by potentially affected Aboriginal groups" (p. 16-10). Coastal GasLink's efforts to understand Nadleh and Nak'azdli information based on literature and desktop sources are inadequate. It is unclear to Nak'azdli and Nadleh how information on TLU and TEK could be adequately collected from a desktop study. Our TLU and TEK information is largely held within the land, people, and in our spiritual relationship with lands, waters, and animals. Efforts at finding information that overlaps in time and space with the proposed Project components and activities cannot be found in general ethnographic histories of a people. It must be collected through primary data collection, using community-accepted social research methods. Baseline profiling of either current use, or pre-development use is almost completely absent. Section 11.3 of the AIR requires "identification of present, past and anticipated future uses and traditional use of the proposed Project area, including, but not limited to, using cultural research methods (e.g., Use and	1. The proponent should be required to identify what documents were reviewed for the baseline characterization of Nadleh and Nak'azdli use. The bibliographic listing provided is incomplete – if these are the only sources relied upon, the proponent should be required to revise in consultation with Nadleh and Nak'azdli. 2. The proponent should be required to identify what methods were used to verify the adequacy of these documents in describing TLRU KIs for this assessment. Evidence of this verification work must be provided (e.g. quotations from interview participants). 3. The proponent should be required to provide a pre development and current use baseline for each aboriginal community, particularly Nadleh and Nak'azdli. This is necessary to understand context of effects and trends, and to conduct a reliable assessment of Project and cumulative effects on use of lands and resources, as well as rights and interests.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the Vices and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about the literature reviewed and the methods used to assist with the baseline characterization of Aboriginal communities. Section 23 provides information pertaining to the results of the literature and desktop review, and also for the potential resource-use issues as identified by participating Aboriginal groups that have historically used or presently use the TLRU Regional Study Area to maintain a traditional lifestyle. The results of the literature and desktop review were verified and augmented through field data collection by potentially affected Aboriginal groups and are also provided in Section 23. The standards and guidance outlined in Section 3, Effects Assessment Methods, were adhered to for the assessment. Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation to reduce potential adverse Project-related effects. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. TLU information pertaining to

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							Occupancy Maps Surveys and library research)".				Nak'azdli Band and Nadleh Whut'en First Nation was summarized from the preliminary draft of a third-party, independent TLU study conducted by Carrier Sekani Tribal Council and provided to Coastal GasLink. This information is presented in Section 23 (23.8), and informed the assessment of the potential Project-related adverse effects and mitigation strategies which were reviewed directly with participating community members during the field surveys. Confirmation of the accuracy of discussed information in Project planning occurred during community results review follow-up (Section 3.2.2). Information arising through engagement activities with Nak'azdli Band and Nadleh Whut'en First Nation is also provided in the Aboriginal Consultation Reports 1, 2 and 3.
981	Application Section 16.5	pg. 16-10	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	"Mitigation meetings are expected to be held after the conclusion of the community's TLU..." Nak'azdli and Nadleh provided Preliminary Reports well earlier than the final TLU reports which have not led to any structured mitigation meetings to date. Follow up meetings were perfunctory and inadequate in addressing Nadleh's concerns regarding their issues identified. We are only hearing about follow up on issues in April after inquiring further about it with the Proponent.	Given the multiple flaws in the traditional land and resource use section of the Application, the Proponent is recommended to schedule and conduct meaningful effects characterization and mitigation meetings with each affected First Nation, to facilitate identification of locations where increased impacts are likely to be encountered, and mitigation and monitoring requirements for these locations, and to identify the required "per First Nations" effects significance of the Project on traditional land and resource use.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the Vices and Kis for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that a meeting was held with Nak'azdli Band and Nadleh Whut'en First Nation on January 16 2014 which included discussion of issues raised to date through engagement activities. Issues and concerns identified by Nak'azdli Band and Nadleh Whut'en First Nation are presented in Sections 23.9 and 23.8 respectively.		Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.

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982	Application Section 16.5	pg. 16-10	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	On line 22, Coastal GasLink refers to several third-party TLU studies but provides no reference to them in this section. All content is provided in Section 23. For comments on what was included (or not included) from these third-party TLU studies, please see comments on Section 23. Information presented here is very generic and offers little insights into TLU activities adequate for baseline characterization, let alone an effects assessment, identification of reasonable mitigations, and significance determination.	1. Baseline Information reflecting a thorough understanding of available sources, or of third-party TLU studies is entirely missing from Section 16. The proponent should be required to resubmit section 16 with inclusion of relevant baseline, and assessment, specific to each of the Aboriginal communities likely to be affected, particularly Nadleh and Nak'azdli. Summaries in Section 23 are not adequate baseline. 2. Description of mitigation meetings and follow-up meetings that "confirmed the accuracy of the information" on TLU seems to apply to all First Nations. Is this the case? Did all First Nations participate in these meetings at once and all agree to mitigations? This sentence should be deleted, or a more precise description should be required, including what capacity was provided for Aboriginal communities to review proposed mitigations, their likelihood of success and need for monitoring and follow-up.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 16 of the application presents the assessment of the potential adverse effects of the proposed project on traditional land and resource use. The information in Section 16 considers information provided in Section 23. Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO. Coastal GasLink continues to facilitate mitigation meetings with interested Aboriginal groups. A discussion of mitigation occurred at a meeting with Nak'azdli Band and Nadleh Whut'en First Nation on January 16, 2014.		Coastal GasLink acknowledges that Nak'azdli Band and Nadleh Whut'en First Nation have concerns about the literature reviewed and the methods used to assist with the baseline characterization of Aboriginal communities. Section 23 provides information pertaining to the results of the literature and desktop review, and also for the potential resource-use issues as identified by participating Aboriginal groups that have historically used or presently use the TLRU Regional Study Area to maintain a traditional lifestyle. The results of the literature and desktop review were verified and augmented through field data collection by potentially affected Aboriginal groups and are also provided in Section 23. The standards and guidance outlined in Section 3, Effects Assessment Methods, were adhered to for the assessment. Nak'azdli Band chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation to reduce potential adverse Project-related effects. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. TLU information pertaining to Nak'azdli Band and Nadleh Whut'en First Nation was summarized from the preliminary draft of a third-party, independent TLU study conducted by Carrier Sekani Tribal Council and provided to Coastal GasLink. This information is presented in Section 23 (23.8), and informed the assessment of the potential Project-related adverse effects and mitigation strategies which were reviewed directly with participating community members during the field surveys. Confirmation of the accuracy of discussed information in Project planning occurred during community results review follow-up (Section 3.2.2). Information arising through engagement activities with Nak'azdli Band and Nadleh Whut'en First Nation is also provided in the Aboriginal Consultation Reports 1, 2 and 3. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.

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983	Application Section 16.6	16-11	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>The TLRU assessment does not reflect the information provided to Coastal GasLink by Nak'azdli and Nadleh on TLRU practices and activities.</p> <p>Table 16-4 provides a description of mitigations without consideration of how particular Project activities are likely to interact with, or have an effect on, particular receptors. For example, the effect of "disruption of subsistence hunting activities" is generalized to occur across "All Project components". Mitigation, then, is a long list of generic activities any gas pipeline Proponent would likely adopt as part of standard construction and operation practices, with no consideration of specific areas, species, or means of practice important to Aboriginal communities. As a result, it is extremely uncertain if Coastal GasLink's proposed mitigations are appropriate or sufficient to mitigate effects.</p>	<p>Without conducting an assessment that addresses the specific values and concerns raised by each First Nation, it is impossible to identify if mitigations are adequate, or if the assessment is conservative. Mitigations provided by the proponent in the section are vague and generic and provide little or no confidence that impacts on Nadleh and Nak'azdli lands and peoples, or current use of lands and resources, will be adequately recognized, mitigated, monitored or addressed. This portion of the Application should be considered deficient. The Proponent should be required to identify specific pathways of impact on preferred locations, resources, and means of practice for EACH aboriginal group on their territory. The Proponent should identify specific measurable and verifiable mitigation or avoidance strategies that will be implemented, and any follow-up or monitoring that will be conducted to confirm success of mitigation, including how Nadleh and Nak'azdli will be involved in the follow-up and mitigation on their territory.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p>		<p>Table 16-4 provides an overview of potential adverse effects and mitigation for the proposed project. Section 23 provides an in-depth overview of concerns, with associated Aboriginal groups and specific sites included. Nak'azdli Band's concerns are listed in Table 23-40 and 23-41, and Nadleh Whut'en First Nation's concerns are listed in Table 23-35 and 23-36.</p> <p>Coastal GasLink appreciates the efforts of Nadleh Whut'en First Nation and Nak'azdli Band to provide a Progress Report - Phase 1 in July 2013; the "Red Flags Issues" report in September 2013; the "Draft - Nadleh Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project" in March 2014; and the "Nadleh Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project" in June 2014.</p> <p>Project planning activities have been informed by the engagement activities with Nadleh Whut'en First Nation and Nak'azdli Band, and in accordance with the Aboriginal Consultation Plan, the engagement activities will continue as construction planning advances and through all Project phases.</p> <p>As outlined in the Order issued under Section 11, both Nak'azdli Band and Nadleh Whut'en First Nation received draft Aboriginal Consultation Reports 1, 2 and 3 for their review and comment prior to filing these reports with the BC EAO. The consultation reports included a summary of issues identified during engagement activities.</p> <p>In addition, in September 2013, Coastal GasLink provided Nak'azdli Band and Nadleh Whut'en First Nation an Engagement Activities and Issues Summary Table representing engagement between Coastal GasLink and Nak'azdli and Nadleh Whut'en up to July 31st, 2013. This report was provided for their review and comment.</p> <p>Being a member of the EAO Working Group, Nak'azdli and Nadleh Whut'en have also been provided the opportunity to identify issues and concerns about the Project in that forum.</p> <p>Information made available to Coastal GasLink through the reports and activities noted above have informed the assessment and Project planning to date, and as further information is made available it will inform advancing construction planning and detailed engineering design.</p>

Coastal GasLink Project: Working Group Comment Tracking Table

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984	Application Section 16.6	pg. 16-12 (Table 16-4)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	As outlined in comments submitted by Nak'azdli on February 19, 2014, during the Application Evaluation period, the effects assessment for Nak'azdli is absent. Section 11.3 of the AIR requires "identification of potential effects of the proposed Project on identified Aboriginal interests for each Aboriginal group, including effects to specific geographic areas identified as important". An effects assessment for each Aboriginal group is absent in Section 16 and appears nowhere in the Application. As outlined in the comments on Section 23, the same generic table (Table 16-4) is repeated in but has a different title, suggesting it is an effects assessment specific to Nak'azdli and Nadleh.	1. The EAO should find that the Application is deficient because of the absence or reasonable or meaningful consideration of specific Aboriginal values or valued components relevant to the unique values, interests, and considerations of any of the First Nations along the proposed route, and specifically those of Nadleh Whut'en and Nak'azdli. Coastal GasLink has clearly not undertaken work to characterize potential effects for each First Nation and is clearly not in compliance with the AIR. The assessment is far too generic to assess for significance and must undergo major revisions. 2. Coastal GasLink should be required to reconsider impact pathways and mitigations based on information provided, or available through a thorough review of literature, on specific preferred areas, resources (including species), and means of practice for each Aboriginal group, and specifically for Nadleh and Nak'azdli. This should be done at the level of individual traditional territories, where information is available (as it has been by Nak'azdli and Nadleh), not at the level of the Project as a whole.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Issues and concerns are identified through engagement activities with individual potentially affected Aboriginal communities, including participation in biophysical field studies, project-specific TLU studies available at the time of filing, and socio-economic baseline data collection. Mitigation is also presented for individual community's issues and concerns identified. Individual community's present, past and anticipated future uses and traditional use of the Project area are identified through literature and desktop review and a review of Project-specific TLU and socio-economic studies available at the time of filing and ongoing consultation activities with communities. Identification of the potential adverse environmental effects associated with the construction, operations, and decommissioning and abandonment of the proposed Project on current use of lands and resources for traditional purposes was based on the results of a literature review, desktop analysis, TLU studies and biophysical field study participation as well as consultation with individual Aboriginal groups. Issues, concerns and associated mitigation for Nadleh Whut'en First Nation Nak'azdli Band can be found in Tables 23-35 and 23-40 (respectively) of Section 23.
985	Application Section 16.6	pg. 16-13 (Table 16-4)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Proponent has ignored without providing any rationale a variety of mitigation recommendations by the Nations. For example (this is not a comprehensive list): 1. Construction mitigations do not recognize the request by Nadleh and Nak'azdli to have nation personnel on site observing construction as it is ongoing. 2. Page 16-14 table Subsistence Resources: mitigation point "limiting the use of chemical applications". We have been repeatedly assured by the Proponent that they do not use herbicides or pesticides in the clearing or maintenance phases of the project. This statement in the table is not in line with their assurances; limiting does not equal no use. Issue repeated on Page 16-17 in Alteration of plant gathering sites; 3. Page 16-16 – Alterations of fishing sites – mitigation committed to, "recording and mapping of fishing locales", is an inadequate mitigation. What is the Nation to do, point to a map and say 'this is where we used to be able to harvest sturgeon'? 4. Page 16-16 – reduced use of	The Proponent is requested to identify in correspondence to the Nations all mitigation measures raised to date in meetings with Nak'azdli and Nadleh re: TLRU, and commit to them where agreeable and identify a rationale for any situations where the Proponent does not commit to the mitigation, including recommended alternative mitigation, for further discussion between the parties.	Coastal GasLink confirms that issues and concerns identified to date by Nadleh Whut'en First Nation and Nak'azdli Band and are provided in Section 23.8 and 23.9 of the Application. Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO.		

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							habitation sites – mitigation suggested is "detailed mapping, photographic recording..." Again, the Nations reject the presumption that being able to show pictures to future generations of what used to be there – to catalogue our losses – is meaningful mitigation.				
986	Application Section 16.6	pg. 16-21, 16-22, 16-23	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>"In the event that subsistence activities are disrupted...." this language is contrary to identified effects in the table where effect likelihood is characterized as HIGH and now language is underplaying it as a mere possibility, as indicated as well by other delimiting word choices - "possibility" and "could be restricted".</p> <p>"Subsistence resources may be altered as a result of construction..." They WILL be altered. Construction and digging of the landscape will change the soil composition and plant habitats allowing for rapid colonizers within the disturbed area changing plantscape and consequently animal use and distribution.</p> <p>We have similar concerns for the trail disruptions section re: downplaying of the likelihood of effects on traditional land and resource use.</p>	Proponent is recommended to revisit when revising the TLRU section language that underplays the potential for effects on TLRU.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		<p>Coastal GasLink acknowledges that Nak'azdli Band and Nad'leh Whut'en First Nation are concerned about adverse effects to traditional land and resource use. In completing the assessment Coastal GasLink applied the philosophy of the mitigation hierarchy in an effort to avoid and otherwise mitigate, reclaim on site, or explore additional means of mitigation if disturbance cannot be avoided. The assessment concluded that the proposed Project is not likely to result in any significant adverse effects on the VCs identified for TLRU, namely current use of land and resources for traditional purposes and cultural sites. Additional details about traditional land and resource use made available to Coastal GasLink will be considered in the development of site-specific mitigation during ongoing construction planning and detailed engineering design.</p> <p>Coastal GasLink also notes that Nak'azdli Band and Nad'leh Whut'en First Nation are concerned that construction and digging of the landscape will change the soil composition and plant habitats. Coastal GasLink plans to maintain equivalent land capability for lands disturbed by construction activities. Construction activities are scheduled to extend up to 19 months within each of the 8 construction sections. Reclamation to re-establish vegetation and stabilize the disturbed areas will commence following clean-up for each section. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate</p>

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											site-specific mitigation.
987	Application Section 16.6	pg. 16-28	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Cumulative effects are a critical concern Nadleh and Nak'azdli members. This section provides such generic information that specific comments cannot be provided.</p> <p>An example of a good effects assessment on TLRU and culture that includes consideration of cumulative effects for an EA can be found in Candler et al. (2011). Candler, C. with the Athabasca Chipewyan First Nation. (2011, April 20). Athabasca Chipewyan First Nation Integrated Knowledge and Land Use Report and Assessment for Shell Canada's Proposed Jackpine Mine Expansion and Pierre River Mine.</p>	<ol style="list-style-type: none"> 1. The cumulative effects assessment is too generic to be of value. A pre-development baseline should be provided in order to characterize trends over time and provide a sense of the context (see CEAA 1999 practitioner's guidance, and page 23 of the final AIR for the Project). The AIR states: "In the characterization of potential residual adverse effects, the Application will discuss context by describing the sensitivity and resilience of each VC to the construction and operation of the proposed Project and the baseline conditions that contribute to the understanding" (p. 23, AIR). 2. Proponent should be required to demonstrate how Nadleh and Nak'azdli were consulted regarding what projects are reasonably foreseeable, and how effects from the environment, including climate change, should be considered. 3. Consistent with standard practice (CEAA 1999) the proponent should be required to consider all reasonably foreseeable sources of cumulative effects including temporal and spatial crowding, nibbling loss, physical chemical transport, and growth-inducing potential. The Proponent must consider these using a relevant pre-development baseline, and in relation to justifiable significance thresholds or other limits of acceptable change relevant to Nadleh and Nak'azdli. 4. Identification of potential cumulative effects is incomplete and insufficient for determination of useful mitigation or follow-up/monitoring requirements. This section and indeed all of the Proponent's "project contribution" focused CEA efforts should be found deficient. The Proponent should be required to revise. 	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		<p>Methodology used for cumulative adverse effects is provided in Section 3.8. Cumulative adverse effects are changes to the environment that are caused by an action in combination with other past, present and reasonably foreseeable future projects or activities (Hegmann et al. 1999). Section 3.8.5 provides information on the activities included in the cumulative effects assessment that formed the baseline for disturbance. The cumulative effects assessment evaluates the likely residual adverse effects associated with the proposed Project in combination with potential adverse effects arising from other projects and activities that have been or will be carried out in the VC-specific LSA or RSA. Baseline information used for the identification of residual adverse effects for the Nak'azdli Band and Nadleh Whut'en First Nation is provided in Section 23.8 and 23.9. Mitigation is based on current industry-accepted standards, consultation and engagement with regulatory agencies, interested groups, individuals and Aboriginal groups, the professional judgement of the assessment team and TransCanada's collective experience in the design, construction and operation of major pipeline projects (Section 3.4). The mitigations provided in Table 16-8 are considered appropriate for the potential cumulative effects assessment. The proposed Project inclusion list is included in Appendix A of the AIR. The working group reviewed the draft AIR and AIR for which the Nak'azdli Band and Nadleh Whut'en First Nation were members. Although the Nak'azdli Band and Nadleh Whut'en First Nation provided comments in regard to cumulative effects as outlined in Table 23-35 and Table 23-40 of Section 23, comments in regard</p>

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											to the inclusion list were not provided. Climate change is not considered to be within the scope of a project level assessment. Unlike most project-related environmental effects, the contribution of an individual project to climate change cannot be measured (CEAA 2003).
988	Application Section 16.6	pg. 16-35 Table 16-10	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The current method used by the Proponent to characterize the significance of cumulative effects – "project contribution to cumulative effects" – is fundamentally and irrevocably flawed and as a result the entirety of the Proponent's estimations of cumulative effects is unsound and cannot be accepted.	See Issue tracking number 987.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
989	Application Section 16.6	pg. 16-30 (Table 16-8)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Given identified cumulative effects in Table 16-7, page 16-28, the mitigations in Table 16-8 are not commensurate with the anticipated cumulative effects.	Please revisit as part of an overall re-conduct of the cumulative effects assessment.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
990	Application Appendix 3A	Pages 5 and 6	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Endako Mine is not listed even though it falls within their study area; important for assessment of Cumulative Impacts.	Please add Endako Mine and engage with Nak'azdli and Nad'leh re: identification of an appropriate updated list of cumulative effects causing physical works and activities for the revised CEA.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink acknowledges that the Endako Mine is not listed in Appendix 3A. Coastal GasLink's assessment did consider the effects of the Endako Mine in its understanding of baseline conditions. For example, Section 3.4.1 of the Social TDR describes the Endako Mine in the description of Mineral and Sub-Surface Resources.		

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991	Application Section 16.7.4	16- 43 (lines 8-14)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Proponent states: A residual adverse social effect is considered significant if the effect is predicted to be:</p> <ul style="list-style-type: none"> • high magnitude, high likelihood, short to medium-term reversibility and regional, provincial or national in extent that cannot be technically or economically mitigated • high magnitude, high likelihood, long-term or permanent reversibility and any spatial boundary that cannot be technically or economically mitigated <p>This threshold is not consistent with professional standards as it does not consider context (see p. 23 of AIR , as well as CEAA and NEB professional guidance documents), does not consider community perspectives regarding levels of acceptable change, and does not identify if assessment occurs at the level of the most sensitive receptors or most vulnerable sub-populations (see Candler 2011, CEAA 1999, etc.).</p>	<ol style="list-style-type: none"> 1. The Proponent should be required to identify how this threshold was determined, and if Nadleh and Nak'azdli were consulted regarding it's acceptability for evaluation of impacts on Nadleh and Nak'azdli use and rights. 2. The Proponent should also be required to indicate if Project effects were characterized based on valued components specific to Nadleh and Nak'azdli use, and demonstrate how the context of pre-development and cumulative effects on Aboriginal use of lands and resources was considered. The assessment within the Application is at too high a level of generalization to make this clear. 3. The Proponent should also be required to demonstrate how Nadleh and Nak'azdli were involved in determination of the significance threshold, and characterization and evaluation of residual project effects within Nadleh Whut'en and Nak'azdli lands. 	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The methodology for cumulative effects assessment is presented in Section 3 of the AIR. Section 16.6.4 provides information about the determination of significance for the Traditional Land and Resource Use VC.		
992	Application Section 18.2	pg. 18-3	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>The regulatory and policy setting is meant to guide the assessment and development of thresholds. Unfortunately, the only guidance included in this section is from the Province and do not reflect the interests of First Nations. Several guidance documents are available from First Nations that offer insights on objectives and goals for cultural and heritage resources that are not included here.</p>	Please identify what efforts Coastal GasLink took to identify all potential plans and guides from First Nations related to cultural and heritage resources. It is recommended that Coastal GasLink make additional effort to obtain these documents. (Note: there are several available online, with public URLs.)	Coastal GasLink confirms that Section 18.4 provides information about baseline data for the assessment of Heritage Resources.		
993	Application Section 18.3.2	pg. 18-9	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>Temporal boundaries for each VC are missing. Temporal boundaries for the Project are provided, but the temporal extent of the data collection is required. See bottom of p. 16 of the EA VC Selection Guide:</p> <p>"... the temporal characteristics of the VCs, which will vary by VC, must be considered. Examples of these temporal characteristics include the timing and duration of sensitive or critical life stages of biological VCs (e.g., spawning, nesting, over-wintering) and of important human activities (e.g., economic cycles, busy tourism and recreation seasons). These characteristics are important to understand when and for how long certain VCs may be affected by the project... VC-specific temporal boundaries relevant to the assessment should be documented."</p>	Please provide temporal boundaries for each VC in Section 18. This comment applies to all sections of the Application. The boundary selection must also be justified.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the temporal boundaries for the assessment in Section 3.2.2. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		

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994	Application Section 18.5.1	18-12; 18-39	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Mitigation must include reporting of information to First Nations.	Section C.11 Heritage Resource Discovery Contingency Plan in the EMP must include notification of First Nations when an archaeological site is discovered. How were the 35 archaeology and historic sites discovered as part of this EA reported to First Nations?	Coastal GasLink will continue engagement with Aboriginal groups through construction as described in the Aboriginal Consultation Plan approved by the EAO. Should a heritage resource be identified during construction, Coastal GasLink will communicate with all the appropriate parties to develop and implement appropriate mitigation. Coastal GasLink will comply with the requirements of the Heritage Inspection Permits.		
995	Application Section 18.6.2	pg. 18-40 Sec C11 (EMP)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Conclusion of no residual effects does not align with statement that when heritage resources are disturbed, "the resource may be altered or even lost". While collecting information on the site is meant to "offset" the loss of the resource, this is not always the case. Further, the value of the site in place is entirely lost. Compensation (replacement of site with written documentary information) is no replacement for the actual resource. The Heritage Resource Discovery Contingency Plan does not include affected FN participation in the mitigation of found archaeological, historical, or paleontological materials during the construction phase. First Nations need participation to protect cultural heritage (see C11EMP)	It is clear that effects have not been adequately characterized. The revised effects assessment should identify this effect pathway and will likely find a residual effect. In addition, the Proponent is requested to engage directly with Nak'azdli and Nad'leh re: concerns that a Heritage Resource Discovery Contingency Plan is geared more towards recording and removal of heritage from the cultural landscape than protecting it. The continual erasing of First Nations history out on the land is a legitimate concern.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will continue to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO.		Coastal GasLink will abide by all regulatory requirements under the <i>Heritage Conservation Act</i> (HCA), including obtaining Section 12 permits, First Nation review and consultation as required. Coastal GasLink supports the Archaeology Branch goal of site avoidance as the preferred mitigation measure. Identified sites that may be in the construction footprint will be flagged prior to construction. Should an unidentified site be encountered during construction, all requirements under the HCA will be followed and the Heritage Resources Discovery Contingency Plan will be implemented. Potential impacts to heritage resource sites will be mitigated with avoidance being the preferred method of mitigation. The width of the Application Corridor is expected to accommodate for potential micro-revisions to the construction footprint around sites of concern if necessary.
996	Application Section 20	pg. 20-1; 20-16; 20-21; 20-28	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Reference to TEK and TLU information is made on page 20-1 and top of p. 20-16, yet it is unclear what part of this assessment was informed by TLU and TEK information. TEK can be used for designing field studies, research methods, assessment scope, thresholds, boundaries of assessment, effect pathways, baseline data, mitigation, monitoring strategies, etc. Any part of this assessment resulting out of TEK and TLU information must be referenced throughout this section, with references to the data source (e.g. in-text citation, etc.). Reference to TLU information is made in section 20.4 baseline only, but not brought forward to the rest of the assessment without explanation. Further, the approach of generalizing ATK from one pipeline (e.g. NGPLP, 2010) to Coastal GasLink is not necessarily appropriate (p. 20-28); nor is a "review of available ATK" (p. 20-29). ATK is highly contextual and requires a transparent and rigorous research approach itself.	1. Reference to secondary sources (e.g. third-party reports) and/or primary data collection methods for TLU and ATK is required, as well as a brief description of how TEK and TLU information was used in this section. Were particular thresholds developed using TEK, for example? 2. The absence of First Nations-specific country food production and consumption data to establish appropriate values for the amount of country foods consumed and community reliance on country food, factors critical to risk exposure, is a critical gap that should be filled.	Coastal GasLink confirms that the Human Health and Ecological Risk Assessment (HHERA) evaluates the health risk associated with exposure to chemicals. Available TEK and TLU information was included in Section 20.4 Baseline Information and Project Setting to address the specific needs of the HHERA. The information used included animal and plant species in terrestrial and aquatic environments that are used for traditional purposes based on information as identified in Section 16 of the Application. The chemicals of concern for the project are released as gases to the environment and do not deposit on soil or surface water. As such, terrestrial country foods (both plant and animal) would not be affected.		

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997	Application Section 20	20-3 (Table 20-1)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The scope of the assessment does not include any VCs or KIs that reflect the values of a healthy population. Adverse effects to the environment can be studied in relation to well-being of First Nations. That is, a healthy environment is relied upon by First Nations for "socio-economic, cultural, spiritual and physical survival". Health impact assessment, including population health must be included. As well, economic studies have found adverse effects on health delivery due to resource booms in northern BC (Hanlon and Halseth, 2005). How has this been considered in understanding population vulnerabilities? Only the briefest overview is provided in the baseline section and it is not carried forward to the effects assessment. Further, the baseline overview does not conform to the assessment boundaries – how is the well-being of communities proximate to the Project affected? Hanlon, N and Halseth, G. (2005). The greying of resource communities in northern British Columbia: implications for health care delivery in already-underserved communities. The Canadian Geographer 49(1): 1-24. Kwiatkowski, R, Tikhonov, C, McClymont Peace, D, and Bourassa, C. (2009). Canadian Indigenous engagement and capacity building in health impact assessment. Impact Assessment and Project Appraisal 27(1).	Recommend including population health information in health impact assessment to understand Project effect on the value of healthy communities and populations. This must be done for communities directly affected by the proposed Project, not at the Provincial scale. Public health baseline must be considered to interact with the proposed Project. Coastal GasLink must consider the likely project effects and characterize effect pathways. This must be included in the study.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The HHERA evaluated potential changes in health risks associated with Project-related changes in exposures to chemicals released as a result of Project activities. The HHERA for the project is based on guidance from Health Canada's on conducting risk assessments, which is not intended or designed to evaluate aspects of community health and well-being associated with socio-economic, cultural, spiritual and physical survival.		
998	Application Section 20,5	pg. 20-36	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	A "standard risk assessment framework" was adopted for the effects assessment, yet no reference is provided on how this standard is derived.	Please provide one or two references to the risk assessment framework adopted and/or adapted for this assessment. If it was adapted, a brief (one-sentence) explanation on how/why it was adapted is required. Any information on how ATK informed the framework would also be helpful.	Coastal GasLink provides the following information: A standard risk assessment framework as established by Health Canada (Federal Contaminated Sites Risk Assessment in Canada - Part 1 Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA) September 2010).		
999	Application Section 20,5	pg. 20-40	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The finding of no residual effect related to ARD is not justified (p. 20-36, Table 20-3). Several gaps are identified in Section 5 in the ARD study that must be filled before this conclusion can be made with any confidence. Mitigation of capping or covering ARD-producing substrate may be effective for some situations but not all. Findings from this study were used to determine potential effects related to traditional and country foods quality as well.	Revisit assessment conducted in Section 5 and apply ARD-effect-specific mitigation to characterize any potential residual effects. Then assess if mitigation is likely to be effective or not. If not, residual effects must be characterized for both water and sediment quality and traditional and country foods quality.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The HHERA incorporates the results of the assessment of the VC water quality in the evaluation of potential impacts on country foods e.g., (fish).		The HHERA incorporates the results from the water quality VC in the evaluation of potential impacts on country foods (fish). Should changes to the Water Quality result in changes to the overall water quality assessment results, the components that have a direct impact on the prediction of country food quality will be reassessed within the HHERA. Coastal GasLink will consult with the appropriate regulatory authorities about the assessment results and implement an adaptive management approach to address any issues as warranted.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
1000	Application Section 20,5	20-56	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Cumulative effects assessment for health risks associated with traditional and country food quality has not been undertaken. Additional research on TLRU areas, the quality of foods in these traditional use areas (with particular time taken to consider bioaccumulation and parts of the plants/animals that are eaten), in relation to the population (i.e. the population and the effects on all important traditional use areas within each traditional territory).	Consideration of third-party TLRU studies must be considered in the overall assessment of cumulative effects on quality of traditional and country foods.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Potential Project-related chemicals are released as gases that do not accumulate in terrestrial country foods. Thus, the Project is not anticipated to have an effect on country food quality. The HHERA is used to evaluate the potential change in exposures to Project-related chemicals that may occur between baseline and Project cases. The same country food use and consumption rates are used to estimate baseline, Project and cumulative effects cases.		
1001	Application Section 20	general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The effect pathway that considers the perception of risk related to noise, dust, and other pollution effects on food and medicine is not included in this assessment. This is a well-known and studied effect relationship that is considered in EA (see finding of significant cumulative effects on Aboriginal traditional land use, rights, and culture, page 9 of Joint Review Panel report for Shell Jackpine Mine Expansion, in response to ACFN submission, Candler et al., 2011). Candler, C. with the Athabasca Chipewyan First Nation. (2011, April 20). Athabasca Chipewyan First Nation Integrated Knowledge and Land Use Report and Assessment for Shell Canada's Proposed Jackpine Mine Expansion and Pierre River Mine.	Perception of risks must also be assessed as a possible effect pathway. This effect pathway must be added to Table 20-3. Third-party TLRU studies must be carefully reviewed to consider likely effects on human behavior, especially as it relates to exercising Aboriginal rights (harvesting use areas). If quality of food/medicines are perceived to be degraded, then a residual effect must be characterized, as well as a cumulative effect.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The risk assessment framework, developed by Health Canada, that is used to complete this evaluation does not incorporate considerations of potential community health impacts associated with decreases in country food consumption rates due to perception concerns.		
1002	Application Section 21.1.4	pg. 21-5	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Missing potential accidents and malfunction modes related to operations. For example, in 2005 the Sutherland rock slide was powerful enough to leave a seismic signal at the Fort St James seismic station. The rapid landslide traveled 1.6 Km and involved 3M m3 of volcanic rock and soil / http://www.landslides.ggl.ulaval.ca/geohazard/evaluation/geertsesema.pdf	Add seismic events to factors influencing accident and malfunction modes.	Coastal GasLink has completed a comprehensive assessment of potential accidents or malfunctions to meet the requirements outlined in the AIR issued by EAO in May 2013. Seismic events are discussed in Section 22 of the Application, in the risk assessment of Effects of the Environment on the Project.		
1003	Application Section 21.2.2	pg. 21-11 (Table 21-4)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Several potential adverse effects identified in Table 21-3 as interacting are missing from this table (Table 21-4). Notably effects on Traditional Land and Resource Use. Potential interactions include perceived contamination resulting from the spill that leads to avoidance of an area of a much greater radial extent than the biophysical effects (Gibson, 2004). Gibson G, Froese K. 2004. Hazardous Waste: Disrupted Lives. First Nation Perspectives on the Alberta Special Waste Treatment Centre. Edmonton: Environmental Health Sciences, University of Alberta.	Recommend adding addition direct effects on TLRU activities resulting from increased perceived risk of accidents and malfunctions. This must include consideration of the effect pathway linking the accident/malfunction and an actual decrease in participating in that activity due to an increase in perceived risk. This will result in a potential adverse effect on this VC that is not captured. This effect pathway is likely to be found for the following: - Spills - Pipeline leak or failure - Fires or explosions - Acid or metal leaching	Coastal GasLink has completed a comprehensive assessment of potential accidents or malfunctions to meet the requirements outlined in the AIR issued by EAO in May 2013. Assessment of potential adverse effects on traditional use are addressed in Sections 16 and 23 of the Application.		

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2																																			
1004	Application Section 21.3	general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The description of potential project effect resulting from pipeline leak or failure could be supplemented with case study. TCPL has experienced dealing with major failures that would benefit from examination in this section of the Application.	Provide case study materials to provide assurances to reviewers that TCPL has learned specific lessons from recent incident(s) that have been incorporated into emergency response plans, monitoring, staff training, or other measures.	Coastal GasLink confirms that the TransCanada Emergency Response Plan is continuously improved. An Emergency Management Corporate Program Manual Debrief is completed after an emergency. The process identifies issues associated with different phases of the emergency. Issues are tracked and incorporated in the program review process. TransCanada utilizes a Lessons Learned Guideline Document for Operations and Engineering. This document provides a guideline to leverage learnings from Maintenance projects within Operations and Engineering. Lessons learned are successful if the company: <ul style="list-style-type: none"> • avoids repeating mistakes • identifies best (or better) practices • transfers knowledge that can be immediately applied, and/or • make systemic changes to continuously improve company work practices. 																																					
1005	Application Section 21.3	pg. 21-32	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink references crossings of other pipelines. The risks associated with each VC in a geographical area cannot be determined without mapping these risks.	Provide a map of all pipeline crossings and include the substance moving through them.																																						
1006	Application Section 21.3	pg. 21-42	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The likelihood of occurrence is considered to be "rare". However, Coastal GasLink states at the beginning of the section that incidences (for domestic gas pipelines) have occurred four times in the past four years, and in greater frequency in years previous. "Rare" as defined in Table 21-1 as an occurrence that "is not expected during the life of the Project" (p. 21-3).	Based on incident reports, how often do incidents occur over the life of an export gas pipeline? Provide bibliographic and page reference for relevant incident report numbers. Based on this evidence, revise "mitigated likelihood" rating in Table 21-7.	<p>For the Nak'azdli Band (KP 230.1 to KP 345.4) the following pipeline crossings have been identified:</p> <table border="1"> <tr> <td>300+285</td> <td>PACIFIC NORTHERN GAS LTD.</td> <td>PIPELINE</td> <td>NATURAL GAS</td> <td>6001693.085</td> <td>453264.748</td> <td>10</td> </tr> <tr> <td>330+505</td> <td>PACIFIC NORTHERN GAS LTD.</td> <td>PIPELINE</td> <td>NATURAL GAS</td> <td>5999424.374</td> <td>424192.311</td> <td>10</td> </tr> </table> <p>For the Nad'leh Whut'en Band (KP 328.3 to KP 407.4) the following pipeline crossings have been identified:</p> <table border="1"> <tr> <td>330+505</td> <td>PACIFIC NORTHERN GAS LTD.</td> <td>PIPELINE</td> <td>NATURAL GAS</td> <td>5999424.374</td> <td>424192.311</td> <td>10</td> </tr> <tr> <td>386+808</td> <td>PACIFIC NORTHERN GAS LTD.</td> <td>PIPELINE</td> <td>NATURAL GAS</td> <td>5995577.461</td> <td>372063.732</td> <td>10</td> </tr> <tr> <td>388+117</td> <td>PACIFIC NORTHERN GAS LTD.</td> <td>PIPELINE</td> <td>NATURAL GAS</td> <td>5994781.557</td> <td>371194.729</td> <td>10</td> </tr> </table>	300+285	PACIFIC NORTHERN GAS LTD.	PIPELINE	NATURAL GAS	6001693.085	453264.748	10	330+505	PACIFIC NORTHERN GAS LTD.	PIPELINE	NATURAL GAS	5999424.374	424192.311	10	330+505	PACIFIC NORTHERN GAS LTD.	PIPELINE	NATURAL GAS	5999424.374	424192.311	10	386+808	PACIFIC NORTHERN GAS LTD.	PIPELINE	NATURAL GAS	5995577.461	372063.732	10	388+117	PACIFIC NORTHERN GAS LTD.	PIPELINE	NATURAL GAS	5994781.557	371194.729	10		
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1007	Application Section 21.5	pg. 21-58	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The likelihood of occurrence for each VC in the text above is "unlikely" and in Table 21-12 is "rare". It is not clear which one is correct as there is no evidence justifying either designation.	Correct text or table, providing supporting rationale.	Coastal GasLink clarifies that the application of mitigation is expected to reduce the likelihood of accidents or malfunctions. The text above Table 21-12 speaks to the unmitigated likelihood. Table 21-12, and the text following speak to the mitigated likelihood and consequence, and therefore provide a different rating.																																					
1008	Application Section 21.8	pg. 21-71 (Table 21-17)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Monitoring is identified as a potential mitigation measure. To determine if the monitoring will be effective or not to justify characterization of potential residual adverse effect, more information on monitoring commitments is required.	How frequently will monitoring be conducted? Where will monitoring take place (or what threshold does a test have to meet to require monitoring at any location)?	Coastal GasLink's construction planning and detailed engineering design takes into account locations with high acid rock drainage potential. Water quality monitoring plans, where warranted will be developed prior to construction. The water quality monitoring plan will also include appropriate response measures.																																					

Coastal GasLink Project: Working Group Comment Tracking Table

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1009	Application Section 23	general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Baseline profiling is almost completely absent. Section 11.3 of the AIR requires "identification of present, past and anticipated future uses and traditional use of the proposed Project area, including, but not limited to, using cultural research methods (e.g., Use and Occupancy Maps Surveys and library research)".	If all documents reviewed for the TLRU baseline characterization are included in Section 23.18.1, this information is wholly inadequate. Sections 23.8 (Nadleh) and 23.9 (Nak'azdli) do not reflect a thorough understanding of information provided to the proponent by Nadleh and Nak'azdli, nor a reasonably thorough review of available online, in libraries or archival sources related to Nadleh and Nak'azdli use and rights. The proponent should be required to include, updated to a current standard, and resubmit.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink received a 'Red Flags Report' from Nak'azdli Band and Nad'leh Whut'en First Nation on September 18, 2013 that outlined a number of issues and concerns including route selection and the presence of a spring, which continues to inform the construction planning and detailed engineering design. Each of the issues raised were responded to in a meeting and follow-up letter by Coastal GasLink in January 2014. On March 27, 2014, Coastal GasLink received the draft Nadleh Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project. On April 2nd, 2014, Coastal GasLink met with representatives from both the Nak'azdli Band and Nadleh Whut'en First Nation to review the draft Preliminary Use and Occupancy Study. The report notes that the information therein is preliminary and that "further work is planned to increase the number of interviews conducted and to [include] field visits". Coastal GasLink has been informed that the Final Use and Occupancy Study for the Coastal GasLink Pipeline Project from these two bands can be expected in May 2014. It is the intent of Coastal GasLink to discuss site specific mitigation for issues identified in the final Use and Occupancy Study Report with both the Nak'azdli Band and Nadleh Whut'en First Nation and that information will be considered as construction planning and detailed engineering design advances.		
1010	Application Section 23	general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This section has very limited information specific to Nadleh and Nak'azdli, and is highly generic. The information sources and description of methods for gathering information do not describe the approach taken with each specific community. The TLRU tables do not reflect the level of detail provided by Nadleh and Nak'azdli through information provided to the proponent. The proponent's methods of collecting information regarding values of importance to Nadleh and Nak'azdli by proxy (by methods designed for understanding other VCs related to vegetation, wildlife, archaeology, etc.) is not appropriate, or consistent with standard practice, and does not provide an accurate reflection of Nadleh and Nak'azdli use or knowledge. The approach of the proponent is the equivalent to collecting data on fish habitat by following a team of archaeologists – you may find some fish habitat sites on the way,	1. Sections 23.8 (Nadleh) and 23.9 (Nak'azdli) are deficient, as highlighted above. The proponent's conclusions are not credible and major revisions, including meaningful consideration of all information provided to the proponent by Nadleh and Nak'azdli, and meaningful involvement of Nadleh and Nak'azdli in evaluation of significance, including determination of significance thresholds, and evaluation of cumulative effects with Nadleh and Nak'azdli lands, are required before any reasonable significance estimation can be made with confidence. 2. Aboriginal group specific information from third party studies, and placement of particular components in particular places and ecosystems, must be more fully considered throughout the entire effects assessment, including section 23 and section 16. 3. The existing tables showing opportunistic data points and proximity to the Project are misleading and inadequate due to lack of data and inappropriate data collection methods. Sharp 2013 was a preliminary identification of Nadleh and Nak'azdli values and should not be considered sufficient baseline for completion of an assessment. The Proponent should be required to update and reissue sections 23 and 16 based on all information available, and should include consideration of EACH community's unique values and concerns. 4. Reliance on 'pre-construction TLU' and tables of generic mitigations is not an acceptable substitute for reasonable timelines, and meaningful consideration and consultation regarding information provided by Aboriginal communities as part of the environmental assessment process. The proponent should be required to revise Sections 23.8 (Nadleh) and 23.9 (Nak'azdli) to meaningfully consider information provided, and to comply with the requirements of Section 11.3 of the AIR	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink received a 'Red Flags Report' from Nak'azdli Band and Nad'leh Whut'en First Nation on September 18, 2013 that outlined a number of issues and concerns including route selection and the presence of a spring, which continues to inform the construction planning and detailed engineering design. Each of the issues raised were responded to in a meeting and follow-up letter by Coastal GasLink in January 2014. On March 27, 2014, Coastal GasLink received the draft Nadleh Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project. On April 2nd, 2014, Coastal GasLink met with representatives from both the Nak'azdli Band and Nadleh Whut'en First Nation to review the draft Preliminary Use and Occupancy Study. The report notes that the information therein is preliminary and that "further work is planned to increase the number of interviews conducted and to [include] field visits". Coastal GasLink received the "Nadleh Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project" in June 2014. Project planning activities have been informed by the engagement activities with Nadleh Whut'en First Nation and Nak'azdli Band, and in accordance with the Aboriginal Consultation Plan, the engagement activities will		Coastal GasLink appreciates the efforts of Nak'azdli Band and Nadleh Whut'en First Nation to provide the "Draft – Nadleh Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project" in March 2014. On April 2, 2014, Coastal GasLink met with representatives from both the Nak'azdli Band and Nadleh Whut'en First Nation to review the draft Preliminary Use and Occupancy Study. The report makes mention that the information therein is preliminary and that "further work is planned to increase the number of interviews conducted and to [include] field visits". Coastal GasLink received the "Nadleh Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project" in June 2014.

Coastal GasLink Project: Working Group Comment Tracking Table

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							<p>but the findings should not be relied upon. Where information from specific First Nations was not available to the proponent prior to submission, much greater effort should have been made to conduct a review of available and relevant ethnographic and related sources, which are extensive.</p> <p>There is no indication that specific Nadleh and Nak'azdli information or studies were considered in the effects assessment or factored into significance estimations.</p>		<p>to increase the number of interviews conducted and to [include] field visits". Coastal GasLink has been informed that the Final Use and Occupancy Study for the Coastal GasLink Pipeline Project from these two bands can be expected in May 2014. It is the intent of Coastal GasLink to discuss site specific mitigation for issues identified in the final Use and Occupancy Study Report with both the Nak'azdli Band and Nadleh Whut'en First Nation and that information will be considered as construction planning and detailed engineering design advances.</p>		<p>continue to inform the development of site-specific mitigation as construction planning advances and through all Project phases.</p> <p>As outlined in the BC EAO's Section 11, both Nak'azdli Band and Nadleh Whut'en First Nation received draft Aboriginal Consultation Reports 1, 2 and 3 for their review and comment prior to filing these reports with the BC EAO. The consultation reports included a summary of issues identified during engagement activities.</p> <p>In addition, in September 2013, Coastal GasLink provided Nak'azdli Band and Nadleh Whut'en First Nation an Engagement Activities and Issues Summary Table representing engagement between Coastal GasLink and Nak'azdli and Nadleh Whut'en up to July 31st, 2013. This report was provided for their review and comment.</p> <p>As a member of the EAO Working Group, Nak'azdli and Nadleh Whut'en have had the opportunity to identify issues and concerns about the Project in that forum.</p> <p>Information made available to Coastal GasLink through the reports and activities noted above have informed the assessment and Project planning to date, and as further information is made available it will inform advancing construction planning and detailed engineering design.</p>
1011	Application Section 23.8.3	pg. 23-248; 23-278	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	<p>References to third-party studies overseen by Nadleh and Nak'azdli are referenced in the TLRU Setting. Important information such as the fact that "nearly all community members rely on land for teaching culture to next generation and values such as hunting, medicines, cultural teachings, and health" (p. 23-232, lines 9-13) have not been brought forward meaningfully into the assessment.</p>	<p>There is no evidence that the third party studies referenced in s. 23 were brought forward into the assessment in s. 16. Instead, the proponent has relied on an inappropriately abstract and generic consideration of Aboriginal use across the Project as a whole. More careful description of VC-Project interactions should be provided, drawing on third-party studies where available, and a thorough understanding of available literature where not. Qualitative information and other information, such as maps from these studies, should be provided and clearly considered in the assessment.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p> <p>Section 16 of the application presents the assessment of the potential adverse effects of the proposed project on traditional land and resource use. The information in Section 16 considers information provided in Section 23.</p> <p>Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO. Coastal GasLink continues to facilitate mitigation meetings with interested Aboriginal groups. A discussion of mitigation occurred at a meeting with Nak'azdli Band and Nadleh Whut'en First Nation on January 16, 2014.</p>		

Coastal GasLink Project: Working Group Comment Tracking Table

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1012	Application Section 23	Table 23-36: Potential Adverse Effects on Aboriginal Interests Identified by Nadleh Whut'en First Nation; Table 23-41: Potential Adverse Effects on Aboriginal Interests Identified by Nak'azdli Band	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Provision of many of the mitigations in this table are either too vague, or inappropriate, to be considered as mitigations to impacts on Nadleh and Nak'azdli use or rights. E.g. under trapping, the proponent indicates that 'registered trapline holders' will receive notification and compensation. This does not recognize aboriginal rights to trapping.	The proponent should be required to demonstrate how Nadleh and Nak'azdli have been involved in development of specific mitigations targeted to specific preferred Nadleh and Nak'azdli areas, species and means of practicing rights, and how Nadleh and Nak'azdli have been involved in confirmation that mitigations and avoidance measures are appropriate and reasonably likely to succeed.	Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO. Coastal GasLink continues to facilitate mitigation meetings with interested Aboriginal groups. It is the intent of Coastal GasLink to discuss site specific mitigation for issues identified in the final Use and Occupancy Study Report with both the Nak'azdli Band and Nadleh Whut'en First Nation and that information will be considered as construction planning and detailed engineering design advances.		
1013	Application Section 23.8.3	pg. 23-249 (Table 23-36); 23-279 (Table 23-41)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Section 11.3 of the AIR requires "identification of potential effects of the proposed Project on identified Aboriginal interests for each Aboriginal group, including effects to specific geographic areas identified as important". An effects assessment for each Aboriginal group is absent in Section 16 and yet Section 23.8.5, re. Nadleh Whut'en, states: "Readers should refer to Section 16 of this Application for the complete assessment discussion of the potential residual adverse social effects ..." The same incorrect and misleading language has been used re. Nak'azdli at section 23.9.5. It appears that no nation specific assessment has taken place – generic issues are simple repeated with new names. As outlined in the comments on Section 16, the same generic table (Table 16-4) is repeated in Section 23 but is titled, "Potential Adverse Effects on Aboriginal Interests Identified by Nak'azdli Band / Nadleh Whut'en First Nation". The content of the tables in Section 23 is generally the same as the content presented in Table 16-4 in Section 16 for all First Nations. Some references are changed, though these offer no additional insights. For example, Tables 23-36 (Nadleh) and 23-41 (Nak'azdli) included reference to "site-specific mitigation strategies recommended by Nadleh Whut'en First Nation" (p. 23-249) and "... recommended by Nak'azdli Band" (p. 23-279), "site-specific mitigation strategies recommended by participating Aboriginal groups". No specific mitigations are defined.	The proponent has provided no consideration of the specific and unique values of the Nadleh Whut'en and Nak'azdli, nor of the unique landscapes, ecosystems, and challenges that would be faced by the Project in crossing Nadleh Whut'en and Nak'azdli lands. For a project of this size, impacting such diverse ecosystems and Aboriginal groups, the approach of conducting an RSA wide assessment in section 16, and then referring to it as if it were specific to each Aboriginal Group in section 23 is misleading, incorrect, and disrespectful. The impact conclusions of section 16 and section 23 are not credible as a result. The proponent should be required to revise section 16 to provide "identification of potential effects of the proposed Project on identified Aboriginal interests for each Aboriginal group" as required by Section 11.3 of the AIR. Consultation by the proponent regarding the a Nadleh Whut'en and Nak'azdli specific assessment should be required, including determination of significance thresholds, and with attention to specific information provided by Nadleh Whut'en and Nak'azdli, and the specific ecosystems, landscapes, and waterways within Nadleh Whut'en and Nak'azdli lands that would be affected by the Project. Relevant portions of Section 23 should then be updated and resubmitted based on the results of that consultation. Without this effort, evaluation of appropriate mitigations, and a reasonably reliable determination of significance of effects on Nadleh Whut'en and Nak'azdli use and rights is impossible.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Coastal GasLink acknowledges the concern about unique ecosystems and landscapes of Nadleh Whut'en First Nation and Nak'azdli Band territories, and the specific challenges that need to be considered in carrying out activities on these lands. Engagement with Nadleh Whut'en First Nation and Nak'azdli Band began in June 2012 when both were formally notified of the proposed Project. Nadleh Whut'en First Nation conducted a Traditional Land Use study and collected socio-economic baseline data in collaboration with Nak'azdli Band and facilitated by Carrier Sekani Tribal Council. The results of these studies form the basis for ongoing dialogue between Coastal GasLink, Nadleh Whut'en First Nation and Nak'azdli Band to inform construction planning and detailed engineering design for the proposed Project. Coastal GasLink gathered information on specific geographic areas identified as important to Nadleh Whut'en First Nation and Nak'azdli Band. Locations of TLRU activities and sites gathered from available literature and from the preliminary results of the Nadleh Whut'en First Nation TLU study are shown in Tables 23-32 and 23-34, respectively. Locations of TLRU activities and sites gathered from available literature and from the preliminary results of the Nak'azdli Band TLU study are shown in Tables 23-37 and 23-39, respectively. The types of TLRU sites and activities mentioned in Tables 23-36 and 23-41 in Section 23 represent the geographic locations of TLRU sites and activities specific to Nadleh Whut'en First Nation and Nak'azdli Band mentioned above. Issues, concerns and associated mitigation specific to Nadleh Whut'en First Nation and Nak'azdli Band are available in Sections 23.8 and 23.9. TLRU sites identified by Nadleh Whut'en First Nation and Nak'azdli Band in their interim TLU study (Sharp 2013) are also presented in Sections 23.8 and 23.9, respectively. The types of potential adverse effects on the TLRU VCs and associated key indicators were determined to be common between the Aboriginal groups considered and so an overall characterization of the residual effects was conducted in Section 16. However, the locations of these effects are specific to those identified by each Aboriginal group, including Nadleh Whut'en First Nation and Nak'azdli Band listed in

Coastal GasLink Project: Working Group Comment Tracking Table

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											Tables 23-32, 23-34, 23-37 and 23-39. Qualitative thresholds were determined to be the most appropriate method to evaluate the significance of potential residual adverse effects of the proposed Project on the TLRU VCs. The determination of significance considered: feedback from potentially affected Aboriginal groups; the established or accepted thresholds and standards for environmental VCs; relevant land-use planning objectives and strategies; previous environmental assessments reviewed and approved under provincial environmental regulatory processes, where appropriate; and the professional judgment of the assessment team. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.
1014	Application Section 23.8.2	23-238 (Table 23-35); 23-264 (Table 23-40)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Issues and concerns identified in table are described in generic way with no effort or care to properly characterize them. Rather, a long description of Coastal GasLink mitigations (described throughout the Application in a highly repetitive manner) is provided.	The proponent should be required to describe issues and concerns raised by Nak'azdli and Nadleh with greater accuracy.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		As outlined in the Order issued under Section 11, both Nak'azdli and Nadleh Whut'en received draft Aboriginal Consultation Reports 1, 2 and 3 for review and comment prior to filing these reports with the BC EAO. The consultation reports included a summary of issues identified during engagement activities. In addition, in September 2013, Coastal GasLink provided Nak'azdli Band and Nadleh Whut'en First Nation an Engagement Activities and Issues Summary for review and comment. As a member of the EAO Working Group, Nak'azdli Band and Nadleh Whut'en First Nation have also been provided the opportunity to identify issues and concerns about the Project including the opportunity to provide feedback directly to the EAO and Coastal GasLink concerning the draft Aboriginal Consultation Reports 1, 2, and 3.

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1015	Application Section 23.8.5	pg. 23-257; 23-289	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Effects characterization is not completed in section 23 and is not consistent with standard practice (see 1999 CEAA practitioner's guide) which requires explicit consideration of the context of impacts. Rather, Coastal GasLink refers the reader to the even more generic assessment in Section 16 (see lines 12-18 on p. 23-289). This assessment characterizes residual effects for all First Nations, and provides no attention to the specific concerns of each First Nation. However, Coastal GasLink appears to have identified two additional residual effects for Nak'azdli, though the effect pathways and location of likely effect are entirely unclear: "disturbance of gathering places" and "disturbance of sacred areas" (p. 23-289). These are not characterized in Section 16.	This assessment is too generic to support characterization of effects. Major revisions are required to justify the assessment of the proponent, make it specific to the preferred areas, species and modes of use, as well as the key interests and concerns, of each First Nation affected. Inconsistencies between Sections 23 and 16 must be corrected.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		Section 16 of the Application presents the assessment of the potential adverse effects of the proposed Project on traditional land and resource use. The information in Section 16 is informed by Section 23 which provides a baseline for assessment, specific to each of the potentially affected Aboriginal communities. Reviews of potential Project-related adverse effects and mitigation strategies were conducted directly with participating community members during the field surveys. Confirmation of the accuracy of the information discussed during field programs occurred during community results review follow-up meetings with individual Aboriginal groups where meetings could be scheduled. The Nak'azdli Band and Nadlele Whut'en First Nation results review meeting occurred on January 16, 2014. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through the life of the Project which includes continuing to share information and engagement to identify and address concerns to inform discussion about appropriate site-specific mitigation.
1016	Application Section 23.9.2	23-263	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	The Proponent notes in passing that "The Stuart River is a salmon spawning and rehabilitation site and an important cultural location for [Nak'azdli] community members. Sacred areas were reported along Stuart River; however, specific locations are unknown (Sharp 2013)."	It is important to clarify that the exact location of sacred areas have not been shared with the Proponent; they are not "unknown". First Nations have good reason to protect cultural places of high value, including sacred sites. Given the accelerated nature of this EA, Nak'azdli and Nadlele have not had enough time to engage the Proponent in further discussion on areas where higher protection or avoidance outright are required. This further discussion on Project interactions should: a) occur before the EA proceeds further into the Application Review period; and b) be informed with additional data re: locations not only of the proposed ROW but all other planned ancillary physical works and activities in Nak'azdli and Nadlele territory.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO. Coastal GasLink received a 'Red Flags Report' from Nak'azdli Band and Nad'leh Whut'en First Nations on September 18, 2013 that outlined a number of issues and concerns including route selection and the presence of a spring, which continues to inform the construction planning and detailed engineering design. Each of the issues raised were responded to in a meeting and follow-up letter by Coastal GasLink in January 2014. On March 27, 2014, Coastal GasLink received the draft Nadlele Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project. On April 2nd, 2014, Coastal GasLink met with representatives from both the Nak'azdli Band and Nadlele Whut'en First Nation to review the draft Preliminary Use and Occupancy Study. The report notes that the information therein is preliminary and that "further work is planned to increase the number of interviews conducted and to [include] field visits". Coastal GasLink has been informed that the Final Use and Occupancy Study for the Coastal GasLink Pipeline Project from these two bands can be expected in May 2014.		Coastal GasLink understands the concern about protection of information about the exact location sacred areas. Coastal GasLink received the "Draft – Nadlele Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project" in March 2014. On April 2, 2014, Coastal GasLink met with representatives from both the Nak'azdli Band and Nadlele Whut'en First Nation to review the draft Preliminary Use and Occupancy Study. The report makes mention that the information therein is preliminary and that "further work is planned to increase the number of interviews conducted and to [include] field visits". Coastal GasLink received the "Nadlele Whut'en First Nation & Nak'azdli Band: Preliminary Use and Occupancy Study for the Coastal GasLink Pipeline Project" in June 2014. It is the intent of Coastal GasLink to discuss site specific mitigation for issues identified in June Use and Occupancy Study Report with both the Nak'azdli Band and Nadlele Whut'en First Nation to further inform construction planning and detailed engineering design.

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									It is the intent of Coastal GasLink to discuss site specific mitigation for issues identified in the final Use and Occupancy Study Report with both the Nak'azdli Band and Nadleh Whut'en First Nation and that information will be considered as construction planning and detailed engineering design advances.		
1017	Application Section 26	general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Coastal GasLink has clearly avoided any commitments beyond what is spelled out clearly in legislation. Additional law and EA practice applies, as do First Nation consultation requirements / outcomes. Section 11.4 of the AIR clearly states that mitigation or management strategies that address "impacts to Aboriginal interests" (p.99) must be described. Without revising the effects assessments for several VCs (including TLRU) in the Application, it is unclear how Coastal GasLink will be able to identify effective mitigation for the proposed Project. Adequate and defensible mitigation is a clear deficiency in the Application. In addition, experience in other BC regions indicates that commitments made by Proponents at the EA level are often not properly integrated into regulatory instruments. Given the increased role of the OGC in BC EAO's process, it is important for more clarity to be gained on the ability to implement the Proponent's commitments.	1. Coastal GasLink – please identify all commitments made in relation to the following, and how they will be enforced: -Promotion of Aboriginal Ability to Take Advantage of Benefits from the Project -Prevention of impacts on current and desired future use of lands and resources for traditional purposes -Prevention of impacts on Aboriginal interests 2. BC EAO and BC Oil and Gas Commission – Please identify how each of the Proponent's commitments to date, as identified in Table 26B-1, will be enshrined in which regulatory instruments, and how they will be monitored and enforced. Given the rapid timeline for this EA, we request this information within 30 days.	Coastal GasLink will comply with all applicable legislation and follow regulatory direction for the Project including implementation of mitigation deemed appropriate by the regulatory authorities. The mitigation to avoid or reduce potential adverse effects presented in the Application is included in the comprehensive assessment completed in accordance with the AIR issued by the EAO in May 2013.		
1018	Application Appendix 3A	general	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	This list is impossible to review. Information appears to be copied from Provincial Government land use permitted components and is not a list of projects and activities at all. For example, Dokie Wind Energy Inc. is described in 250 repeated rows as "commercial/industrial facilities/features" with different activity-VC interactions (some with most VCs and others with only the economic VC in the RSA). There is no description of Dokie Wind Energy Inc. for a review to understand why they would have a different interaction for these rows.	Revise the CEA Inclusion List to define specific projects and activities so interactions between past/existing/future projects/activities and VCs can be identified.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013. The CEA Inclusion list has been prepared according to the requirements of the AIR.		

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1019	Application Appendix 3A	Table 7-1 (EMP)	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Resource Specific Mitigation – Plant Gathering Areas should be changed from limiting chemical applications to NO chemical applications. Habitation Sites, Gathering Sites, Sacred Areas – do not have any First Nations participation in mitigation strategy.	Please revise EMPs as requested at left. Coastal GasLink	Coastal GasLink respects the request by the affected First Nations to avoid the use of Pesticides or Herbicides within their traditional territory. As Coastal GasLink develops its invasive plant management plan, consideration will be given to other options of vegetation control. Mitigation listed in Section 7 of the EMP are expected to mitigate potential adverse effects on TLU sites (e.g., habitation and gathering sites and sacred areas). Planned engagement activities described in Section 23 of the Application includes continued discussion about site-specific mitigation.		
1020	Addendum March 2014	Table C-1 Master Watercourse Crossing List	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Site ID: 307 (Stuart River KP 296.8) – Recommended Pipeline Crossing Method: Open Cut. Our understanding is this has now been revised as per addendum. - The identified Least Risk Window of July 15 to August 15 coincided with a culturally important time for Nak'azdli people with salmon runs.	Please identify whether Nak'azdli has been consulted re: this or any other "window of least risk" discussion and consult with the Nation re: appropriate work periods around the proposed Stuart River Crossing	Coastal GasLink confirms that on January 16th, 2014 Coastal GasLink met with Nak'azdli Band to review the Red Flags report. At that time, Coastal GasLink was informed of the recommendations that no in-stream water crossing construction work shall occur between the months of July to early October. Coastal GasLink completed a helicopter flyover with representatives of Nak'azdli Band on April 29, 2014 to review and discuss the proposed Stuart River crossing. This information will be considered as construction planning and detailed engineering design advances. A description of the approach for pipeline installation at watercourse crossings is provided in Section 1.4.16 of the Application.		
1021	Addendum March 2014	Table C-1 Master Watercourse Crossing List	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Re: Stuart River Crossing – Alternate Corridor.	Be advised that as yet Nak'azdli has not had adequate time to review the proposed revised Stuart River Crossing against TLU/TEK information to identify potential effects or the need for additional data collection and analysis.	Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO.		
1022	Addendum March 2014		N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Re: Highway 16 Crossing – Corridor Widening	Be advised that as yet Nad'leh has not had adequate time to review the proposed revised Highway 16 Crossing against TLU/TEK information to identify potential effects or the need for additional data collection and analysis.	Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO.		
1023	Application Appendix 2G	pg. 15 of 129: Table 3-2:	N/A	22-Apr-14	N/A	Nak'azdli Band Council and Nad'leh Whut'en First Nation	Primary Information Sources for Fish and Fish Habitat does not include important research publications from DFO's website, i.e. Scientific Information in Support of Identifying Critical Habitat for SARA listed White Sturgeon Populations in Canada: Nechako, Columbia, Kootenay and Upper Fraser (2009) by Todd Hatfield, Tola Cooper, Steve McAdam, Solander Ecological Research, Victoria, BC., Fisheries and Oceans Canada, Vancouver, BC, BC Ministry of Environment, Vancouver, BC. (http://www.dfo-mpo.gc.ca/Csas-sccs/publications/resdocs-docrech/2012/2012_153-eng.pdf)	Please gather and analyze the noted report.	Acknowledged.		

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1024	Application Section 1	1-5; 1-52; 1-65 to 1-70	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Factors selected for evaluating routing options are not justified. a) Unclear how some of these factors will lead to mitigation of potential adverse impacts, notably selecting a route based on "previously cleared areas". This may be most cost-effective, but may result in an adverse cumulative effect of a highly valued or sensitive area. Rehabilitation of particular cleared areas might be a preferred option. b) Standard practice for developing criteria in an alternatives assessment (for an authoritative review of this standard practice, see Pohekar and Ramachandran. (2004). Application of multi-criteria decision making to sustainable energy planning – A review. Renewable and Sustainable Energy Reviews 8(4): 365-381.) These comments apply to criteria developed for evaluating temporary workspaces (1.4.13), permanent facilities (1.4.14), and access roads (s.1.4.15).	1. What established alternative assessment method was used to select the factors used to evaluate routing options? For temporary workspaces, permanent facilities, and access roads? Reference to published literature and/or regulatory guidance is required.	Coastal GasLink described its process for route and facility site selection in Section 1.4 of the Application, and applied the criteria outlined Sections 1.4.4, which are consistent with criteria described in the AIR issued by EAO in May 2014. Figure 1.5 depicts the process applied for pipeline route and facility site selection. The process of applying the selection criteria is iterative, and takes into account information from project data collection in addition to feedback from regulatory authorities, landowners, Aboriginal groups, and stakeholders. Coastal GasLink's construction planning and detailed engineering design continues to be informed by data and information relative to the route and site selection criteria.	This is an inadequate response to the BRFN comment/request. BRFN reviewed the entire Application, including the noted section, and found it deficient, prompting the original request. There are three information requests still outstanding from the original request. BRFN requests that the EAO require the Proponent to meaningfully respond to them.	Coastal GasLink maintain its original response and notes that the Addendums to the Application, provided to the EAO in March and June 2014, present examples of continued use of the route selection process described in the Application.
1025	N/A		N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Factors selected for evaluating routing options are not justified. a) Unclear how some of these factors will lead to mitigation of potential adverse impacts, notably selecting a route based on "previously cleared areas". This may be most cost-effective, but may result in an adverse cumulative effect of a highly valued or sensitive area. Rehabilitation of particular cleared areas might be a preferred option. b) Standard practice for developing criteria in an alternatives assessment (for an authoritative review of this standard practice, see Pohekar and Ramachandran. (2004). Application of multi-criteria decision making to sustainable energy planning – A review. Renewable and Sustainable Energy Reviews 8(4): 365-381.) These comments apply to criteria developed for evaluating temporary workspaces (1.4.13), permanent facilities (1.4.14), and access roads (s.1.4.15).	2. For each alternatives assessment factor, provide a description of (a) evidence used to justify the decision to select the factor, such as published and unpublished social scientific, engineering, and scientific literature, primary data collected for this purpose, etc. and (b) how the factor was applied in the assessment framework (e.g. a simple matrix ranking or weighting each factor could be provided, or particular thresholds adopted for each factor could be described like x% additional cost was considered not financially viable).	Coastal GasLink described its process for route and facility site selection in Section 1.4 of the Application, and applied the criteria outlined Sections 1.4.4, which are consistent with criteria described in the AIR issued by EAO in May 2014. Figure 1.5 depicts the process applied for pipeline route and facility site selection. The process of applying the selection criteria is iterative, and takes into account information from project data collection in addition to feedback from regulatory authorities, landowners, Aboriginal groups, and stakeholders. Coastal GasLink's construction planning and detailed engineering design continues to be informed by data and information relative to the route and site selection criteria.	This response is a mere copy of a generic response copied from cell to cell from the response to Comment 1024, to 1025. As outlined above, this is an inadequate response to the BRFN comment/request. BRFN reviewed the entire Application, including the noted section, and found it deficient, prompting the original request. There are two information requests still outstanding from the original request. BRFN requests that the EAO require the Proponent to meaningfully respond to them.	Coastal GasLink maintain its original response and notes that the Addendums to the Application, provided to the EAO in March and June 2014, present examples of continued use of the route selection process described in the Application.

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1026	N/A		N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Factors selected for evaluating routing options are not justified.</p> <p>a) Unclear how some of these factors will lead to mitigation of potential adverse impacts, notably selecting a route based on "previously cleared areas". This may be most cost-effective, but may result in an adverse cumulative effect of a highly valued or sensitive area. Rehabilitation of particular cleared areas might be a preferred option.</p> <p>b) Standard practice for developing criteria in an alternatives assessment (for an authoritative review of this standard practice, see Pohekar and Ramachandran. (2004). Application of multi-criteria decision making to sustainable energy planning – A review. Renewable and Sustainable Energy Reviews 8(4): 365-381.)</p> <p>These comments apply to criteria developed for evaluating temporary workspaces (1.4.13), permanent facilities (1.4.14), and access roads (s.1.4.15).</p>	BRFN was not consulted in a meaningful way re: alternatives assessment. Alternatives assessment for BRFN territory required.	Coastal GasLink followed the approach outlined in the Aboriginal Consultation Plan approved by the EAO. Coastal GasLink has regularly provided information about the proposed route to BRFN. Engagement with BRFN is outlined in Section 23.18.2 of the Application. Aboriginal Consultation Reports 1 and 2 approved by the EAO, provide additional detail about engagement with BRFN. Coastal GasLink will continue engagement with BRFN as described in Section 23.18 of the Application and will consider additional information provided for site-specific mitigation and verification if made available and as appropriate.	CGL has provided BRFN with general information regarding the proposed route, but has not engaged in meaningful consultation regarding the proposed route in any way. To date BRFN has not been engaged adequately on routing options, thus necessitating the original request, which we reiterate here.	Updated information about Coastal GasLink engagement with BRFN is provided in Aboriginal Consultation Report 3.

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1027	N/A	1-9; 1-65	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>There is inadequate information regarding ancillary components, resulting in an inadequate characterization of potential effects and significance. Altogether, the footprint for these activities will be very large and comparable to the proposed pipeline footprint. Further, several activities will have an impact on locations outside of the vicinity of the proposed pipeline (e.g. 100 borrow sites, among others).</p> <p>The areas of the following ancillary activities are provided, but location(s) and likely footprint are not provided:</p> <p>a) Construction, upgrade, and decommissioning of access roads and shoo-flies (up to 2,295 km in length, Table 1-5), and temporary bridges (no number or area provided)</p> <p>b) Construction camp locations (up to 3.1 sq. km, p.1-15)</p> <p>c) Any stockpile sites (up to 3 sq.km, p. 1-16), disposal sites (no area provided), rail sidings, storage yards (up to 1.6 sq.km, p.1-17), laydown areas (up to 1.6 sq.km, p.1-17), hydrostatic test fill sites (up to 140 sq.km, p.1-18), and borrow pit areas (up to 20 sq.km, p. 1-17).</p> <p>Considering that a very large proportion of the Project footprint resulting from ancillary components – indeed the majority of affected areas- has not been defined, Project effects have not been adequately assessed in relation to several of site-specific terrestrial, aquatic, heritage, social, economic, and health VCs outlined in the AIR. How can there be certainty in significance estimations when most of these effects have not been assessed at all?</p> <p>Coastal GasLink states that these activities "will be fully defined once a detailed construction plan has been developed... [and] will be subject to review by the OGC and other regulatory agencies" (p. 1-66). A full definition is not provided. Locations of areas where these effects will or will likely occur is requested to generate a general understanding of the potential values that will likely be affected, potential effect pathways, so that an estimation of significance of the entirety of the project, not the smaller portion of it that has an established location at this time – the purpose of the environmental assessment - is possible. The lack</p>	<p>1. At minimum, the preferred (or several preferred) location(s) and likely footprint area for each of the following proposed is required to be presented on several map sheets at a coarse level (e.g. 1:50,000):</p> <p>a) Construction and decommissioning of new access roads, road upgrades, shoo-flies, and temporary bridges;</p> <p>b) Construction camp locations; and</p> <p>c) Any stockpile sites, disposal sites, rail sidings, storage yards, laydown areas, hydrostatic test fill sites, and borrow areas.</p> <p>2. The areas disturbed should also be summarized by some ecologically meaningful category (e.g., BEC zone, physiographic region or watershed).</p> <p>3. The Proponent should provide an estimate of the following for all primary and ancillary physical works required for the Project to take place (including the pipeline ROW and all of the other physical works listed at left and in Table 1-5):</p> <p>a) The predicted physical footprint of the entire Project, broken down by component, and including ROW and all other effects; and</p> <p>b) The predicted impact footprint including an appropriate and defensible Zone of Influence (ZOI) beyond the physical footprint.</p> <p>c) For the ZOI, reference to specific supporting literature used to estimate the ZOI should be provided and links to this literature put on the public record for this EA.</p>	Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013.	The Proponent's statement is incorrect. The Project consists, as per the EAO's Section 11 Order, of all physical works and activities required to undertake the Project. This includes ancillary features. BRFN has sought additional information to support estimation of whether ancillary developments have the potential to contribute additive Project-specific effects - and by extension contribute to total cumulative effect loading - on VCs. Such information requests form the backbone of the Application Review period for any meaningful EA process; CGL has failed to provide a substantive response. BRFN requests that the EAO requires that CGL responds, as it is critical to the determination of potential effects from the proposed Project.	Coastal GasLink completed quantitative analysis for the proposed route assuming a 100 m wide corridor. This corridor width was selected for the analysis since it reflects the construction right of way and temporary workspace as well as to the permanent facility footprints of the meter stations and compressor stations. Temporary ancillary facilities such as camps, stockpiles, and borrow pits were assessed qualitatively. Coastal GasLink will provide detailed information about temporary ancillary facilities to the OGC during the permitting phase. Coastal GasLink will seek to use existing roads and trails to the extent practical, and minimize the construction of new roads. Potential adverse effects of roads have been addressed in a qualitative manner in the Application. Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and Environmental Protection and Management Regulation, as well as the OGC's Environmental Protection and Management Guide. Coastal GasLink has provided mapping to BRFN and looks forward to continuing the dialogue about the construction footprint and construction planning as detailed engineering design advances.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
							of information on ancillary locations represents the premature status of project planning and the lack of readiness of the proponent to submit applications for an environmental assessment. These issues cannot be dealt with by the OGC; they are subject to the Section 11 order for this environmental assessment.				
1028	Application Section 1.5	1-75	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Training and Education Opportunities section provides little information on:</p> <ul style="list-style-type: none"> - specific programs and initiatives in place now or in development - methods used to develop these programs - how well these programs are designed to meet community objectives and which objectives are being targeted and why? <p>Reference to 'capacity' seems to exclusively related to equipping community members with necessary credentials and skills to get a job. What other aspects of capacity is Coastal GasLink aiming to enhance? Enhancing number of indigenous language speakers or supporting harm reduction programs that target potential employees working in work camps are potential examples.</p> <p>Workforce readiness steps are</p>	How far has Coastal GasLink progressed in their "short-term workforce readiness training"? Please identify all plans, policies and programs Coastal GasLink has committed to in an effort to maximize local Aboriginal employment opportunities in relation to the construction phase of this Project. This may include training programs, basic educational improvements, programs to support removal of barriers to employment, among other programs.	Coastal GasLink confirms that an overview of the Aboriginal Participation Strategy is included in Section 1.5.7 of the Application. Coastal GasLink developed two programs to support community capacity building, namely, 'Pathways to Pipeline Readiness' which focuses on Local workforce readiness training directly related to the Project; and TransCanada 'Education Legacy Program' which aims for long-term community capacity building through education. Dialogue will continue with Aboriginal groups to enable and facilitate participation in these programs. The Application includes data and an assessment on employment, contracting, education and training in Section 1.5 ,Section 12 , Appendix 2N of the Economic Technical Report and in Appendix 2M of the Social Technical Report. Coastal GasLink is also supporting the development of community capacity including providing capacity funding for communities to engage with Coastal GasLink and building collaborative community partnerships focused on long-term	Thank you for identifying the location of the Aboriginal Participation Strategy at s. 1.5.7 of the Application. BRFN notes that "Pathways to Pipeline Readiness" and "Education Legacy Program", specific to this Project, have not been developed in consultation with BRFN. Further, BRFN has no knowledge of CGL's attempts to build collaborative community partnerships focused on long-term community capacity building. The information on all of CGL's committed plans, policies and programs to maximize Aboriginal employment opportunities is insightful. The response that 'dialogue will continue with Aboriginal groups' does not address BRFN's simple request on the status of short-term workforce readiness training. BRFN respectfully requests CGL to provide a status update on the implementation to date of these	Coastal GasLink requested a meeting with BRFN on May 7 2014 to discuss socio-economic opportunities and looks forward to a response to this meeting request and further discussion at BRFN's convenience.

Coastal GasLink Project: Working Group Comment Tracking Table

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							presented on page 1-76. It is not clear how far along Coastal GasLink is in this process given the timing for training and how these newly skilled workers will be able to take advantage of employment.		community capacity building.	committed-to training programs, if any. An obvious reason for BRFN to request this information is that the Proponent needs to provide evidence that in the "short term", meaning starting right now, training programs need to be established, and up and running now in order to facilitate increased Aboriginal ability to take advantage of construction stage employment opportunities, which have a relatively short life span and are expected by the Proponent to start soon should the Project be approved.	
1029	Application Section 1.5	1-92	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Coastal GasLink commits to developing an Aboriginal Participation Strategy that "will assess community capacity and identify work packages for Aboriginal businesses and workers". No information on the assessment is provided. Coastal GasLink appears to emphasize information-giving rather than information gathering methods, goals, targets and commitments. The absence of detail and actual commitments other than a commitment to do something in the future means that the Crown currently has no information against which to assess the ability of First Nations to take advantage of benefits on offer from the Project. Aboriginal inability to take meaningful advantage (meaning a reasonable proportion of project workforce) of a project in employment and contracting terms is an adverse effect unto itself. Consideration of these effects is of increased importance as a result of the distributional inequity impact that has been primarily borne by Aboriginal people where resource projects intersect with Aboriginal communities. The bulk of adverse land effects are felt with higher magnitude by First Nations (whose reliance on the land for resources is higher than non-Aboriginal sub-populations), yet employment, training and business opportunities (benefits) are accessed more readily by non-Aboriginal people. This must be considered.	The Proponent is requested to develop and present its Aboriginal Participation Strategy in support of its socio-economic impact assessment for this Project. Currently, the baseline data, effects characterization and mitigation detail are all inadequate to support estimation of effect significance.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013. Information about the Strategy can be found in Section 1.5.7 of the Application.	BRFN is not satisfied with this generic response. We request that CGL develop and present its APS; we reviewed Section 1.5.7 of the Application prior to making the original request and found it inadequate for the purpose of the EA.	Coastal GasLink requested a meeting with BRFN on May 7 2014 to discuss socio-economic opportunities and looks forward to a response to this meeting request and further discussion at BRFN's convenience.
1030	Application Section 2.3.2	2-8 to 2-11	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	N/A	Application incorrectly identifies BRFN as a schedule C First Nation in this part of the Application, this must be revised in light of February 2014 revision to the s. 11 Order.	Coastal GasLink acknowledges the Section 13 Order issues February 21, 2014 that placed BRFN on Schedule B of the Section 11 Order.	Sufficient response. The Order is on the ePIC website and corrects the public record.	

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1031	Application Section 2.3.2	2-12 to (Table 2-4)	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Table 2-4 provides generic list of First Nation issues and concerns raised through the EA process. It is unclear what the purpose of this table is. It does not provide sufficient, and specific, information with respect to each item, to facilitate any meaningful consideration of interests/concerns identified, and Coastal GasLink's response.</p> <p>Some Coastal GasLink responses offer assurances that the issue is addressed in a broader assessment and fails to provide an assessment to directly target this issue. For example, on page 2-17, the issue raised is potential effects on old growth forests and Coastal GasLink addressed this by pointing to a study that includes all ecosystem types. How does Coastal GasLink ensure that the study will examine the specific issue raised?</p>	<p>A well thought out description of the consultation methods and the information collected, recorded, and interpreted should be provided in place of Table 2-4. This new table should include (at minimum): (a) the general method(s) (and guide(s)) used to collect, record, and interpret information from community representatives; (b) identify the First Nation that raised the issue concern; (c) the information that was provided (i.e. baseline data, effects pathway, mitigation idea, likely magnitude of effect).</p> <p>How has Coastal GasLink designed the study to reflect the specificity of the issue (be it place-specific, practice-specific, culturally-specific)? Has more effort been placed on these issues than those that were not raised as a concern?</p> <p>Further, why are all issues and concerns lumped together and not categorized by First Nation? (Issues are categorized by group under public consultation.)</p>	Coastal GasLink confirms that a description of issues and concerns identified by each Aboriginal group is provided in Section 23 as well as in the Aboriginal Consultation Reports 1 and 2 which have been approved by the EAO.	BRFN is aware of the contents of Section 23. We maintain that Table 2-4 is not appropriate, and many of the same criticisms apply to Section 23 tabular materials. BRFN maintains this comment/request has not been addressed meaningfully and reiterates its original request.	Coastal GasLink confirms that an updated description of consultation with BRFN, including engagement activities and issues, is provided in Aboriginal Consultation Report #3
1032	Application Section 3.2.1	3-9 to 3-17	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The section describing ATK collection and interpretation methods for use in the Application and the purpose of ATK in the EA process is incomplete. No ATK/TEK has been collected from BRFN with respect to this Project. The methods presented on how "[e]xisting ATK has been compiled" are not valid research methods. Passively and opportunistically collecting general information from individuals who attend open houses and meetings, recording this information in a map, as outlined in section 3.2.1, describing a public participation process, is not a research process, and is certainly not accepted ATK or TLU/TUS practice.</p> <p>- In section 3.2.2, the passive and opportunistic collection of ATK within the strict spatial and methodological boundaries for biophysical studies of other VCs (i.e. employing Elders as labourers to visit locations relevant to sampling archaeology test pits or rare plant communities rather than locations where stories are derived, where people regularly collect medicinal plants, travel corridors used seasonally, etc.) offers minimal valuable information. This approach is also disrespectful to knowledge holders who are experts with valuable information; indeed, ATK merits its own, dedicated ATK field study.</p> <p>For use by the Crown for an EA, this information must be collected using well-designed research methods.</p>	<p>BRFN does not accept the Proponent's approach to ATK/TEK data collection, none of BRFN's TEK has been incorporated into the Application, including this section.</p> <p>The Proponent is requested to include the following in an addendum to the Application. Identification of how specifically ATK/TEK influenced:</p> <ul style="list-style-type: none"> - Identification of indicators included for each VC, - Spatial and temporal boundaries, - Effect pathways/Project-environment interactions, - Thresholds for significance, - Identification of appropriate mitigation and monitoring/follow-up, and - significance predictions. <p>This information must identify which First Nations' TEK was incorporated into the above, and how. General statements about ATK/TEK that suggests it is ATK/TEK of all affected First Nations is inappropriate, particularly given BRFN has provided no TEK to the Proponent.</p>	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application.	<p>CGL's response is completely inadequate and non-responsive to BRFN's original comment/request. Does CGL consider purported BRFN TEK collected during biophysical field studies to be considered "available" ATK?</p> <p>BRFN maintains that we do not accept the approach taken by CGL to collect ATK. BRFN undertook a third party review of the ATK approach and found that the approach CGL adopted for collecting, interpreting, and applying ATK in the EIA was far below accepted standard practice (The Firelight Group, 2014, Comments on Adequacy of Information in Traditional Ecological Knowledge Field Program for proposed Coastal GasLink Pipeline Project). BRFN maintains there is not enough information in the Application to understand how (if at all) ATK was integrated into the EA in any meaningful way. BRFN respectfully requests that the EAO require CGL to respond to this request.</p>	<p>Coastal GasLink confirms that BRFN representatives participated in biophysical field programs but did not provide TEK. However, Coastal GasLink is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.</p> <p>Coastal GasLink completed its Application to meet all requirements outlined in the AIR, and identify and assess the potential adverse effects of the construction, operations, and decommissioning and abandonment of the Project. Mitigation has been developed to avoid or reduce residual adverse effects, and is based on current industry-accepted standards, consultation and engagement with regulatory agencies, Aboriginal groups, interested groups, as well as the professional judgment of the assessment team, and TransCanada's collective experience in the design, construction and operation of major pipeline projects (as described in Section 3.2.1 of the Application). A comprehensive review of potential effects and recommended mitigation issues raised by each Aboriginal group was completed with each participating community during the field studies and during follow-up review (Section 23).</p>

Coastal GasLink Project: Working Group Comment Tracking Table

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							b) Several examples exist where indicators are developed so that ATK provides a critical source of information – either as baseline, effect interpretation, threshold development, mitigation, or interpretation of significance. For baseline, sensory receptors offer a useful and easily operationalized approach for visual, acoustics, and air quality VCs for baseline and monitoring. There is no evidence in the Application of how the scope of the assessment relied on ATK (and who this knowledge was collected from), as distinct from scientific and social scientific methodologies.				
1033	Application Section 3.6	3-23	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Most of this section is descriptive and offers very little in the way of evidence or justification for statements made so that WG members may verify these statements and assertions.</p> <p>Coastal GasLink states that significance determination relies in part on "professional judgment" as well as a review of "post-construction monitoring reports from previous projects". This statement is not verifiable based on the information in the Application, yet it is a very easy task and entirely reasonable for Coastal GasLink to provide a clear line of evidence for the WG to verify. It is not clear who the professionals are and what credentials they have. It is also not clear what reports were considered.</p> <p>Trained professionals, over the course of their career, will have acquired a very large body of research and information available at their fingertips to use as evidence in any EA Application such as this. Professional judgment, as they will be aware, is the least reliable analytical tool as</p>	<p>When the body of the Application refers to reports, documents, articles, books, statements of fact that are not widely known, numbers, and quotations, an in-text bibliographic reference must be inserted into the body text and included in the bibliography. The Application cannot be verified by the working group without these references.</p> <p>In this section, add in-text and bibliographic references to the "post-construction monitoring reports". If these references are confidential, it is not appropriate to use them as references in a public process such as this, alternatively, publicly available studies should be used.</p> <p>Add a description of the lead authors, peer-reviewers for each section. This can be placed at the front of the Application.</p> <p>For those sections that rely on "professional judgment" to determine significance, the credentials of the professionals must be provided in that section, along with a brief rationale of why they had to rely on their judgment rather than on providing evidence and analysis, and identification of constraints this places on confidence in their estimations as well as additional requirements for Environmental Follow-up Programs to verify the accuracy of predictions.</p>	Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013.	This is a completely inadequate response to the BRFN comment/request. As highlighted above, BRFN reviewed the entire Application, including the noted section, and found it deficient, prompting the original request. There are information requests still outstanding from the original request. BRFN requests that the EAO require the Proponent to meaningfully respond. BRFN maintains the request that information on authorship and evidence is required to increase confidence reviewers can have in assertions made in the Application. -	Coastal GasLink provided a technical memo listing the third party professional contributors to the Application on May 13 2014. References noted in the Application are included under "References" at the end of each Application section.

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							it relies on the subjectivity of an individual thus making it unreasonable to ask any peer reviewer or WG member to simply 'trust' the professional. High quality evidence and analysis is the best option for all disciplines in the research process. Where professional judgment is deemed to be required, however, justification of their 'professional' designation is required.				

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1034	Application Section 3.8	3-25	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>BRFN concerns with respect to cumulative effects assessment and the Project-based approach, rather than regional VC-focused approach, to CEA undertaken in this Application and outlined in this Comment apply throughout this Application and to all VCs to which CEA is conducted. BRFN is gravely concerned with the failure of the Application to assess total stresses placed on VCs.</p> <p>It is understood by EA practitioners in BC that thresholds for significant cumulative effects within First Nations territories and communities for many VCs have already been passed (e.g., in Booth and Skelton, 2011). This reality is not evident in this Application and must be considered.</p> <p>It is also understood that a cumulative effects assessment aims to consider the sustainability or resilience of selected (or interacting set of) VCs. To do this "properly, it must be implemented as if VECs were at centre stage" (Duinker and Greig 2006). Rather than focusing on whether or not the Project has an "unacceptable impact" on the sustainability of a VC, all of the possible stresses on the VC must be examined. This includes historic trends, fragmentation of habitat, historical events that had transformative effects, etc. For example, cumulative effects do not simply come from 'forestry activity' but from fragmentation of habitat, combined with slides from roads, and related impacts to streams and fish.</p> <p>Historic information and context is important to understand the resilience of any VC. While a detailed historical analysis may not be necessary, a general recognition of extent of change over time is required. For certain VCs where there are efforts being undertaken to improve its sustainability (e.g. certain wildlife and fish species, ecological communities, traditional land use practices, and culture), history is needed to know what the threshold might be and (oftentimes) to be able to describe that the threshold has already been exceeded, even without the Project. BRFN disagrees with the Proponent's decision to use current conditions as the baseline for cumulative effects.</p>	<p>Identify all VCs for which contextual baseline and trend over time data collection identified a pre-existing significant cumulative effects context – i.e., where thresholds for significant adverse cumulative effects had already been passed. Potential examples include the ranges of SARA-listed species, or species that have dramatically reduced their extent and/or populations in recent years. The cumulative effect is potentially well beyond significant before the project effect, for caribou, for example.</p> <p>For these significant cumulative effects that exist today (before the Project) especially those cumulative effects on traditional land use practices and treaty rights, how does Coastal GasLink address these?</p> <p>How do cumulative effects assessments consider ecological linkages in understanding VC resilience and sustainability? For example, where there are multiple stressors on the same VC or measureable parameter – e.g., upstream and marine effects on salmon - how were these considered?</p> <p>The spatial extent of VCs, including the most vulnerable KIs, must be considered as part of CEA. For example, the CEA for vegetation must consider the spatial extent of rare plant communities, and the extent to which impacts may be impacting the last 5% of that type of community.</p> <p>As noted above, temporal boundaries must not only include the boundaries of the Project, but must be established for each VC. For cumulative effects, this demonstrates a fundamental flaw and must be changed. As outlined at the bottom of page 16 in the EAO's VC Selection Guide, temporal boundaries must be established for VCs. Recommend deleting the first paragraph under "Temporal Boundaries" on page 3-17 and add a table of temporal boundaries for each VC for the cumulative effects assessment with brief justification. Each VC has experienced stresses for decades and may experience cumulative effects over the long-term (beyond 30 years) or permanently.</p> <p>How does the Application consider oil and gas development to be induced by the Project, if approved, under s. 3.8.7 (reasonably foreseeable future projects considered for the cumulative effects assessment)?</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013.</p> <p>Project-specific cumulative effects assessments must determine if that particular project is incrementally responsible for adversely affecting a given element (Hegmann et al. 1999). Coastal GasLink completed the CEA analysis to provide baseline information on both the project's contribution to the cumulative effect as well as the cumulative effect overall, however, the cumulative effects assessment must also make clear to what degree the project under review is contributing to that total effect. In accordance with the AIR, the characterization of cumulative adverse effects for each VC focused on the Project's contribution to the effect.</p> <p>Ecological linkages and resilience are discussed for each valued component in the baseline information provided and the definition of context, particularly for the environmental effects assessment presented in Sections 4 to 10 of the Application. The vegetation assessment presented in Section 8 of the Application discusses the spatial extent of ecosystems of management concern.</p> <p>Coastal GasLink applied the temporal boundaries to the characterization of residual adverse effects outlined in the AIR issued by the EAO in May 2013.</p> <p>When considering future case, Coastal GasLink's cumulative effects assessment focused on projects that are considered reasonably foreseeable and have been announced in advance of August 2013 (per the AIR issued by EAO in May 2013).</p>	<p>Thank you for pointing out where in CGL's Application some evidence addressing our concerns are brought up. However, this concern is not addressed with these piecemeal references to small parts of the Application. The methodology of cumulative effects is the object of this critique and BRFN is very disappointed that CGL maintains that the flawed methodology they adopted is adequate. Our disappointment is linked both to the lack of respect for principles of good practice of cumulative effects assessment, and the fact that BRFN is suffering from a pre-existing and extremely high cumulative effects load from existing hydrocarbon, agricultural, forestry and other industrial developments in our territory, a fact that does not emerge in the Proponent's Application in any meaningful way. The high degree of existing habitat fragmentation in the Peace Region is well established (see, for example Lee and Hanneman 2013, cited in Comment 1035), but almost completely ignored by CGL in its Application. CGL refers to Hegmann et al., (1999) to justify their approach. This document was published in 1999 (15 years ago) and, at THAT time, argued that CEA should also look at "regional thresholds for various VECs and indicate to what degree a threshold is approached or exceeded" (p.7). This is the underlying principle of several of our original information requests. Sensitivity to cumulative effects is crucial for BRFN. Given the likely cumulative effects felt in our territory resulting from the LNG production system that is excluded from the assessment (shale gas extraction, exploration and development), why does CGL not conform to this standard? Great care must be paid to cumulative effects as our territory, our livelihood, and our identity as a People is threatened by gas development. Incremental effects provide no value for understanding the vulnerability of a VC (Duinker and Greig, 2006, as cited in original comment). Other examples of good cumulative effects assessments exist and are commonly used across BC (See, for example, Nitschke, C. R. (2008). The cumulative effects of resource development on biodiversity and ecological integrity in the peace-Moberly region of the northeast British Columbia, Canada. Biodiversity Conservation, 17, 1715-1740).</p> <p>We respectfully maintain CGL is required to respond to our original</p>	<p>Coastal GasLink confirms that the cumulative effects assessment was completed using the methodology defined in the AIR issued by the EAO in May 2013. The methods applied for cumulative effects assessment are appropriate for understanding the context of the project in relation to previous disturbances, the current level of disturbance across the landscape, and reasonably foreseeable future projects.</p>

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							Booth, A. L., & Skelton, N. W. (2010). Industry and government perspectives on First Nations' participation in the British Columbia environmental assessment process. <i>Environmental Impact Assessment Review</i> , 31, 216-225. Duinker, P. N., & Greig, L. A. (2006). The impotence of cumulative effects assessment in Canada: Ailments and ideas for redeployment. <i>Environmental Management</i> , 37(2), 153-61			six requests and seriously reconsider the implications of both extremely high existing cumulative effects in our territory and likely future cumulative effects caused by both those projects the Proponent deems "reasonably foreseeable" and those induced by the Project itself.	

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1035	Application Section 3.8	3-35 to 3-37	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Proponent's decision to adopt a "disturbance hierarchy" methodology is unjustified, given the several other freely available baseline data sources, cumulative effects methods, and existing (defensible) cumulative effects assessments. Professional standards for cumulative effects typically include extensive use of GIS technologies. Very powerful data is freely available to undertake impact assessment quality research. Furthermore, practice standards for cumulative effects in several disciplines exist, this guidance should be referenced and incorporated into the Application.	Why was "aerial photography" used to calculate existing disturbance footprint when digital Landsat and other imagery can quickly calculate the footprint by using GIS tools that are widely and (in many cases) freely available? Given that there are several examples of cumulative effects assessments undertaken for VCs within the project footprint, why has Coastal GasLink decided not to include these studies? It is recommended that these studies (Lee and Hannemann 2012; Nitschke, 2008) be considered to frame the assessment methodology and inform assessment findings for relevant VCs. Lee, P. and M. Hannemann (2012). Atlas of Land Cover, Industrial Land Uses and Industrial-Caused Land Change in the Peace Region of British Columbia. Global Forest Watch Canada report #4. Nitschke, C. R. (2008). The cumulative effects of resource development on biodiversity and ecological integrity in the Peace-Moberly region of the northeast British Columbia, Canada. Biodiversity Conservation, 17, 1715-1740.	Coastal GasLink clarifies that construction sections 4 and 5 for the Project include Nadleh's traditional territory from approximately KP 328 to approximately KP 407 of the proposed route. Mitigation to protect waterbodies is included in Table 7-8 of Section 7 and in the EMP of the Application. Section 8.7 of the EMP discusses mitigation to be implemented during pressure testing of the pipeline. Permits will be obtained from the appropriate regulatory authorities and water withdrawal and discharge will be carried out in compliance with all regulatory requirements. - In construction sections 4 and 5, the largest volume of water withdrawal from a single source is estimated to be approximately 28,000 m3, which is expected to be drawn from Breadalbane Lake. Additional sources will be reviewed as construction and detailed engineering design advances. -The use of additives to hydrostatic test water is determined by site-specific conditions and subject to approval by the appropriate regulatory authorities. Water used for pressure testing will be handled and disposed of in compliance with the conditions of the permits. -Water will be discharged to the watershed from which it was drawn in accordance with regulatory direction. -There may be limited water loss from the watershed in site-specific situation where water is treated and not suitable for return to the watershed. -Shallow domestic well owners within 200 m of the proposed Project will be provided the option to participate in a water well monitoring program prior to construction to determine pre-construction quality and quantity conditions. -All hydrostatic testing activities will be conducted in accordance with all applicable legislation including the Oil and Gas Activities Act, Oil and Gas Waste Regulations under the Environmental Management Act, and the Water Act. • The pressure testing of construction sections 4 and 5 is expected to be conducted during the summer months, following the winter construction of the pipeline.	This does not address BRFN's request at all, is completely off-topic and seems to have been provided in error as it is intended as a response to another First Nation. BRFN respectfully requests that CGL respond to our two information requests.	Coastal GasLink acknowledges that the previous response dated May 13 2014 was provided in error and apologizes for the inconvenience. Coastal GasLink confirms that the cumulative effects assessment was completed using the methodology defined in the AIR issued by the EAO in May 2013. The methods applied for cumulative effects assessment are appropriate for understanding the context of the project in relation to previous disturbances, the current level of disturbance across the landscape, and reasonably foreseeable future projects. Coastal GasLink confirms that GIS tools were applied to generate the metrics used in the cumulative effects assessment.
1036	Application Section 7.3	7-8 to 7-11	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Peace River Basin: 224 km; 378 watercourse crossings; 78 are fish bearing. Murray, Sukunka, Highhat, Burnt, Parsnip, Anzac, and Crooked Rivers.	Stream crossing methods: the document should contain a summary of the number of streams crossed in each basin using each type of stream crossing, with a summary for the entire RSA. This information is needed to assess whether a reasonable job has been done in applying the most conservative construction methods possible (e.g., HDD where there are risk factors).	Coastal GasLink confirms that the Master Watercourse Crossing List in Appendix C of the Fish and Fish Habitat TDR and includes information about the recommended pipeline crossing installation method for each watercourse along the proposed route. Section 1.4.16 of the Application describes alternative construction methods for pipeline installations at watercourses including the considerations for determining the appropriate installation method for each location.	BRFN reiterates its initial request that the CGL provide the information provided in its response to summarize, by basin, the total number of stream crossings, and a summary of how many streams will be crossed using each crossing method. BRFN is concerned CGL will not ensure the most conservative construction methods possible (e.g. HDD where there are risk factors). Can CGL provide this information?	Coastal GasLink has provided a Technical Memo on July 11 2014 to the EAO summarizing pipeline installation methods and vehicle crossing methods for watercrossings along the proposed route by watershed.

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1037	Application Section 7.4.2	7-16 ((Table 7-3) 7-19 TDR, p.73	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application uses the definition of fish-bearing stream used in the Environmental Protection and Management Regulations (EPMR) of the Oil and Gas Activities Act (OGAA). This definition is limited largely to species that support recreational or commercial fisheries. Table 7-3 lists other species whose presence is not sufficient for a watercourse to be labelled fish-bearing.	1) How many streams with other fish species (not counted under EPMR) are being crossed? 2) Provide the source of information that fish habitat is limited in Portions of the Peace east of the Sukunka River.	Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. The following sites with other fish species are crossed by the proposed route: Site 3: LKC, LSU, and WSU present downstream of crossing; S3 default. Site 4: LKC, LSU, and WSU present downstream of crossing; S3 default. Site 242: LSU, RSC; S2 default. Site 128C: LKC; S6. Site 132C: CCG, LSU; NCD-W. Site 143C: CCG, LSU, NSC, RSC; NCD-W. Site 301: LSU, RSC; S3 default. Site 409.1T: LKC; S4 Default. Site 468.1T: LSU downstream of crossing, NCD-W. Site 739.1T: TSB; S3 default. Site 740: TSB; S2. Coastal GasLink confirms that the finding that fish habitat is limited in portion of the Peace River east of the Sukunka River is based on the biophysical habitat information collected during the field program and the combined fish sampling results from the field program and historical sampling results. Only two crossings in this area (Murray River and Coldstream Creek) have definitive fish-bearing classifications, and only 8 additional crossings had a default fish-bearing status. A very high proportion of mapped crossings were assigned NVC or NCD classifications.	Response provided is sufficient.	
1038	Application Section 7.4.2	7-15	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	After reviewing the TDR, it's clear that while some streams were surveyed 100 m upstream and 300 m downstream, there are a number of situations where it was deemed by the Proponent or its consultants "not practical or feasible" to extend the survey length to 300 m downstream.	Please identify how many streams were surveyed (total) and how many were surveyed to the full extent implied in the TDR. Some of this information is captured in Table 4-3, but it's not clear how many assessments included the full extent of the LSA.	Coastal GasLink confirms that 471 of 1342 watercourse crossing locations (35%) were surveyed to the full extent of the LSA (400 m site length). Many non-classified drainages and non-visible channels were not surveyed to the full extent given the limited data the extra survey across forest floor would contribute (49% of all watercourses surveyed received this classification (Table 4-4)). In some cases there was not enough stream to complete a 300 m section (e.g., the stream discharged into a lake before the 300 m downstream survey distance could be completed). There are a number of crossings where no survey has occurred and stream classification was assigned based on historical data (no access granted). Some surveys were shortened because of access/safety (e.g., stream flowed off a cliff preventing crews from travelling further).	Response provided is sufficient.	
1039	Application Appendix 2G	p. 52	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	It seems that no assessments of watercourses associated with compressors, meter station sites and ancillary sites has specifically been collected, either because they are "outside of the RMAs of watercourses, the information collected as part of the proposed route assessment is sufficient to assess potential adverse project effects within the footprint of the ancillary site, or additional surveys will be completed at a later date."	This is a gap in the application. Road crossings may not occur directly in the area of the LSA or the area assessed. Locations of ancillary sites relative to stream crossings are not provided so it is impossible to determine whether there may be effects. Multiple crossings on one stream within a short stretch may have a more significant impact. The application cannot be considered complete until these sites are included within the assessment.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013.	BRFN disagrees that CGL's assessment has been comprehensive and we question the feasibility of conducting a full environmental assessment, including cumulative effects, of the proposed project without full knowledge of where ancillary sites and additional stream crossings may be required. These additional project components must be considered to determine the full extent of effects of the project, particularly in light of the level of existing and proposed development in the portion of BRFN territory this project impacts. Even small project components can have a significant adverse effect on BRFN rights and the land, water and air on which	Coastal GasLink completed quantitative analysis for the proposed route assuming a 100 m wide corridor. This corridor width was selected for the analysis since it reflects the construction right of way and temporary workspace as well as to the permanent facility footprints of the meter stations and compressor stations. Temporary ancillary facilities such as camps, stockpiles, and borrow pits were assessed qualitatively. Coastal GasLink will provide detailed information about temporary ancillary facilities to the OGC during the permitting phase. Coastal GasLink will seek to use existing roads and trails to the extent practical, and minimize the construction of new roads. Potential

Coastal GasLink Project: Working Group Comment Tracking Table

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										those rights depend in light of existing environmental effects.	adverse effects of roads have been addressed in a qualitative manner in the Application. Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and Environmental Protection and Management Regulation as well as the OGC's Environmental Protection and Management Guide. Coastal GasLink has provided mapping to BRFN and looks forward to continuing the dialogue about the construction footprint and construction planning and detailed engineering design advances.
1040	Application Appendix 2G	p. 53	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Fish sampling was not feasible at all sites and electrofishing may not have been effective due to low connectivity within the water. In some cases, the Application states that when conditions were not conducive to sampling, fish bearing status was sometimes determined through sampling at sites located further upstream within the same watershed.	Sampling upstream portions runs the risk of missing fish barriers, which could prevent upstream fish passage. It is essential to confirm the stream classifications (particularly whether fish are present) with local First Nations by active ground truthing of western scientific findings with ATK. There is no evidence that this was conducted in a meaningful way in development of the Application to date.	Coastal GasLink confirms that there was no situation where non-fish-bearing status was projected to downstream reaches without additional investigation. Upstream sampling would be only used as an indicator of fish bearing status. For example, if crews sampled sites located upstream of the crossing and captured a certain fish species, then that species was considered present at the proposed crossing location. If crews caught no fish, a default fish bearing status would be retained unless there was other evidence to support non-fish bearing status, such as the presence of a definite barrier.	Response provided is sufficient.	
1041	Application Appendix 2G	p. 92 p. 22	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The TDR notes that no watercourse crossings scored high for duration but that the initial screening did not take into account certain high-risk activities, such as blasting or riprap armouring	Since these activities are necessary for a rating of high, the initial assessment seems flawed. What about COSEWIC listed species? How were COSEWIC species included in the ranking? BRFN requires that these risk ratings be ground truthed. ATK/TEK of actual waterway users is critical to this assessment.	Further detail on temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the OGC's Environmental Protection and Management Regulation.	The proponent's response does not address the original concern and appears to have been located in this cell in error. BRFN remains concerned that some additional watercourse crossing may merit a risk rating of "high", depending on the construction technique used. Given this gap in the application, the certainty surrounding a lack of residual impacts should be reduced for these water crossings. We reiterate our request that the risk ratings be ground truthed in BRFN territory. Further to this comment, integrating a measure of traditional use importance into this risk rating would be an effective means of incorporating traditional knowledge into the assessment.	Coastal GasLink acknowledges that the previous response dated May 13 2014 was provided in error and apologizes for the inconvenience The Risk Management Framework (RMF) referenced in the Application is a method of assessing risk. This method uses information that was collected during the field programs and, as such, the crossings have already been ground-truthed. Where no field assessment has occurred, rankings are assigned on a conservative basis and further field work to collect the required information is planned to support permitting. The information that has been collected to date is appropriate to understand the potential adverse effects of the proposed Project, and to identify effective mitigation to avoid or reduce these effects. The assessment of potential adverse effects was completed using a conservative approach. COSEWIC listed species have been considered in the RMF. The RMF captures species that are red or blue listed by the BC Conservation Data Centre, and SARA listed species. The only fish species listed in Table 4-14 of the Fish and Fish Habitat TDR that is ranked by COSEWIC, but is not also red- or blue-listed and/or SARA listed, is the interior Fraser River coho. In the project area, this species is only found in the Stuart River, which

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											is already ranked for rare and endangered species due to the presence of white sturgeon and bull trout. Coastal GasLink continues to collect field data and information from Aboriginal groups, regulatory agencies, and other stakeholders to inform the permitting process, construction planning and detailed engineering design and development of site-specific mitigation.
1042	Application Section 7.4.2	p. 7-14 Appendix C, p. 1	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	This section states that habitat information for specific watercourse crossings is listed in Appendix C of Appendix 2-G.	We assume this means Table C-1? If so, there is little habitat information included in this table. Please revise this table to include the risk ratings (both) for each water crossing, so reviewers can easily see which water crossings are ranked as high risk and what types of stream crossings are planned.	Coastal GasLink confirms that Appendix C-1 includes the referenced habitat information. Additional habitat information is available in the Stream Crossing Data Sheets in Appendix F of the TDR. Watercourse rankings are available for all watercourses with high or medium RMF scores in Appendix J. Watercourses that do not appear in Appendix J are ranked low.	Response provided is sufficient.	
1043	Application Section 7.5.1	Various	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	First Nations, including BRFN, need to be involved in site selection for crossings, to ensure that all cultural and traditional use values will be maintained.	The Proponent is asked to clarify whether it is committed to involve affected First Nations in stream crossing location finalization, additional pre-construction data collection, construction and post-construction monitoring. An Aboriginal Monitor from the appropriate First Nation(s), including BRFN, should be present at all times during construction, in addition to the Environmental Inspector noted in the document.	Coastal GasLink will develop site specific plans for watercourse crossings during construction planning and detailed engineering design in consultation with the appropriate regulatory authorities. Coastal GasLink will continue to follow the Aboriginal Consultation Plan approved by the EAO.	The proponent has not responded to our request that affected First Nations, including BRFN, be involved in development and monitoring of plans for watercourse crossings, nor has CGL responded to our request that a BRFN monitor be on site at all times during construction of crossings in BRFN territory. Please provide a response to this request for clarification of mitigation and monitoring commitments.	Coastal GasLink will continue to implement the Aboriginal Consultation Plan which includes sharing information as construction planning and detailed engineering design advances and through subsequent Project phases. Coastal GasLink is developing an Environmental Monitoring Program in response to interest in monitoring opportunities by Aboriginal groups. As the Program is developed, information will be shared with Aboriginal groups.
1044	Application Section 7.5.3	7-74 7-77	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Table 7-9 notes that alteration or loss of riparian habitat function occurs only within the Project footprint. There is a high likelihood that impacts will extend into the LSA due to edge effects.	Please identify what literature was used to assert that alteration of riparian habitat will be limited to the project footprint, and provide an estimate based on scientific literature of the likely extent of riparian edge effects around the Project footprint, and adjust spatial boundaries accordingly.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Section 4.3 of the AIR, defines spatial boundary for Project Footprint for the aquatic environment assessment as the land area that will be directly disturbed by Project construction activities, including associated physical works and activities.	The response provided is not sufficient. We ask the BC EAO to comment on whether it is sufficient from a risk-management perspective to ignore edge effects on riparian habitat in areas directly beside the Project footprint and to issue additional Information Requests to cover this issue adequately.	The assessment of potential adverse effects on vegetation provided in Section 8 of the application acknowledges that clearing of forested vegetation, including riparian areas, has the potential to introduce edge effects. The vegetation LSA has been developed to represent the zone of influence of disturbance on vegetation, including edge effects. See Page 8-48 of the Application for an example of the consideration of edge effects when characterizing residual adverse effects of the Project.

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1045	Application Section 7	7-74, 7-76, 7-85, 7-86, 7-118, 7-150	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Many of the potential residual environmental effects listed in Table 7-9 and Table 7-21 are listed as short-term. However, at least some effects will endure over a longer time period. For example, some portion of the riparian vegetation will remain in an early seral condition throughout the Project's life. This will have an impact on aesthetics, woody debris inputs into streams, stream shading, and stream temperature. This long-term residual effect has not been accounted for in the analysis. Other longer-term effects are associated with permanent road crossings, as another example.	Re-assess characterization of impacts as long/short term. Add seral condition of riparian vegetation and impacts from permanent road crossings as a long term residual effect to the analysis and adjust findings accordingly. Since duration is likely to have a large impact on the relative significance of a disturbance, some impacts may have a higher residual environmental effect than is currently accounted for within the Project Application. Add improved access during operations as a long term effect, as it is unlikely that mitigations will prove successful in fully avoiding increased fishing pressure.	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. Immediate to short-term is the appropriate estimate of duration as maintenance activities during operations are a short-term event causing increased access which will be more than two days but less than one year. Information about the assessment methodology is provided in Section 3 of the Application.	We disagree with this definition of duration. Improved access in many locations will be a long term impact. Can the proponent please confirm that increased access associated with permanent access roads were rated as short term in duration? In the absence of an adequate response from the proponent on the question of duration as a whole, we ask the BC EAO to provide a response to the appropriateness of defining "duration" (i.e., the length of an impact) as short term. The period of the event causing the impact should include a consideration of ongoing ROW maintenance throughout the operation phase, which would change the duration to long-term. The Chartered Institute of Ecology and Environmental Management (CIEEM) suggests that duration for environmental impact assessment should be defined in relation to the ecological characteristics rather than human timeframes. If this definition is used, the duration of the impact would be much longer for some sensitive ecological areas (e.g., riparian areas, forest cover, old growth ecosystems) than for others (e.g., stream beds may recover quite quickly, as may already disturbed sites) (see http://www.cieem.net/impact-assessment#duration). We suggest that the definition of "duration" used for this application should be revisited to ensure best practices are being used; the focus should be on duration of effects in any good EA.	To characterize residual adverse effects, Coastal GasLink applied the methodology outlined in the AIR, which was issued by EAO in May 2013. In the AIR, duration is defined as the period of the event causing the effect (i.e., duration of the event), whereas reversibility is defined as the period of time over which the residual adverse effect extends (i.e., duration of the effect). While the duration of effects associated with access was found to be short-term because the event(s) leading to the effect are completed during the construction phase or within any one year of activity during Project operation, the residual adverse effects of access roads are acknowledged to last longer, and therefore the reversibility was assessed as medium-term or long-term.
1046	Application Section 7.5.3	7-77	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	This section mentions the possibility of vegetation control using pesticides. We assume this means herbicides. There should be no need to use pesticides for vegetation control.	Clarification of use of pesticides required. In the event that herbicide use is deemed warranted by the Proponent, affected First Nations should be contacted prior to application for approval—and only after other options have been ruled out.	Coastal GasLink respects the request by the affected First Nations to avoid the use of pesticides or herbicides within their traditional territory. As Coastal GasLink develops its invasive plant management plan, consideration will be given to other options of vegetation control.	Response provided is largely sufficient. We ask only for additional clarification - is the statement at left to be read as confirmation that CGL will not use pesticides or herbicides in BRFN traditional territory? Further, does CGL commit to developing the invasive plant management plan in consultation with affected First Nations, including BRFN, prior to the issuance of an EA Certificate? If no, will the EAO commit to including sufficient detail in the EA Certificate conditions as to the content of the plan, and require that CGL develop, implement and monitor the plan with affected First Nations, including BRFN?	Coastal GasLink confirms that pesticides and herbicides will not be used to control invasive plants in BRFN traditional territory. Coastal GasLink will continue to implement the Aboriginal Consultation Plan including sharing information about the Invasive Plant Management Plan.
1047	Application Section 7.5.3	7-79, 7-81	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The proponent talks about existing mitigations addressing relevant Aboriginal community TEK concerns.	The proponent should list each request and how the request was accommodated using existing mitigations.	Coastal GasLink confirms that Blueberry River First Nations chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Blueberry River First Nations' issues and concerns can be found in Section 23, Table 23-75 along	BRFN's concerns regarding the lack of a proper methodology for collecting TEK have been documented elsewhere. Please see these comments. Further, discussions with BRFN field participants regarding project impacts and potential mitigation measures do not, in any way, represent the interests of BRFN,	See response to issue tracking #1032. Updated information about Coastal GasLink engagement with BRFN is provided in Aboriginal Consultation Report 3.

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									with Coastal GasLink's mitigation response.	and were provided by participants in their individual capacity and not as representatives of BRFN. No meaningful consultation with BRFN regarding potential avoidance, mitigation or accommodation of Project impacts on BRFN rights and interests has occurred to date.	
1048	Application Section 7.5.3	7-81	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The proponent claims a low risk of increased fish mortality and injury due to an increase in suspended sediment during in stream construction at trenched crossings. There is at least a moderate risk of increased fish mortality and injury at trenched crossings, as noted in the paragraphs above, and the risk may necessitate acquiring DFO authorization and implementation mitigation and compensation requirements.	Please provide evidentiary support from literature for the contention that there is a low risk of increased fish mortality and injury due to increases in suspended sediment and all other combined Project-related impacts on fish and fish habitat. If evidentiary support cannot be provided, change this rating to moderate.	Coastal GasLink provides the following information: A summary of open-cut watercourse crossing effects studies was published in by Reid and Anderson (1999). Various literature (e.g. Newcombe and Jensen (1996); Anderson, Taylor and Balch (1996); Newcombe and MacDonald 1991 etc.) describes a dose exposure relationship to predict effects to fish and fish habitat. Various models have been developed for different species and life stages that predict severity of ill effects to fish, including mortality, based on the duration and concentration of sediment exposure. These models used onsite with real time water quality monitoring data to predict effects on fish and fish habitat. Should an event occur that causes construction activities to exceed CCME and BC water quality guidelines, construction crews will be notified and additional mitigation will be initiated to reduce instream suspended sediment load. As a result the likelihood of increased fish mortality and injury is low. Reference: Scott M. Reid & Paul G. Anderson (1999) Effects Of Sediment Released During Open-Cut Pipeline Water Crossings, Canadian Water Resources, 24:3, 235-251.	Thank you for this response. Further to this comment and the initial response, we request the proponent to: 1. describe what techniques are used and their efficacy in the event that instream sediment loads exceed CCME and BC water quality guidelines and additional mitigations are needed. 2. provide an indication of what mitigations are used in the event that stream temperatures exceed acceptable levels during construction and operations.	Coastal GasLink provided a technical memo to the EAO with further information about the Aquatics assessment and proposed monitoring on May 13 2014. Coastal GasLink will meet all applicable regulatory requirements. Response to the scenarios described by BRFN will be influenced by site-specific conditions, and will be implemented according to the processes described in the Environmental Management Plan.
1049	Application Section 7	7-74 and onward 7-120 and onward 7-158 and onward	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The blanket application of the ratings identified in these sections of the Application to all stream crossings does not make ecological sense, nor does it make sense within the context of existing impacts to these streams. Some specific areas have been identified as particularly sensitive, through the assessments conducted in for this application and from prior work. The Parsnip River, Sukunka River, and likely many others, are considered to be important habitat for various species.	At the very least, streams that are ranked at high risk should be addressed separately – preferably individually - once a detailed crossing plan has been made.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The methodology used to characterize residual effects and determine significance is described and in Section 3.7 and 3.9 of the AIR. Coastal GasLink is confident that the methodology provides an accurate assessment of potential adverse effects of the proposed Project. The purpose of the Application is to provide an overall assessment of the Project effects on fish and fish habitat. Site-specific designs will be developed as construction planning and detailed engineering design advances. Required information will be provided to the appropriate regulatory authorities during permitting.	The proponent has failed to address the concern raised in this comment regarding the blanket assignment of no significant residual effect with high confidence across all streams impacted by the Project. Certainly there is at least a moderate degree of uncertainty associated with some of the potential impacts of the pipeline crossings on fish and fish habitat, particularly where access will be permanent. The proponent has highlighted some uncertainty regarding the potential for increased access during operations to lead to increased instream habitat disturbance and fish mortality/injury. In response to these ratings, the proponent should provide a summary of case studies that describe effective methods for reducing impacts of increased access, should significant impacts be observed during operations.	The development of access roads has been considered in the Application using a conservative approach and describes the mitigation to avoid or reduce potential adverse effects. Coastal GasLink confirms that detailed information about specific stream crossings, including site-specific mitigation, will be subject to review by OGC and DFO during permitting. The Post Construction Monitoring Plan will include an assessment of the effectiveness of mitigation at stream crossings. Should issues be identified during operations, Coastal GasLink will implement an adaptive management approach to address the issue in dialogue with the appropriate regulatory authority.

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1050	Application Section 7	7-89 and throughout this section 7-120	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	As in other sections of the report, the estimation of no significance with a high degree of confidence for all potential residual environmental effects, across all streams, is problematic.	Streams that are ranked as highly sensitive or above should be assessed individually in this analysis, with detailed plans including construction timing, construction method, fish and fish habitat protection plans, to ensure that mitigations are sufficient to address residual environmental effects. In all cases where methods other than HDD are used to cross highly sensitive streams, it should be assumed that residual effects will occur and additional mitigations/compensation plans must be prepared to offset these habitat losses.	Coastal GasLink will continue dialogue with the appropriate regulatory authorities about alternative mitigation strategies, such as compensation or offsets. Site specific plans will be developed for locations as required by DFO under its Fisheries Act authority. Such plans may include habitat enhancement or creation and reclamation.	See comment 1050 above.	
1051	Application Section 7	7-94 and throughout this section, including Table 7-126 and throughout this section, including Table 7-29. 7-162 and throughout this section, including Table 7-35 7-178 and Table. 7-43	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	This approach for cumulative effects assessment is flawed. Cumulative effects must be assessed across a more meaningful area, not across all streams that will be traversed by the proposed Project. The magnitude of existing and known future disturbances are bound to be quite different along each stream reach, although it may be possible to do some groupings (e.g., within watersheds) and still retain a meaningful cumulative effects analysis. In addition, ecological conditions and the resilience of streams in different areas will be quite different. The quantitative analysis of riparian habitat disturbance conducted for each major river basin appears to be a more meaningful way to look at cumulative effects. However, even for this analysis, the scale (by major river basin) is likely too coarse to be meaningful. A watershed scale would be more appropriate. This quantitative analysis does show that, for the Peace River drainage, existing impacts and cumulative future disturbance give a high rating for riparian habitat disturbance. However, because the scale is so large, the relative impact of the pipeline appears tiny. Similar results are found for quantitative assessments of existing and predicted instream disturbance within major river basins. A quantitative analysis of stream crossing density was used as an indicator of risk from erosion, habitat loss and improved access. This analysis was also done at the major river basin level. This analysis is an underestimate of effects because locations of temporary and permanent access roads were not yet known. There appears to be no quantitative thresholds of risk associated with particular stream crossing densities. The high density within the Peace River basin is	It would be preferable to identify streams that have high existing impacts through some application of a disturbance threshold, and examine those streams – more likely to subject to existing heavy cumulative effects loading - individually for cumulative effects, to determine if a threshold of impacts has been crossed. As much of this analysis appears to be qualitative, there are issues with the introduction of opinion into the assessment. A qualified third party should be brought in to assess cumulative effects across streams that are deemed to have a high existing impact. EAO is requested to identify what government agencies or third parties are being brought in to conduct this independent review on behalf of the B.C. government. Recommend re-doing this habitat disturbance analysis at a finer scale (sub-basin or watershed) to understand where areas of existing disturbance may already be placing fish and fish habitat at risk. The quantitative analysis of stream crossing density must be done after plans for all associated roads (permanent and temporary) are known. A quantitative scale of risk associated with stream crossing density should be included in the analysis. To summarize, the existing cumulative effects analysis is flawed and must be redone at a much finer scale to really determine residual adverse cumulative effects to streams. Given existing impacts, analyses for residual cumulative effects should be conducted with particular rigour within the Peace River Basins.	Stream crossing density calculations were not used to assess Project-specific water quality effects but were part of the cumulative effects assessment; an assessment conducted to identify how potential adverse effects from a proposed project could interact with impacts from other developments occurring in the same region. Using a quantitative metric allows an understanding of the potential cumulative effects of the proposed Project in relation to existing and reasonably foreseeable future developments. While there are other metrics that can be used for watershed assessment, stream crossing density was used for this assessment as an indirect measure of sediment and nutrient input resulting from land use. Project-specific monitoring and mitigation measures, such as surface water quality monitoring are discussed in the environmental effects assessment (refer to Table 7-8 of Section 7.5.1). Stream crossing density is not used to guide surface water quality monitoring during construction.	The proponent has failed to address most of the concerns raised in this comment. We request the Proponent reconsider and respond to the remainder of the comments and requests. Failing this, we request the EAO identify outstanding BRFN requests and forward them to the Proponent.	Coastal GasLink maintains its original response.

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							concerning to BRFN				
1052	Application Section 7.5.7	7-111	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document states that the determination of significance of residual cumulative adverse effects on riparian and instream habitat is based on the incremental increase in disturbance within the Aquatic Environment RSA in the Project Case.	This approach to cumulative effects analysis is fundamentally flawed as it ignores the existing impacts – in fact, higher pre-existing impact loads actually reduce the relative impact of new developments and mask the important factor – overall cumulative effects loading. It is imperative that the flawed "Project contribution" cumulative effects assessment approach be rejected and require re-assessment of cumulative effects with significance tied to total effects load, not Project contribution.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	The proponent has failed to address this important short-coming of the cumulative effects analysis.	Coastal GasLink maintains its original response and notes that existing or pre-existing impacts are inherently considered in the cumulative effects assessment since they are included in the baseline information identified in the initial stage of the assessment.
1053	Application Section 7.7.2	7-152 7-154	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document states that "Aboriginal community TEK participants did not raise any concerns about increased sedimentation in watercourses as a result of construction of the proposed route." This and other similar statements are revealing in that it shows how little effort has been placed into working with affected First Nations along the pipeline route.	Blanket statements suggesting that Aboriginal community members are not concerned about impacts to various streams must be removed, particularly given no TEK has been collected from BRFN. Full impact assessment with respect to the Project, including ATK/TEK data collection and ground truthing of the Proponent's revised effects estimations, is required before such statements can be made. BRFN is concerned about the effects of increased sedimentation in watercourses as a result of construction of the proposed pipeline Project.	Comment noted.	BRFN has outstanding concerns regarding Project impacts on streams - and by extension ecosystems of which they are apart - on which BRFN rights and interests depend. CGL has failed to address these concerns. This is part of BRFN's broader concern that CGL has failed to adequately or accurately assess the impacts of the proposed Project on BRFN rights and interests.	Coastal GasLink will carry out water quality monitoring during construction. The water quality monitoring plan will also include appropriate response measures, should a harmful sedimentation event occur. Coastal GasLink is committed to consider additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
1054	Application Section 8	8-2; 8-24; 8-26; 8-86	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Insufficient methodology for collection of TEK means that the VC for traditional plants is likely to be deficient. The Application does not provide information sufficient to assess the project impacts on traditionally important plant species occurring within the footprint, LSA and RSA of the proposed Project.	BRFN recommends additional traditional plant use information be collected and integrated into the Application.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	BRFN's concern that no meaningful assessment of project impacts on traditional plants remains outstanding, particularly in light of the total lack of BRFN TEK considered by CGL in its Application. A dedicated BRFN TEK study is required to inform the assessment. TEK related to vegetation is an effective means to mitigate the adverse effects of the Project on important traditional use species, as TEK must inform both the assessment of impacts and consultation with BRFN. There has been no meaningful consultation with BRFN to date to discuss route alignment, route design, construction timing, mitigations and monitoring to ensure that important traditional use plant species and important ecological communities are not adversely impacted by the proposed pipeline.	Coastal GasLink confirms that the BRFN Knowledge and Use Study Final Report was provided to Coastal GasLink on January 24, 2014. The Report notes that the traditional use of plants, whether for subsistence or cultural/spiritual values, was identified as a site-specific component and was discussed with community members during the study. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN. Coastal GasLink is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1055	Application Section 8.3.1	8-8	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	As mentioned several times herein, a major gap in the Application is a lack of information about where the temporary ancillary sites will be, and how many of these will be maintained or decommissioned, as well as how and when this decommissioning will occur. Some of these areas, including but not limited to the access roads and construction camps, are large clearings that, depending on location, may have substantial to significant adverse effects on a variety of VCs. There is no guarantee that the Proponent will select the most ecologically appropriate area for these "temporary ancillary sites" – it is entirely likely that the decision will be based primarily on economics. How can we assess the full impacts of the Project without knowing where these areas will be located?	The location (preferred and alternative) of ancillary physical works and activities must be identified and these locations integrated into the assessment proper. The Project Footprint must be confirmed before the true magnitude of impact to all ecological communities and other indicators under this VC can be assessed.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. Required information about temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the OGC's Environmental Protection and Management Regulation. As construction planning and detailed engineering design advances, Coastal GasLink will continue to apply the mitigation hierarchy.	BRFN is concerned that a full assessment of the Projects impacts cannot occur without knowing the location of ancillary physical works, including proposed compressor stations and other ancillary structural locations. This information is required to determine specific environmental impacts and identify specific mitigation measures to offset these impacts. These project components must be considered to determine the full extent of effects of the project, particularly in light of the level of existing and proposed development in the portion of BRFN territory this project impacts. Even small project components can have a significant adverse effect on BRFN rights and the land, water and air on which those rights depend.	Coastal GasLink completed quantitative analysis for the proposed route assuming a 100 m wide corridor. This corridor width was selected for the analysis since it reflects the construction right of way and temporary workspace as well as to the permanent facility footprints of the meter stations and compressor stations. Temporary ancillary facilities such as camps, stockpiles, and borrow pits were assessed qualitatively. Coastal GasLink will provide detailed information about temporary ancillary facilities to the OGC during the permitting phase. Coastal GasLink will seek to use existing roads and trails to the extent practical, and minimize the construction of new roads. Potential adverse effects of roads have been addressed in a qualitative manner in the Application. Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and Environmental Protection and Management Regulation as well as the OGC's Environmental Protection and Management Guide. Coastal GasLink has provided mapping to BRFN and looks forward to continuing the dialogue about the construction footprint and construction planning and detailed engineering design advances.

Coastal GasLink Project: Working Group Comment Tracking Table

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1056	Application Section 8.3.1	8-9	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	There are concerns about the validity of the proposed vegetation RSA. It seems like the RSA should vary in size along the route, depending on the area being traversed. In some areas (e.g., ecologically sensitive areas), the RSA should be widened to get a proper assessment of cumulative impacts within the area. There is no rationale provided for the 1 km band on either side. The 150 m band on either side for the LSA also seems very small, considering that the width of the pipeline physical footprint is already approaching 100 m in some areas. This is only an additional 50 m on either side of the footprint, in some potential sensitive areas (e.g., steep slopes). The Proponent provides no proper justification with reference to published studies on edge effects to justify the size of its LSA. BRFN suggests a varied width for both the RSA and the LSA, to be decided depending on a variety of factors, including: 1) width of the ROW; 2) ecology of surrounding area; and 3) TLRU/TEK data identifying areas of higher sensitivity and value. E.g., if the pipeline is cutting through red or blue listed ecological communities, the LSA should be broadened to encompass the entire community, and the RSA broadened accordingly. If cutting through ecologically sensitive areas (e.g., OGMAs), likewise. The Proponent and Working Group are also encouraged to establish a list of conditions that would broaden the LSA to be more ecologically appropriate (for example, using ecological communities of concern, as described on p. 8-17). In addition, the assessment should be conducted within defined areas that are ecologically based, rather than along the route as a whole. See comments below.	The Proponent is requested to revisit the size of the RSA and LSA across the pipeline and vary it depending on site-specific conditions such as those noted at left. As a further note, please provide the (revised) total area (in ha) of the LSA. The Proponent is requested to adjust its LSA around the pipeline ROW with reference to published studies on edge effects of linear developments.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Required information about temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the OGC's Environmental Protection and Management Regulation. As construction planning and detailed engineering design advances, Coastal GasLink will continue to apply the mitigation hierarchy.	This remains a one of BRFN's fundamental concerns with the assessment of the proposed Project. The scoping of the Project assessment area (RSA, LSA) based on the location of the Project, rather than its impact on ecologically meaningful areas is very concerning, particularly in light of the significant adverse cumulative effects on our lands and treaty rights. By scoping the assessment area so narrowly, important considerations about the cumulative effect of the Project are not considered.	Coastal GasLink maintains its original response.
1057	Application Section 8.4	8-17; 8-93; Vegetation TDR p. 21	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Baseline data collection is inadequate for vegetation. A higher level of survey intensity should have been selected for the Project footprint than a survey intensity of level 4 (RIC 1998). Only 261 "detailed" (as described on p. 21 of the Vegetation TDR) surveys were conducted, and it is not clear how many of these were in the footprint. 435 rare plant survey plots were completed, at two different times (June; July/Aug). Again, it is not clear how many were in the Project footprint. It is very likely that rare plant species will have been missed in this assessment.	The proponent is requested to provide information about the location of survey plots for vegetation (detailed, ground inspection, visual plots) and rare plants in the vegetation TDR so coverage within the footprint can be assessed. Regardless, we find the current level of effort regarding vegetation to be inadequate. We recommend an additional season of data collection in areas where there is a high likelihood of encountering rare species and rare ecological communities, particularly focused on the Project footprint and adjacent LSA. Without this, the adequacy of baseline information contained in the report is questionable.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The standards and methods used for Terrestrial Ecosystem Mapping (TEM) for the Project, including scale and survey intensity level (SIL), were identified in section 3.4.1 of the AIR.	CGL's response is inadequate. BRFN reiterates its concern that baseline data on rare plants, including those essential to BRFN's traditional mode of life, is insufficient. CGL's collection of this data has been insufficient. Survey intensity level (SIL) 4 is not appropriate in a situation that involves complete removal of vegetation communities. A further season of more intensive vegetation studies to capture rare plants is required, in conjunction with a dedicated BRFN TEK study. While pre-construction surveys may capture some of this information, depending on the timing of these surveys, they may not be adequate	Coastal GasLink confirms that the BRFN Knowledge and Use Study Final Report was provided to Coastal GasLink on January 24, 2014. The Report notes that the traditional use of plants, whether for subsistence or cultural/spiritual values, was identified as a site-specific component and was discussed with community members during the study. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN. Coastal GasLink will implement the Ecological Communities and Species of Concern Discovery Contingency

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
										for identifying and protecting rare plant locations. We suggest intensive pre-construction surveys during the spring/summer/fall to provide a high likelihood that rare plants, including those of particular importance to BRFN's traditional mode of life, will be identified and protected.	Plan in the event that rare ecological communities or rare plants are discovered during vegetation studies along the Project footprint or during construction of the proposed Project or related facilities as described in Appendix C.9 of the Environmental Management Plan provided in Appendix 2-A of the Application. Coastal GasLink looks forward to continued dialogue with BRFN about site-specific mitigation as the construction planning and detailed engineering design advances.
1058	Application Section 8.4	8-25	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application states that there are "six locations to reclaim with pre-construction species." Most First Nations would not consider vegetation growing on top of a pipeline to be an appropriate place to collect food or medicine. Therefore, the footprint area should be considered permanently lost as a traditional use area. This has been stated in comments by First Nations Working Group members at a variety of the currently proposed LNG pipeline Working Group meetings to date. Coastal GasLink's inability to recognize this fundamental stigma and associated avoidance behaviour is reflective of the overall lack of understanding of risk perception and alienation associated with this Project.	Please adjust the Application to recognize that the ROW will effectively be "off limits" for Aboriginal plant and medicine collection for the life of the Project or provide concrete evidence (e.g., from primary data collection with First Nations themselves and proxy study evidence) to support any contention that BRFN members are likely to use this ROW and a surrounding ZOI for food plant and medicinal plant collection during the life of the Project. Effects assessment must be revised in light of this.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink will control access to the RoW during construction to ensure the safety of the workers and the public. Coastal GasLink will develop the Access Control Management Plan, however the intent of this plan is not to prohibit traditional use activities along the permanent RoW in areas where traditional use activities were carried out prior to construction.	CGL's has failed to address BRFN's main concern raised here--the issue of whether the reclaimed pipeline ROW will be considered as a useable location to collect traditional plants by BRFN members. Please see the original comment and provide a response as requested.	Coastal GasLink confirms that it does not intend to prohibit BRFN members from accessing lands along the pipeline right-of-way which they had access to prior to construction of the Project.
1059	Application Section 8	8-35 – 8-45	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Several key mitigations reference Section 9 of the EMP, which contains limited information.	The proponent should be clear about what kinds of mitigations would be considered if adverse effects are observed. Mitigation options are currently too vague to know if they will be effective. BRFN recommends that subsequent to additional detail being provided by the Proponent in the EMP on this issue that a dedicated Working Group meeting on the issue of adequacy and likely effectiveness of mitigation, and associated monitoring and adaptive management follow up program requirements for wildlife, be scheduled.	Coastal GasLink clarifies that the referenced Ecological Community and species of Concerns Contingency Plan is provided as Section C.9 of Appendix C of the EMP.	The answer provided is not sufficient, additional detail on mitigation measures proposed in BRFN territory is required. BRFN expects to be meaningful consulted with respect to the development of appropriate mitigation measures.	Coastal GasLink will continue to implement the Aboriginal Consultation Plan including discussion about site-specific mitigation as construction planning and detailed engineering design advances.
1060	Application Section 8.5	8-46 (Table 8-8) 8-48 8-49 8-51 8-52 8-53 Various others	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The issue of duration of the effect must be addressed. Though clearing occurs over a relatively short duration, at least some portion of the footprint will be retained in an early seral stage throughout the life of the Project, and some access roads will be maintained. The duration cannot be considered short for these effects. This is also a relevant comment for the ratings of potential residual cumulative adverse effects on ecological communities of concern. This is also a relevant comment for all sections of the Application that refer to the residual adverse effects on plant species of concern associated with the proposed Project.	The Proponent is requested to define what portion of the footprint will be retained in early seral and changing this rating accordingly. This could create an important change to the degree of residual impact and necessary mitigations.	To characterize residual adverse effects, Coastal GasLink applied the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. For all of the vegetation KIs, the duration was found to be short-term because the event(s) leading to the effect are completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer, and therefore the reversibility was assessed as medium-term or long-term for most Vegetation KIs.	CGL has not provided an answer to BRFN's question as to what portion of the Project footprint will be retained in an early seral stage throughout the life of the Project, and whether this has been considered in the determination of length of effects.	Coastal GasLink confirms that approximately 10m of the permanent right-of-way over the active pipeline will be kept clear of large woody vegetation during operations for monitoring, maintenance and pipeline integrity programs.

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1061	Application Section 8.5	8-46	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>There are major issues with assigning an effect magnitude of low to medium across the length of the pipeline. In some areas, the magnitude of the potential effects may be high, and additional mitigations may be required. This is especially true for old forest, but also for other habitats. It is hard to assess within the scale of the pipeline as a whole, with the information currently available in the Application.</p> <p>As a specific example, early in the application, the proponent quotes the Dawson Creek LRMP regarding the Burnt River – East Slopes area. The document states: "Retention of old forests is a priority in this area in order to retain forest cover for grizzly bears."</p> <p>At the current level of assessment, it is impossible to know if this concern has been addressed or if additional mitigations are needed in this area.</p>	<p>Effects should be assessed within defined areas (smaller chunks) of the pipeline that are biologically meaningful. Given the length that the pipeline traverses, it is not relevant to assess the magnitude of the effects across the entire length as though the ecology and existing impacts do not vary along the route. The analysis should be redone at a different scale – possibly using watersheds or landscape units defined for LRMPs, where they exist.</p> <p>Without redoing the analysis, we find that the Application does not do an adequate job of characterizing the likely adverse effects of the proposed pipeline at the local level, meaning that areas of heightened sensitivity may well be subject to as-yet unidentified significant adverse effects that have not been adequately mitigated for in the Application.</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	CGL has provided no meaningful response, or justification, for CGL's failure to use biologically meaningful assessment areas to assess environmental effects of the proposed Project, including on vegetation and old forests.	Coastal GasLink maintains its original response.
1062	Application Section 8.5	8-49 8-51 8-52 8-53	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The potential effects of old forest removal are large – the Project LSA includes 2407 ha of old forest, with 376 ha of legal OGMAs and 244 ha of non-legal OGMAs. The proponent suggests mitigations will aim to avoid old forests – but clearly this is not entirely possible. Mitigations include reducing temporary work space, narrowing the ROW, maintaining large stumps. Where old forests cannot be avoided, old structural elements will be retained, where practical.</p> <p>In practice, it will be very difficult to maintain standing dead trees where people will be working, as this puts people at risk. Downed logs may be hard to retain in large quantities, because of the risk of spreading insects and possibly increasing fuel load for fires. Many of these mitigations seem quite infeasible. Given the length of time that it will take for these old forests to regenerate—and particular concerns where MPB has already altered the landscape significantly—more effort should be made to retain old forests.</p> <p>As per other ecological communities of concern, the effect of removing aspen forests will vary in magnitude across the length of the pipeline.</p>	<p>Additional mitigations must be introduced to reduce the impact in specific areas of the pipeline on ecological communities of concern. The proponent should explore the use of HDD to retain some portions of ecological communities of concern, particularly in areas where the impact of removing these forests is assessed to be high in magnitude (such as OGMAs or where the ecological community in question is rare; e.g., MPB infested areas).</p> <p>BRFN is concerned with proposal that ecological communities of concern be allowed to naturally reseed. Areas that will be allowed to regenerate should be replanted with an appropriate mix of trees. Areas that will be retained in early seral should be seeded with a native plant mix.</p> <p>Specific to alpine/subalpine – access control will be a major issue in these areas. Access must be tightly limited to avoid impacts to surrounding habitat. Since these areas will be permanently lost, the magnitude of effect should be considered high by definition. Other mitigations including compensatory measures will likely be necessary to offset this impact.</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	The proponent has failed to respond to most of the concerns raised in this comment. BRFN reiterates the request that HDD be considered to avoid ecologically sensitive areas such as OGMAs. Consultation with BRFN into reclamation plans for all areas of the pipeline that go through BRFN traditional territory is required.	Coastal GasLink will continue to implement the Aboriginal Consultation Plan which includes sharing information such as the Reclamation Plan is developed prior to construction.

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1063	Application Section 8.5	8-50	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	BRFN found it difficult to find the metrics for each of the regions on the amount of each community of conservation concern that exists in the footprint, LSA and RSA.	Add a summary table for each of the regions listing the amount of each community of conservation concern that exists in the footprint, LSA and RSA, and refer to it in each subsection. Include a summary of the amount of habitat lost for the duration of the project to early seral, roads and permanent infrastructure, and yearly disturbance.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013. The requested table is outside of the scope of the assessment.	No meaningful assessment of the significance of the proposed Project on vegetation Kis can be undertaken without consideration of the regional impacts of the proposed Project on remaining vegetation in the project footprint, LSA and RSA. Could the proponent provide BRFN with this information for the area of the proposed pipeline that traverses BRFN's traditional territory?	Coastal GasLink has provided a Technical Memo on Vegetation to the EAO on May 13, 2014 that provides additional detail about the approach taken to complete the assessment of potential adverse effects on vegetation, including the consideration of ancillary facilities. This approach aligns with the scope of the assessment defined in the AIR issued by EAO in May 2013.
1064	Application Section 8.5	8-60	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Proponent's finding is one of non-significance across the board for potential residual adverse effects of the project on ecological communities of concern (Table 8-9).	We find this assessment inadequate. A proper assessment of the impacts of the Project on ecological communities of concern cannot be done without: a) certainty about the location of the Project footprint, including all direct and ancillary required physical works and activities; b) a finer scale of significance analysis, looking at significance within defined portions of the pipeline ROW and impact footprint rather than across the pipeline route as a whole; c) quantitative thresholds for significance or a third-party professional judgment on significance, based on specific and committed-to mitigations in areas where the residual effect prior to mitigations is considered to be high. BRFN is concerned about vegetation assessment gaps specific supplemental data collection, and integration of this data into the Application, is required.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. For each residual adverse effect characterized, Coastal GasLink provided a justification for each assessment criteria and conclusion about significance.	BRFN disagrees that CGL has completed a comprehensive assessment of potential adverse effects on ecological concern, and reiterates its comment and request made on April 22, 2014.	Coastal GasLink maintains its original response.
1065	Application Section 8.6	8-98	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Effects to traditional use species are assessed by the Proponent as low to medium.	In order to meet the precautionary principle, the magnitude must be considered high, given the current absence of information on traditional use species from properly constituted ATK/TEK studies and the lack of an appropriate way to measure the impact. This magnitude can only be lowered through dedicated data collection and analysis between the Proponent and traditional users.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. In Section 3.7 of the AIR, duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends.	BRFN is gravely concerned that CGL has assessed the impacts of the proposed Project as being low to medium effect on traditional use species, particularly in light of BRFN's traditional land use study which concludes the proposed Project will have a significant impact on the ability of BRFN members to hunt, trap, fish and practice their traditional mode of life. CGL has not taken steps to demonstrably integrate BRFN's concerns with respect to impacts on traditional land use and treaty rights into the Application. Meaningful consultation with BRFN is required to adequately assess project impacts on BRFN traditional land use and determine effective ways to avoid, mitigate and accommodate those impacts. This has not occurred to date.	Coastal GasLink confirms that the BRFN Knowledge and Use Study Final Report was provided to Coastal GasLink on January 24, 2014. Coastal GasLink requested meetings to discuss site-specific mitigation in January and again in April of 2014, and continues to look forward to discussions at BRFN's earliest convenience as construction planning and detailed engineering design advances. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN.
1066	Application Section 9.4.1	9-17	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Note that Sukunka Falls Provincial Park is located only 0.65 km from the proposed route.	There seems to be no assessment of how the Sukunka Falls Provincial Park may be impacted by the proposed development. The Proponent is asked to consider this factor in its assessment of the human environment.	Coastal GasLink confirms that Sukunka Falls Provincial Park is located approximately 0.7 km east of KP 95.0 as noted on page 14-81. Industrial activity on roads and disrupted access were considered in relation to parks and protected areas as shown in Table 15-25 and Table 14-30, respectively.	Response provided is sufficient.	
1067	Application Section 9.4	9-24 9-30 p. 1 p. 23 p. 25 p. 42 p. 48, p. 54 p. 115 9-37	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Wetlands are important traditional use areas to First Nations located along the proposed pipeline route. They filter water and provide habitat for culturally important plants and animals. Insufficient methodology for collection of TEK means that the data used for assessing traditional use in wetlands located within the Project footprint and LSA are insufficient. Of particular importance to BRFN	Dedicated TEK study, including working with First Nations to select appropriate indicators, the Application cannot be considered to have integrated First Nations information into the assessment. We find the current level of effort with respect to integrating traditional use and knowledge of wetlands into the application inadequate.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Aboriginal participation during the wetlands field surveys identified wetlands of special interest and concern. Related wildlife and vegetation specific TEK can be found in Sections 10 and 8 respectively. Nak'azdli Band elected to provide field	BRFN TEK is required to inform pipeline route planning, construction timing, and mitigations to reduce impacts on wetlands. CGL's response to this comment appears to have missed, as was stated by CGL in response to comment 115, that BRFN TEK has not shared TEK with respect to the proposed Project. BRFN wishes to clarify that discussions about potential mitigation with BRFN field participants do not represent the	Coastal GasLink will continue to implement the Aboriginal Consultation Plan including discussion about site-specific mitigation as construction planning and detailed engineering design advances.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
							are any wetlands in the eastern-most portion of the proposed Project, including in the Sukunka River areas.		participants on biophysical field studies for the Project, but not to share TEK . However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies.	interests and perspectives of BRFN. Mitigation discussions must be undertaken directly with BRFN.	
1068	Application Section 9.5	9-44	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application states that water quality monitoring plans will be developed "as needed" to monitor for sediment events during instream construction activities. There is little information in the mitigations table (9-8) detailing how the restoration of wetland function (all three components) will be monitored.	How will restoration of wetland function (all three components) be monitored? Each wetland that is crossed by the pipeline must have a full monitoring program implemented to ensure wetland function is returned to pre-disturbance conditions. In the event that wetlands are lost, compensation should be required. Please provide more detail on the proposed monitoring program to ensure wetland function is not impaired along the pipeline route, and details on proposed compensation for instances of wetland function impairment or outright loss.	Coastal GasLink will develop a Post Construction Monitoring Plan as described in Section 9.0 of the EMP in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.	BRFN has not been engaged by CGL to date regarding the development mitigation measures with respect to Project impacts on wetlands, including the development of a Post Construction Monitoring Plan. BRFN expects to be consulted with respect to this initiative. Does the proponent commit to developing a post-construction monitoring plan for each wetland crossed by the proposed Project?	Coastal GasLink will continue to implement the Aboriginal Consultation Plan which includes sharing information such as the Post Construction Monitoring Plan as it is being developed prior to construction.
1069	Application Section 9.5	9-45	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document uses a qualitative assessment of wetland function to assess the significance of potential residual adverse environmental effects, though it is informed by a quantitative assessment of the wetland area affected by the proposed Project – the assessment quantifies the total area of wetland and the area of treed wetland habitat disturbed by the proposed route. No thresholds (qualitative or quantitative) have been established for what would define a significant effect.	In the absence of clear thresholds defined prior to the analysis, it is hard to avoid the possibility of bias in judgment calls about the relative significance of losing wetland habitat and function in specific areas traversed by the pipeline. The Application should have defined clear thresholds. In the absence of this, BRFN requests the EAO employ the Working Group to identify appropriate significance thresholds and have the significance of residual impacts judged independently by third-party biologists during the Application Review period.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	CGL has failed to clearly identify the quantitative thresholds relied on to assess the significant of impacts on wetlands by the proposed Project. As a result, BRFN remains concerns with the adequacy of CGL assessment of impacts on wetlands.	Given the lack of established biological or regulatory standards available to assess the significance of residual adverse effects on wetland function, a qualitative significance threshold was defined. The qualitative threshold is supported by both qualitative assessment criteria and quantitative metrics. Please refer to Section 9.5.3 of the Application for further information, including the threshold of significance. This approach is aligned with the scope of the assessment defined in the AIR issued by EAO in May 2013.
1070	Application Section 9.5	9-45	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application states that the proposed route and associated facilities encounter approximately 234 ha of wetlands, including 108 ha of treed wetland habitat. 219 ha will be temporarily altered. Treed wetlands will be lost to shrub vegetation until decommissioning and abandonment. Permanent facilities are expected to disturb 15 ha, including 8 ha of treed habitat. Three compressor stations (Wilde Lake, Sukunka Falls and Raccoon Lake) include some wetland area in their proposed footprints. The document suggests that Coastal GasLink will, if warranted, develop a compensation plan in conjunction with appropriate regulatory agencies. The area of wetland expected to be disturbed (234 ha) is approximately 3% of the total area of wetlands in the LSA. The current condition of these wetlands is unknown. The amount of wetland within the LSA and RSA that will be impacted by the	Has this estimation of wetland alteration been identified using aerial photographic interpretation? Please confirm where these numbers came from. It is lower than expected if the numbers from the LSA were proportional to the numbers from the footprint. How will this process be monitored to ensure that loss of wetland function will be fairly compensated for? It seems likely that some portion of wetlands associated with permanent facilities will be lost to development (possibly all of these wetlands will be lost). It is also likely that some portion of wetlands along the pipeline route will be impacted by development. Coastal GasLink should include a wetland habitat compensation plan in their application for a) all of the wetland permanently lost to structures such as the compressor stations or new roads; b) some portion of the wetlands that occur within the project footprint.	Coastal GasLink confirms that the 234 ha of expected disturbance of wetlands on the proposed route noted in Section 9.5.2 of the Applications, is the area of wetland identified in the construction footprint. The 2 km wide Wetland LSA includes wetlands that will not be crossed by the construction footprint, so the area disturbed by the construction footprint would not necessarily be directly proportional to the wetland area in the Wetland LSA. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of temporary workspace and access roads is provided in Section 1.4.13 and 1.4.15 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.	Will CGL develop a wetland compensation plan for all wetlands that will be lost or altered by the proposed Project? See BRFN comment 1070 regarding the importance of a compensation plan being developed, in consultation with BRFN, prior to any approval of the Project, or alternatively that the EA Certificate set out sufficient detail what will be included on the plan and require that BRFN will be involved in the development, implementation and monitoring of the plan following any Project approval.	Coastal GasLink will comply with all applicable regulatory requirements including requirements for compensation.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
							proposed development is unknown.				
1071	Application Section 9.5	9-48 9-50 9-52	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>There are major issues with assigning a magnitude of low to medium across the length of the pipeline. In some areas, the magnitude of the potential effects may be high, and additional mitigations may be required. It is inappropriate to characterize what are effectively site-specific effects at the scale of the pipeline as a whole. Significant adverse effects on high value VCs can occur at the local level when areas hold multiple values – wetlands, which support important wildlife, water quality, vegetation, hydrology, First Nations rights practices, and other values, are exceedingly high value VCs.</p> <p>The Application states that wetlands in all regions crossed by the proposed route are affected by forestry activities, and wetlands in areas that have seen heavy logging pressure might be more sensitive to further disturbances and less likely to recover to pre-disturbance function. This statement supports the need for finer scale analysis of the impact on wetland function in some areas that the pipeline crosses.</p> <p>Earlier in the Application, there is detailed information about red and blue-listed wetlands that occur within the Project LSA and could be impacted by the proposed pipeline. These are areas in which the loss of hydrologic function should be further assessed. There are likely other areas (e.g., important moose habitat) that should be included for more detailed analyses of the relative importance of losing wetland function in these areas.</p>	<p>Effects should be assessed within defined areas (smaller chunks) of the pipeline that are biologically meaningful or better represent the impacts of wetland function loss or impairment within the current landscape conditions. Given the length that the proposed pipeline would traverse, it is not relevant to assess the magnitude of the effects across the entire length as though the ecology and existing impacts do not vary along the route. The analysis should be redone at a different scale – possibly using watersheds or landscape units defined for LRMPs, where they exist.</p> <p>Unless the analysis is re-conducted using additional information and revised methods, we find that the Application does not do an adequate job of assessing the effects of the proposed pipeline on all wetland areas located along the pipeline route.</p> <p>In some cases, further analysis may reveal a significant impact to wetland function from the proposed pipeline. In these areas, Coastal GasLink must be open to the option of using HDD or rerouting to avoid wetlands that are deemed too sensitive to disturb.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p> <p>During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of compressor and meter stations is provided in Section 1.4.14 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy.</p> <p>Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.</p>	<p>BRFN reiterates its concerns with CGL's failure to assess Project effects in biologically meaningful areas (see comments 1113, 1114, 1061, 1063).</p>	<p>Coastal GasLink maintains its original response and any additional responses provided to the referenced issue tracking numbers.</p>

Coastal GasLink Project: Working Group Comment Tracking Table

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1072	Application Section 9.5	9-53	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The finding of not significant for all three potential residual adverse effects across the entire pipeline is hard to support based on the evidence put forward to date by the Proponent.	As above, the problem here is scale. In some areas, wetlands may recover function after disturbance but in others, wetland function may be permanently lost. This risk must be accounted for within the Project Application, either through improved mitigations or enhanced forms of compensation. A blanket assessment of not significant with high confidence across the entire 650 km length of the pipeline shows a disregard for the variation in existing conditions and relative wetland values along the proposed route. Additional work should be done to characterize the wetlands along the route, document what will be lost permanently and what is likely to recover, determine the significance of loss (temporary or permanent) in consideration of existing wetland conditions and incorporating other factors such as important habitat functions and rarity, and propose mitigations and compensations based on these findings. Without this type of analysis, the findings of "not significant, high confidence" across the entire route cannot be supported.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 9.5.3 provides information about the determination of significance in accordance with the methodology defined in the AIR in Section 3.9.	CGL has failed to respond to BRFN's concern that adverse effects on wetlands are not properly conducted because the conclusion is based on the Project wide assessment, rather than based on a regional scale that is meaningful with respect to the assessment of impacts on BRFN's treaty rights and interests.	Coastal GasLink maintains its original response.
1073	Application Section 9.5	9-59	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Approximately 20% of the total wetland area in the wetlands LSA will have been disturbed, with the Project and reasonably foreseeable developments. Within the wetlands RSA, approximately 13% of the wetland area has been affected by existing activities, and with the proposed project and other foreseeable developments, this goes up slightly but the total stays at 13%. The Application states that loss of wetland ecosystems is not anticipated to result from pipeline installation or maintenance (construction and operations phases) in wetlands. Similar statements are made for other proposed Projects (see p. 9-60).	This is not a valid statement for all areas, especially where permanent structures will be placed or where permanent roads will be built. Wetland function can also be lost in areas that are particularly sensitive to development. Though the Application acknowledges these losses from permanent structures, it does not account for some portion of the wetlands along the pipeline route being permanently lost because of the pipeline.	Coastal GasLink expects that loss of wetland function resulting from pipeline construction and operation will be appropriately mitigated, which may include implementation of alternate mitigation strategies. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted. The discussion of potential effects in Section 9.5 presents a review of literature that identifies the expected effects of temporary disturbance on wetland function. Temporary disturbance as a result of pipeline construction and operations is not expected to result in a loss of wetland function.	This response is not sufficient, given that permanent structures will directly impact wetland habitat. A full assessment of the impacts of permanent structures on wetlands must be conducted to ensure that appropriate mitigations are in place to avoid impacts to wetland habitat. Without this type of intensive review, it is impossible to know if the construction, mitigation and proposed offsets for these structures will ensure impacts are avoided. BRFN is concerned that CGL makes no mention of consulting BRFN regarding alternate mitigation strategies, meaningful consultation with BRFN with respect to all project effects if impacts of the proposed Project on BRFN treaty rights and interests are to be appropriately avoided, mitigated or accommodated.	Coastal GasLink will continue to implement the Aboriginal Consultation Plan including discussion about site-specific mitigation with Aboriginal groups as construction planning and detailed engineering design advances.
1074	Application Section 9.5	9-62 9-66	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	As per the analysis of project effects above, the analysis of cumulative effects suffers from a lack of detail in specific areas of the proposed pipeline route. A finding of low/medium magnitude, and not significant cumulative effects, cannot be supported across all specific locations where the pipeline is proposed. This is particularly true in areas that have been highly impacted by forestry (e.g., MPB salvage) and where other disturbances are also creating impacts to wetlands. Averaging the loss of wetlands across the pipeline as a whole is not a valid way to conduct a cumulative effects analysis.	Additional work should be done to characterize the wetlands along the route, document what will be lost permanently and what is likely to recover, determine the significance of loss (temporary or permanent) in consideration of existing wetland conditions and incorporating other factors such as important habitat functions and rarity, and propose mitigations and compensations based on these findings. Without this type of analysis, the findings of "not significant, high confidence" for cumulative effects on wetlands across the entire route cannot be supported.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint in wetlands to the extent practical. Further evaluation criteria information used for the selection of compressor and meter stations is provided in Section 1.4.14 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.	Meaningful consultation with BRFN with respect to all project effects if impacts of the proposed Project on BRFN treaty rights and interests are to be appropriately avoided, mitigated or accommodated. This has not occurred to date.	Coastal GasLink provided information about consultation in the Aboriginal Consultation Reports provided to the EAO in accordance with the Section 11 Order.
1075	Application Section 10.2.2	10-13	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application states "Grizzly bear habitats become increasingly important towards the western portion of the proposed route"	This statement seems inaccurate, overly generalized and not particularly useful. Important grizzly bear habitat has been pointed out in each of the LRMPs summarized, including Dawson Creek. The Proponent should remove this statement because it misleads the reader into thinking that grizzly bear habitat may not be as important in the eastern part of the pipeline route.	Coastal GasLink notes that the statement is not intended to imply that grizzly bear habitat in the eastern portions of the RSA. Important grizzly bear habitat has been identified in each of the LRMPs crossed by the proposed Project. The emphasis on grizzly bear habitat becomes increasingly evident in the LRMPs towards the western portion of the proposed	CGL's response is insufficient. As requested, please remove this statement from the application. It is misleading, regardless of how it was intended. Please emphasize instead that important grizzly bear habitat exists throughout the route.	The information provided by the reviewer has been noted. Changes to the Application at this stage of the Application Review are not anticipated.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
									route (e.g., grizzly bear management strategies and identified watersheds).		
1076	Application Section 10.2.2	10-14	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	No traditional knowledge is referenced in this table on caribou use of land, sensitive timing windows or most important habitat.	The Proponent should integrate traditional knowledge of caribou into its assessment, in part to support proper definition of mitigation commitments to avoid impacts to caribou, both in terms of timing and most sensitive habitats. A dedicated TEK is required to gather TEK from BRFN, as no TEK has been collected to date.	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application.	BRFN is unclear as to whether CGL incorporated purported BRFN TEK into the Application due to inconsistent responses to BRFN comments/questions in the tracking table. Did CGL incorporate BRFN TEK into its application with respect to caribou? Clarification on this point as required. As stated in our cover letter to the BC EAO regarding the CGL application, dated April 22, 2014, the collection of TEK associated with this proposed Project has been significantly flawed and no BRFN TEK has been collected during biophysical field studies from BRFN. A dedicated BRFN TEK study is required.	Coastal GasLink confirms that BRFN representatives participated in biophysical field studies but did not provide TEK.
1077	Application Section 10.2.2	10-14	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Woodland caribou habitat: Application does not clearly show location of proposed pipeline in relation to woodland caribou habitat. It is not clear whether the proposed pipeline route goes through the Quintette and Naraway herds in the northeast, in addition to the Hart range.	Add map showing proposed pipeline route in relation to defined caribou ranges (note: Figure 10-2 includes Hart and Teklwa but not others). Add summary of proposed construction timing through all ranges. This information is necessary to assess significance.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Figure 4-6 of the AIR shows the proposed pipeline route in relation to all provincially identified caribou ranges	CGL has not addressed BRFN concerns regarding impacts on caribou, including caribou outside of defined herd locations and impacts on the connectivity matrix of habitat. Further to our request for a summary of proposed timing windows for construction in all caribou ranges, we would like to resubmit this request to the proponent as it would appear that this information has not been provided. As outlined in more detail below, CGL should undertake an analysis of how the Project will impact the matrix range and connectivity between subpopulations. Including the location of all caribou herds in close vicinity to the proposed pipeline route is needed to determine the likelihood that the proposed pipeline may affect caribou. All caribou herds in this area are an important conservation concern. The mountain caribou herds in the area are listed as threatened under the Species at Risk Act. According to the 2014 Recovery Strategy for the Woodland Caribou, Southern Mountain Population, the most significant, immediate threat to these animals is the creation of linear corridors and associated impacts on predator-prey dynamics (Environment Canada 2014). Given that this Project would increase linear corridors within the Hart Range and adjacent to the Quintette Range, it is imperative to take a precautionary approach to development in the area. Though the defined herd ranges are a reasonable attempt to define caribou locations, it is likely that caribou are also using areas outside of their defined herds. Maintaining connectivity of matrix habitat	Coastal GasLink provided a technical memo to the EAO with further information about caribou May 13 2014. Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.

Coastal GasLink Project: Working Group Comment Tracking Table

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										<p>between subpopulations may be critical to promote recovery of the species. In support of this statement, the 2014 Recovery Strategy for the Woodland Caribou, Southern Mountain Population notes that southern mountain caribou require "matrix" range, which is typically areas within the annual range that are not delineated as summer or winter range (Type 1 matrix range), and areas surrounding annual ranges where predator/prey dynamics influence caribou predation rates within the subpopulation's annual range (Type 2 matrix range). Type 2 matrix range also provides connectivity between subpopulations. Recovery of southern mountain caribou requires that Type 2 matrix range be recognized and managed to maintain a low predation risk and allow for immigration and emigration between subpopulations (Environment Canada 2014). Given this statement, we request an analysis of how the proposed pipeline will impact matrix range and connectivity between subpopulations. We also request that all baseline data used to determine the area of direct and indirect change in habitat potentially affected within the Hart Range and the associated UWR be made available to the working group. We request information about where detailed field plots were placed in relation to caribou habitat (beyond the coarse scale provided in Figure 3-7 of the Wildlife TDR; please show plot locations in relation to herd locations).</p>	
1078	Application Section 10.2.2	10-14	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The proposed pipeline goes through the mountain caribou high UWR unit u-7-003 P-003, where general wildlife measures prohibit timber harvest and road construction.	The Proponent should reroute the pipeline to avoid mountain caribou high UWR or they will be in violation of the general wildlife measures outlined for this location. Given the status of this herd, it is difficult to see how any other mitigation would be acceptable. If avoidance is not deemed possible, a finding of significant adverse effects on this UWR and the caribou it supports may be inevitable.	Coastal GasLink confirms that description of pipeline routing activities to date is presented in Section 1.4 of the Application. Evaluation criteria used for pipeline route election is provided in Section 1.4.4 of the Application. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink will consult with the appropriate regulatory authorities about alternate mitigation strategies such as compensation or offsets where warranted.	As detailed above, we request from the proponent all data used to assess impacts on the Hart and Quintette caribou ranges be made available to the working group. Given the high risks of impacts to this species, the declining populations of caribou in the Hart Ranges and the Quintette herd, and the recommendation from Environment Canada that 100% of remaining high and low elevation seasonal caribou range be maintained within the defined population units, we suggest further analysis, perhaps by Environment Canada, of the impacts of the proposed Project on caribou habitat within the Hart Ranges and Quintette herd. Given the precariously low caribou populations in the area, it is the view of the BRFN that critical habitat for caribou must be restored in order to increase caribou numbers and reverse current declines.	Coastal GasLink provided a technical memo to the EAO with further information about caribou May 13 2014. Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.

Coastal GasLink Project: Working Group Comment Tracking Table

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1079	Application Section 10.3.1	10-20	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Potential effects on other caribou herds in the northeast (beyond the Hart range) are hard to determine from the information provided in the Application.	Depending on the proximity of the proposed route to other caribou herds, the caribou RSA may need to be revised. Please see comments above on section 10.2.2, as well as numerous comments below on potential impacts to the Quintette and Narraway caribou herds.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink notes that Page 10-21 describes the Caribou RSA as including all caribou ranges that the Project Footprint overlaps except for the Quintette caribou range. Coastal GasLink consulted with BC MFLNRO and BC OGC regarding the minimal extent of potential interaction between the proposed Project and the mapped boundary of the Quintette range. It was concluded that the proposed Project does not interact with any identified High Elevation Winter Range, UWR, caribou WHA or caribou core area within the Quintette caribou range. The Application corridor does not cross the Narraway caribou range.	As stated above, the 2014 Recovery Strategy emphasizes the importance of protecting not just high elevation winter range, but also low elevation seasonal range and type 1 and type 2 matrix range. Given these recommendations, the effects of the Project on these habitat types in relation to both the Quintette herd and the Hart Range should be assessed. We request that the proponent conduct an assessment of these components of critical habitat for mountain caribou in relation to impacts from the proposed Project.	Coastal GasLink provided a technical memo to the EAO with further information about caribou May 13 2014. Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.
1080	Application Section 10.5.1	10-29; also 10-107 p. 10-164 Wildlife TDR, section 4.2, 172 And various other locations in the Application	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document refers to "ATK shared during wildlife field studies" – generally any information or opinions shared by First Nations members during field work should be considered informal and not be considered ATK.	It should be clarified in the Application that BRFN has not provided any TEK/ATK with respect to this Project to date, because no properly constituted TEK/ATK data collection has occurred. This is a requested "blanket change", that applies across the Application with respect to TEK. BRFN also requires that TEK, collected through a properly constituted, TEK dedicated study be collected from BRFN and incorporated into the Application. Please see additional comments throughout this table about the collection of traditional knowledge and why the methodologies to date have not been adequate.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application.	Again, does CGL consider BRFN TEK collected during biophysical field studies for the Project to be "available" TEK incorporated into the Application? No meaningful consultation, or collaboration, with BRFN has occurred to date to identify traditional ecological knowledge that may be relevant to the proposed Project to minimize impacts of the proposed Project on traditional and cultural values, and to mitigate impacts to wildlife, plants and aquatic values that are adversely impacted by the Project. The Application fails to avoid, minimize or mitigate impacts resulting from the Project based on BRFN TEK. Our view of the inadequacy of the current approach to collecting ATK has been strongly stated elsewhere. In the absence of this information, we find that the intended outcome of Section 4.0 of the AIR has not been achieved.	Coastal GasLink confirms that BRFN representatives participated in biophysical field studies but did not provide TEK.
1081	Application Section 10.6	10-34	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application states one of the ways the Proponent will avoid or reduce potential adverse effects from the proposed Project on wildlife is by following existing linear disturbances. Surely impacts will be less if all routes can be aligned to the extent possible and mitigation measures pooled by respective companies.	The Proponent should be required to provide a summary of other pipelines proposed across northeastern and how routes have been aligned. The EAO is requested to identify all efforts to strategically consider a one or two corridor approach to LNG pipelines, and to proper strategic cumulative effects assessment of the LNG sector, and when information from these initiatives, if they exist, will become available for public and First Nations scrutiny. Crown decisions on any one pipeline in advance of this critical planning level information would be premature. This is a critical issue for the Crown to address to ensure BRFN's treaty rights are protected in light of cumulative effects of existing and proposed development on the lands and resources on which the continued practice of Treaty rights depends.	EAO to respond.	Will Pipeline Corridor Analysis be implemented for this Project? In any event, BRFN has serious concerns with ABA, including that it has been unilaterally developed by the Crown, and is inadequate for considering the cumulative effects of pipelines. Further, BRFN has no knowledge of the proposed Stewardship initiatives mentioned by CGL in response to our comments. BRFN must be consulted on any stewardship initiatives to deal with the cumulative impacts of pipeline development on our lands and treaty rights. Finally, CGL's response fails to identify when a proper strategically conducted cumulative effects analysis of the proposed pipelines on identified values, including values of importance to First Nations, will be released for scrutiny, and what the timing of this analysis will be. As	Coastal GasLink understands the Pipeline Corridor Analysis was an initiative undertaken by the provincial government.

Coastal GasLink Project: Working Group Comment Tracking Table

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										stated originally, Crown decisions on any one pipeline in advance of this critical planning level information would be premature. What is CGL's timeline for completion of its pipeline corridor analysis? Does CGL commit to developing its pipeline corridor analysis with BRFN prior to the completion of the EA for the Project? If no, does the EAO commit to ensuring sufficient detail of what is required in the Pipeline Corridor Analysis will be developed prior to the issuance of any EA Certificate, and that conditions on the approval of the Project include that BRFN will be involved in the development and implementation of the Pipeline Corridor Analysis?	
1082	Application Section 10	10-41	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The critical periods (Jan. 15 – May 15; May 15 – July 15; Oct. 15 – Nov. 15) for caribou should be refined based on traditional knowledge and local knowledge.	Caribou and other ungulates timing windows should be calculated using ATK/TEK.	Coastal GasLink accepted guidance from the appropriate regulatory authorities about timing windows.	This response fails to address the key point regarding the potential for traditional ecological knowledge to reduce effects on caribou from construction activity. Timing windows defined by regulatory authorities are, to the best of our knowledge, not informed by traditional ecological knowledge, which can provide a much deeper perspective on habitat use by culturally important species within localized regions. Will CGL provide more specific guidelines on exactly when and where construction can occur within protected mountain caribou winter range, as well as lower elevation range and important matrix habitat? These must be developed prior to approval of the Project. Without these guidelines, it seems unlikely that significant material adverse impacts to caribou and caribou habitat will not result from the Project, as a result of both disturbance during critical timing periods and further impacts to habitat in an area that is already beyond a disturbance threshold for mountain caribou.	Coastal GasLink is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1083	Application Section 10	10-49	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	As a whole, these mitigations do not go far enough to reduce residual effects to the extent possible.	The proponent should look at innovative measures for avoiding wildlife and wildlife habitat impacts. Some innovative measures might include wildlife bridges over the ROW to connect habitat, HDD under features such as OGMAs, WHAs or portions of UWR, and rerouting to avoid UWRs altogether. Failure of mitigation measures for caribou to avoid impacts could be disastrous for this species. It is also imperative that mitigations are monitored to see if they are effective.	Comment noted.	Does the proponent commit to investigating innovative approaches for avoiding further impacts within UWR, WHAs and other important wildlife habitat areas? If so, in what way? CGL must demonstrate how it has integrated this comment into its proposed Project plan.	Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.
1084	Application Section 10.9	10-64	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The report states that ATK was considered in characterizing potential residual adverse effects	There is no valid BRFN TEK relied on by the Application. This statement must be removed, or it must be clarified whose TEK is being relied on. Dedicated BRFN TEK study is required to inform the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application.	To BRFN's knowledge CGL has <u>not</u> used BRFN TEK to consider routing options, avoid critical use areas, inform construction or reduce impacts on wetlands and stream crossings. BRFN is deeply troubled by this. We challenge CGL to demonstrate how its approach to using TEK had effectively avoided or mitigated impacts on BRFN cultural and traditional values along the pipeline route (e.g. for moose). Please provide a specific example	Coastal GasLink confirms that BRFN representatives participated in biophysical field studies but did not provide TEK. Coastal GasLink also confirms that the BRFN Knowledge and Use Study Final Report was provided to Coastal GasLink on January 24, 2014. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation

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										of an example of how ATK collected through Aboriginal field participation was used throughout the effects assessment on mammal key indicators. Take one example (e.g., moose) and describe how the information obtained during field work was helpful in reducing impacts to moose habitat.	with BRFN.
1085	Application Section 10.9	10-68 10-77	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	No significance thresholds have been determined for caribou. BRFN is concerned that caribou habitat will be directly disturbed. This should be included as it is one of the single most important impacts from the pipeline, in that additional development within caribou areas, particularly designated UWR, increase the risk of extirpation of a SARA-listed species.	The Proponent is requested to consult directly with BRFN to identify appropriate significance thresholds for caribou. Subsequently, reassessment of effects significance on caribou may be required.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Significance was determined in accordance with the methodology defined in the AIR.	Please provide updated citations for the ecological context summary for the Hart Ranges herd in Table 10-8. Ensure that the table is updated to make it clear that the most recent census data on the Hart Ranges indicates clearly that the population is in decline (Environment Canada 2014). Note that there appears to be no clear analysis of how much habitat, exactly, will be removed from the Hart Ranges in each of the relevant habitat classes, and how much habitat is currently intact. In order to allow for a complete assessment of the impacts of the proposed Project on caribou in the Hart Ranges, please provide a table summarizing the following data: size of Hart Ranges (ha); size of UWR (ha); area of high elevation UWR impacted by the proposed Project (ha); area of corridor UWR impacted by the proposed Project (ha); amount of linear disturbance (km/km2) at baseline within the Hart Ranges; amount of linear disturbance (km/km2) at full Project build out within the Hart Ranges; % of undisturbed habitat (i.e., intact habitat more than 500m away from disturbed habitat) in the Hart Ranges at baseline (for all relevant habitat classes outlined in the recovery strategy, including high elevation summer and/or winter range; low elevation early winter and/or spring range; Type 1 matrix range; Type 2 matrix range); % of undisturbed habitat (i.e., intact habitat more than 500m away from disturbed habitat) in the Hart Ranges at full Project build out (again, for all relevant classes of habitat outlined in the recovery strategy, as above). Provide this information clearly laid out in a table. Cite appropriate literature on % habitat disturbance, linear disturbance and habitat viability for mountain caribou in all four relevant habitat classes. The application currently asserts (on p. 10-84) that, "although the proposed Project will not adhere to all of the General Wildlife Measures for UWR in the Hart Ranges caribou range, Coastal GasLink's commitment to mitigate potential residual adverse effects from the proposed Project on caribou is expected to effectively reduce the Project's potential	Coastal GasLink is aware that Environment Canada has issued a recovery strategy for southern mountain caribou, and is reviewing the information in the context of construction planning and detailed engineering design. Coastal GasLink provided a technical memo to the EAO with further information about caribou May 13 2014. Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.

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										residual adverse effects on caribou to avoid a material adverse effect." We fail to see how (a) increasing linear corridors within an already impacted UWR in an area that is supposed to be protecting important habitat for a declining herd, (b) introducing sensory disturbance in the form of a compressor station within this habitat, as well as permanent access roads into the area, and (c) conducting construction activities, which are explicitly prohibited within the UWR order, in the most sensitive critical timing windows for calving and rearing, cannot be concluded to present a material adverse effect. Currently caribou populations within the Hart Ranges are below the level at which a sustainable hunt is possible. At the current habitat levels, even at the current baseline and before this Project goes ahead, the BRFN are unable to practice their treaty right to hunt this species.	
1086	Application Section 10.9	10-70	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Make sure it is clear that there are conservation concerns about moose, as their populations in many areas of the province have been declining.	Application should be revised to clarify this. Direct consultation with BRFN on declining moose populations is required.	Coastal GasLink will continue to implement the Aboriginal Consultation Plan approved by the EAO. The Plan describes Coastal GasLink's commitment to continue engagement with Aboriginal groups from pre-application through construction and operations.	Will CGL clarify in the Application that moose are in decline and warrant additional monitoring to ensure that they are not being adversely affected by this Project? Failure to consider this reality deeply troubles BRFN.	Coastal GasLink provided its conclusions of the assessment of potential adverse effects on moose in Section 10 of the Application as moose was identified as a key indicator for the valued component wildlife and wildlife habitat in the AIR issued by the EAO in May 2013. Technical data about moose in provided in the Technical Data Report titled Wildlife and Wildlife Habitat included in Volume 2 of the Application.
1087	Application Section 10.9	10-84	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document states that work will likely need to continue during the most sensitive period for caribou in UWR u-7-003. The application states that Coastal GasLink may request regulatory approval to deviate from the General Wildlife Measures set out in the Order.	This requires more information. General Wildlife Measures under the UWR Order for UWR u-7-003 are agreed to by Cabinet and established by MOE as authorized under Forest and Range Practices Act. The proposed work in UWR u-7-003 may counter this order. Rerouting must be looked at in order to protect this valuable habitat for caribou within the Hart range. According to the document, 46 ha of UWR will be removed. How much of the total UWR is this? The plan to remove this habitat appears to contravene provincial mountain caribou management documents (e.g., Mountain Caribou recovery implementation plan).	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. It is Coastal GasLink's understanding that General Wildlife Measures (GWMs) associated with the UWR are regulated under the Forest and Range Practices Act (FRPA) and were development for forestry related activities. Under the OGAA the effective management of UWRs becomes the responsibility of the Oil and Gas Commission, which makes a determination as to whether or not the Project will have "a material adverse effect on the ability of the wildlife habitat within the ungulate winter range to provide for the survival, within the ungulate winter range, of the ungulate species for which the ungulate winter range was established."	Please see comments above related to material adverse effects on the ability of the wildlife habitat within the ungulate winter range to provide for the survival of caribou within this UWR. Does the proponent commit to adhering to the guidelines put forward under the UWR order, whether or not the UWR falls under the OGAA or the FRPA? Can the proponent clarify whether this UWR has been brought under the OGAA?	Coastal GasLink will comply with all applicable regulatory requirements.
1088	Application Section 10.9	10-89	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	No reference to grizzly bear thresholds of manageable change are provided	Please identify how/whether thresholds of linear corridors within grizzly bear habitat was applied to assessment of effects on grizzly bear habitat effectiveness. If this measurable parameter was not included, please conduct a re-assessment.	Coastal GasLink confirms that the results of the grizzly bear motorized access density analysis are provided in Section 10.14.3. A threshold of 0.6km/km ² of motorized access was applied to the assessment of the proposed Project's incremental contribution to cumulative effects on grizzly bear as described in Section 10.14. Response to disturbance was incorporated into the habitat		

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									models, whereby linear disturbance was evaluated in the assessment of habitat change.		
1089	Application Section 10.9	10-90	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Application states that the duration of impacts is short term	Explain how impacts are short term in duration when the habitat is lost for at least 30 years? What are the reasons that the magnitude of this impact is not high? Explain why development within a designated UWR does not qualify it as a high level of impact? BRFN suggests that the Proponent be required to reconsider its effects characterization for wildlife and wildlife habitat once information deficits are filled.	Coastal GasLink characterized residual adverse effects, Coastal GasLink in accordance with the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to extend beyond the operations phase of the Project (>10 years), and therefore the reversibility was assessed as long-term.	Given that the event (clearing of the ROW) repeats over the lifetime of the Project and the vegetation is maintained in an early seral stage, the duration of the event should be changed to long-term for all wildlife key indicators. Will CGL make this change?	Coastal GasLink characterized residual adverse effects in accordance with the methods described in the AIR. Duration is defined as the period of the event causing the effect. In most cases, the duration is considered short term, because the event leading to the effect is completed during the construction phase or within any one year during Project operation. Frequency addresses how often the event causing an effect is expected to occur. In Section 10.9, frequency has been characterized for residual adverse effects as being isolated to periodic in recognition that the events causing potential adverse effects will occur during construction and intermittently during operations for pipeline monitoring and vegetation control.
1090	Application Section 10.9	10-91	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Duration of impacts to moose again designated short term.	See concerns in the line item immediately above.	Coastal GasLink characterized residual adverse effects, Coastal GasLink in accordance with the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to extend beyond the operations phase of the Project (>10 years), and therefore the reversibility was assessed as long-term.	Given that the event (clearing of the ROW) repeats over the lifetime of the Project and the vegetation is maintained in an early seral stage, the duration of the event should be changed to long-term for all wildlife key indicators. Will CGL make this change?	See response to issue tracking #1089.
1091	Application Section 10.10	10-102	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Research summarized in this section is from areas much further south than the proposed project location. It is doubtful that these findings will be applicable to the project area.	Review literature to see if information exists from more local area. If not, it seems like the literature summarized in this section is not relevant to the project area, putting the onus on: 1. Additional primary data collection from the LSA/RSA; and 2. Development of an extensive Environmental Follow-up Program for wildlife and wildlife habitat to confirm predictions, monitor against thresholds of acceptable change, and confirm effectiveness of mitigations.	Coastal GasLink characterized residual adverse effects, Coastal GasLink in accordance with the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to extend beyond the operations phase of the Project (>10 years), and therefore the reversibility was assessed as long-term.	CGL's comment is not responsive to BRFN's original comment and appears to have been inserted in error. Please respond to the initial comment, which was: Review literature to see if information exists from more local area. If not, it seems like the literature summarized in this section is not relevant to the project area, putting the onus on: 1. Additional primary data collection from the LSA/RSA; and 2. Development of an extensive Environmental Follow-up Program for wildlife and wildlife habitat to confirm predictions, monitor against thresholds of acceptable change, and confirm effectiveness of mitigations. In particular for amphibians, the current level of baseline data collected for the LSA make it impossible to know where amphibian movement corridors, particularly for western toads, are actually located. The proponent suggests that pre-construction surveys will be helpful for identifying	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. All baseline data collection was completed in accordance with the AIR, and sufficient information is available to understand the potential adverse effects of the proposed Project on amphibian key indicators and develop appropriate mitigation. Coastal GasLink will implement the Environmental Management Plan (Appendix 2A of the Application) and will develop a Post-construction Monitoring Plan in advance of construction and in consultation with the appropriate regulatory agencies to meet all regulatory requirements. Section 25.3 describes the planned post-construction monitoring program.

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										these areas; however, this would only be true if the pre-construction surveys were conducted during migration windows for this species. It is unlikely that this will be in the case, so many of these areas will likely be overlooked. The proponent should be required to a) identify areas which represent likely movement corridors between breeding and hibernation sites for western toads; b) radio-track western toads to determine their preferred travel route; c) designated protected zones around these travel routes to ensure that they are not disrupted during construction. This is particularly important for permanent structures and roads, which would create a permanent barrier to amphibian movement if they are placed in areas that are important movement corridors. In the absence of this level of baseline data collection, it is impossible to say whether construction of the proposed Project will have an adverse effect on amphibian movement. Our final question on this topic, therefore, is it ask the proponent to conduct the required modeling and data collection to ensure that amphibian corridors are not disturbed by the Project, and to commit to monitoring key amphibian populations post construction to ensure that adverse effects are not occurring. In the event that adverse effects are occur, we ask the proponent to make a commitment to mitigation measures that will remove the adverse effect on amphibian populations.	
1092	Application Section 10.11	10-118	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The document states "new edge effects will be minimal where the proposed route parallels existing linear disturbances."</p> <p>Evidence from other studies of gas sector activities indicates that edge effects may cover a much wider extent than the physical footprint of the Project. This evidence (e.g., but certainly not limited to, Johnson et al. 2010) should be provided explicitly in the Application.</p> <p>Johnson, N, Gagnolet, T. and S. Bearer (2010). Environmental Effects of Shale Gas Development in the Chesapeake Watershed: Forest Impacts. The Nature Conservancy.</p>	How much of the pipeline does this pertain to – i.e., new cut vs. existing cut? If existing cut is a very small amount, this reduces the value of this assertion in the context of overall effects loading. Having this sentence here implies that this is an effective mitigation but it may not be if the proposed route does not parallel existing linear disturbances over much of the area. In addition, as noted previously, it is critical for the Proponent to identify the likely areal extent of "edge effects" around all Project-related physical works and activities (not merely the pipeline ROW).	Coastal GasLink confirms that since existing linear disturbances were included in the habitat modelling, the habitat modelling results presented in Section 10 of the Application incorporate the predicted potential effect of the proposed Project on wildlife Key Indicator habitat as a result of new cut from the proposed Project. The Wildlife and Wildlife Habitat TDR in Appendix 2-L of the Application provides a description of the modelling assumptions. The models included species-specific ratings adjustments, such as sensory buffers, where relevant. Coastal GasLink acknowledges that the habitat models were completed on the basis of preliminary routing and footprint assumptions. The model results provide adequate information to support the effects assessment and inform project planning.		

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1093	Application Section 10.12	10-138	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	No mention of aboriginal involvement in construction monitoring process.	The Proponent is requested to identify how it will involve Aboriginal monitors in final route selection, pre-construction data collection, construction and post-construction monitoring.	The Aboriginal Consultation Plan approved by the EAO outlines the phases of engagement including a commitment to continue engagement during construction and operations. Consistent with this plan, Coastal GasLink is currently developing a monitoring program to consider the need for specific resource or activity monitoring, such as heritage resources during the construction phase of the proposed Project. The monitoring program will be developed prior to construction and will be focused on the effective implementation of the Environmental Management Plan (presented in Appendix 2-A of the Application). Coastal GasLink will continue to engage with Aboriginal groups as it develops its monitoring program.		
1094	Application Section 10.12	10-138	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Technical appendices detail baseline data collection. Some comments on the sufficiency of the methods used are provided below. Overall, the pipeline covers a large area and survey coverage for most KIs is relatively minimal. Most sites were only visited once and data were only collected over one field season. It is hard to know how much useful information has been collected over the length of the pipeline.	We recommend that another season of data collection be conducted in key areas to ensure the pipeline routing and proposed mitigations are based on actual habitat use. We further recommend that these field data are augmented with a proper, systematic and community-led collection of TEK relative to the KIs of cultural significance, including moose, caribou, grizzly bears, and furbearers. Timing of construction and mitigations could then be based on actual data, rather than relatively uncertain habitat models.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Nak'azdli Band chose to provide field participants on biophysical field studies but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation. Nadleh Whut'en First Nation chose not to participate in biophysical field studies. Coastal GasLink confirms that Section 7 of the Environmental Management Plan (EMP) states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species.	As stated above, the effectiveness of pre-construction clearing surveys will depend largely on the season during which these surveys are conducted. Surveys conducted during the winter may underestimate habitat use by hibernating or migrating species. This approach is of limited use as an effective mitigation to prevent impacts to wildlife habitat for key indicator species. BRFN reissues our request that a further season of baseline data collection be conducted within key areas of the pipeline route to ensure that key habitat and critical habitat features for indicator species are identified and protected prior to the pipeline route and ancillary development being finalized. We further recommend that these field data are augmented with a proper, systematic and community-led collection of TEK relative to the KIs of cultural significance, including moose, caribou, grizzly bears, and furbearers. Timing of construction and mitigations could then be based on actual data, rather than relatively uncertain habitat models.	Coastal GasLink confirms that pre-construction surveys will be carried out by qualified individuals and will be informed by seasonal sensitivities of species to continue implementation of the mitigation hierarchy. Coastal GasLink will also consider additional ATK that becomes available as construction planning and detailed engineering design advances.
1095	Application Section 10.12	10-139	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Because caribou are in such a precarious conservation situation, any impact could be devastating to the survival of herds in the area. It is imperative that a rigorous monitoring program is put in place with conservative triggers to initiate additional work if any effects are seen.	The Proponent is requested to detail its planned monitoring and adaptive management program for caribou, including triggers to initiate additional mitigation when higher than predicted effects are encountered. These plans must be developed in consultation with BRFN.	Coastal GasLink will develop appropriate monitoring plans in consultation with the appropriate regulatory authorities prior to construction.	CGL has failed to respond to BRFN's request that BRFN be involved in the development and review of these monitoring plans. Please provide a response. We would further request that the development of the mitigation, monitoring, adaptive management and compensation plan for caribou must occur in consultation with BRFN and before any EA certificate is issued for the Project. Further, the plan should include a clear feedback loop to stop development and trigger additional habitat restoration if impacts are seen. Given uncertainty regarding the efficacy of proposed right-of-way access-prevention measures to protect caribou from predation, an adaptive management approach should be used with appropriate	Coastal GasLink will continue to implement the Aboriginal Consultation Plan which includes sharing information such as the Caribou Management Plan is developed prior to construction. Coastal GasLink will comply with all applicable regulatory requirements including requirements for habitat restoration and compensation.

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										triggers in place in the event that mitigation measures are not effective. The monitoring plan should be completed before the Project application review continues, and reviewed by the working group, including BRFN. This group must find that the mitigation plan has a reasonable chance of being successful for continued development to be allowed within the Hart Ranges. Furthermore, BRFN requests that the proposed caribou mitigation and monitoring plan include restoration of caribou habitat impacted by this proposed development at a level of at least double the amount of habitat impacted by the proposed Project. The amount of habitat to be restored should include a zone of influence around directly impacted habitat. This is in accordance with Environment Canada's 2014 Recovery Strategy, which recommends habitat restoration within caribou population units that are below sustainable thresholds of disturbance. If the monitoring plan is not developed prior to the issuance of an EA Certificate, BRFN recommends that the Certificate outline what the specific components of the monitoring plan will be, and how First Nations, including BRFN, will be involved in the development, implementation and monitoring of the plan.	
1096	Application Section 10.12	10-139	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document states that the proposed Project is not predicted to result in a residual adverse effect that would cause any of the mammal key indicators to exceed an accepted biological threshold or standard. How can this statement be justified for caribou, whose habitat is already impacted beyond an acceptable biological threshold?	More information is needed to explain how the proponent can justify making this statement for caribou, especially considering that the pipeline runs through a designated UWR for caribou. The lack of identification of a pre-existing significant adverse effect on this SARA-species is of concern to BRFN because it reflects upon the inadequacy of the Proponent's baseline and trend over time data collection procedures to unearth this critical ecological context against which all future change must be assessed.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. T	The response from the proponent does not appear to address the original question regarding the existing baseline conditions in the Hart Ranges. Please see our response to comment 1085 above, and provide a clear answer to the question we posed in this comment regarding the existing baseline conditions of disturbance within the Hart Ranges. Please provide a clear answer to the question of how a residual adverse effect cannot be felt within the Hart Ranges, given that the population is known to be in decline already.	The assessment characterizes residual Project effects and contribution to cumulative effects. The Application provides a comprehensive description of the ecological and regulatory context relevant to caribou. The status and trends of caribou populations that will interact with the Project speak to the implications of existing factors that may lead to cumulative adverse effects on caribou. The Application acknowledges there is currently a high level of existing disturbance within the Hart Ranges and Telkwa caribou ranges. This information informed the assessment of the Project's potential residual and cumulative effects on caribou. Coastal GasLink provided a technical memo to the EAO with further information about caribou May 13 2014

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1097	Application Section 10.12	Table 10-17, p. 140	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	This statement applies to all findings of "not significant" within Table 10-17. Findings of not significant are qualitative and based at least partly, if not primarily, on a finding of low magnitude of effect in the previous section. There has been no documented justification of this low magnitude finding for all species, so the finding of not significant is not based in science.	Add a summary of how habitat loss can be considered to have a low magnitude of impact for each wildlife species considered. For many species, additional mitigations (including ensuring connectivity between old forest habitats by using HDD to avoid fragmenting these areas) should be considered.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.	The proponent does not appear to have addressed the original comment. Please address the original comment and provide an explanation of how habitat loss can be considered to have a low magnitude of impact for each wildlife species considered. For many species, additional mitigations (including ensuring connectivity between old forest habitats by using HDD to avoid fragmenting these areas) should be considered.	The residual effect that was evaluated for significance for each Key Indicator (KI) is the combined suite of potential adverse effects of the Project on habitat, movement and mortality risk. Please refer to Section 10.7 of the Application (pdf page 10-51) for an explanation of assessing combined effects. It should be noted that the effects criteria characterization and significance determination apply to combined effects, and should not be interpreted to apply only to habitat change. Section 10.12.1 of the Application describes the assessment method used to determine significance. It should be noted that all assessment criteria, not only magnitude, were considered when determining the significance of each residual effect. For many wildlife KIs, the magnitude and reversibility (which includes the duration of the effect) are the most influential criteria, however, all criteria are considered in the significance determination. The characterization of magnitude is informed by, but not solely dependent on, results of quantitative habitat change metrics. Quantitative analyses were completed assuming habitat conditions immediately following construction (i.e., assuming that habitat has not regenerated beyond very early seral stages). The proposed mitigation is expected to reduce the magnitude of the residual effect on habitat change, movement and mortality risk. Characterization of the magnitude of the residual effects considers the quantitative information at post-construction conditions, but equally important, the capacity of the effects to be alleviated with application of the proposed mitigation is an essential component of the magnitude rating. Regulatory context (e.g., conservation and management objectives) and ecological context (e.g., baseline information, including resilience of the KI) are also key considerations for the characterization of magnitude. This information is provided throughout Section 10.0 of the Application, and is supported by scientific literature and baseline field surveys (refer to the Wildlife and Wildlife Habitat Technical Data Report [TDR] in Appendix 2-L of the Application). The rationale summary statements in the tables for criteria characterization and significance determination should be considered a high-level summary. The detailed supporting information is provided in the Application for the wildlife KIs assessed. As described in Section 3 of the Application, a low magnitude residual adverse effect is detectable, but well

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											<p>within environmental and/or regulatory standards. In other words, a residual adverse effect with a low magnitude is not predicted to exceed an accepted biological threshold or standard, or affect the indicator population such that stated management or conservation objectives might not be attainable. Environmental and regulatory standards are described throughout the Application, particularly in Section 10.2 (regulatory and policy setting) and in Sections 10.9 to 10.11 (characterization of potential residual adverse effects on mammals, amphibians and birds, respectively). An iterative process was used in the assessment, whereby residual adverse effects that were considered likely to be approaching or to cause a high magnitude residual effect underwent further consideration to develop and recommend additional mitigation to reduce the magnitude of the effect. These measures have been included in the Application in Section 10.6 and in the EMP (Appendix 2A of the Application). Where further measures were deemed warranted to address residual effects (e.g., detailed mitigation plans, offsets), these are noted in the Application under the discussion of the relevant KI. Even with application of mitigation measures, when the context of the KI and its interaction with the Project was considered, the magnitude of the residual effect was not reduced to low for some KIs.</p>

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1098	Application Section 10.12	Table 10-17, p. 140	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	BRFN is concerned that there is biological justification for the finding of non-significant impacts to caribou from the proposed project, especially considering that the work will be done in an area where it is recommended that caribou habitat be restored. Reversibility in the long term is irrelevant because there will likely be no caribou to live in habitat that is restored 20-50 years from now.	Please clarify how the finding of not significant for caribou is biologically justified. What is presented does not support this finding.	The Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC MOE 2014) notes that, in practice, the mitigation hierarchy is often considered holistically and iteratively. Coastal GasLink adopted an iterative approach to mitigating potential Project effects as outlined in the Environmental Mitigation Procedures, beginning with avoidance, minimization and on-site mitigation, prior to consideration of the need for alternative mitigation strategies, such as compensation or offsets. The Application discusses mitigation and environmental management strategies for project effects in Section 10.6 and for cumulative effects in Sections 10.13.2 and 10.13.3. Given the sensitivity of the caribou populations potentially affected by the Project, and in accordance with the mitigation hierarchy, Coastal GasLink has incorporated consideration of alternative mitigation strategies, such as compensation or offsets, and monitoring into mitigation planning to reduce the magnitude of residual Project effects on caribou. With implementation of the proposed measures to avoid, minimize, mitigate on-site, and implement alternative mitigation strategies, such as compensation or offset where warranted, the residual effects of the Project are not predicted to affect conservation objectives for southern mountain caribou. Uncertainty is expected to be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach. Following the assessment method in the AIR, Coastal GasLink concluded the residual adverse effect on caribou is not significant. The Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC MOE 2014) notes that, in practice, the mitigation hierarchy is often considered holistically and iteratively. Coastal GasLink adopted an iterative approach to mitigating potential Project effects as outlined in the Environmental Mitigation Procedures, beginning with avoidance, minimization and on-site mitigation, prior to consideration of the need for alternative mitigation strategies, such as compensation or offsets. The Application discusses mitigation and environmental management strategies for project effects in Section 10.6 and for cumulative effects in Sections 10.13.2 and 10.13.3. Given the sensitivity of the caribou populations potentially affected by the Project, and in accordance with the mitigation hierarchy, Coastal GasLink has incorporated consideration of alternative mitigation strategies, such as compensation or offsets, and monitoring into mitigation planning to reduce the magnitude of residual Project effects on caribou. With	We fail to see how the discussion of the mitigation hierarchy is relevant to the specific case of the pipeline going directly through what has been designated as protected high elevation caribou habitat in an ungulate winter range. Clearly in this case, the mitigation hierarchy has failed to achieve its goal and the proponent is likely to be forced into the last resort -- an effort to offset material adverse effects within the Hart Ranges, but without including any details about what those offsets will be. As stated previously, the population in this area is already in decline; restoration is already needed to recover the population; construction is being proposed during the critical timing window; construction will increase linear corridors and habitat disturbance within the Hart Ranges; a compressor station will be located within the Hart Ranges, meaning ongoing sensory disturbance and likely avoidance of this area by caribou. All of this adds up to a significant adverse effect. Could the proponent please explain how they will know, from monitoring caribou populations, whether the Project is adversely impacting caribou in the Hart Ranges, given that the population is already in decline? In CGL's technical memo on caribou dated May 13, 2014, the proponent states that they will implement an appropriate monitoring program for adverse effects of increased linear access within caribou habitat, and, should monitoring result in the need for further action, CGL will work with the appropriate regulatory authorities to implement an appropriate adaptive management approach. Can the proponent please detail what types of adverse impacts will be monitored for, and how the development of an appropriate adaptive management approach will be triggered? Does the proponent feel there are sufficient baseline data on predator populations to assess whether predator populations have increased as a result of the proposed Project? What other actions will be taken to ensure that recovery goals for the Hart Ranges are being met? As stated above, a full monitoring and compensation plan, including triggers that will create actions to restore further habitat or introduce other mitigations, must be developed prior to the issuance of any EA Certificate and reviewed by an independent group of scientists and traditional knowledge holders, including BRFN.	Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.

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									implementation of the proposed measures to avoid, minimize, mitigate on-site, and implement alternative mitigation strategies, such as compensation or offset where warranted, the residual effects of the Project are not predicted to affect conservation objectives for southern mountain caribou. Uncertainty is expected to be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach. Following the assessment method in the AIR, Coastal GasLink concluded the residual adverse effect on caribou is not significant. Reference: BC Ministry of Environment. 2014. Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures). Working Document, January 9, 2014. Website: http://www.env.gov.bc.ca/emop/ . Accessed: May 2014. BC Ministry of Environment. 2014. Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures). Working Document, January 9, 2014. Website: http://www.env.gov.bc.ca/emop/ . Accessed: May 2014.	This group must find that the mitigation plan has a reasonable chance of being successful for continued development to be allowed within the Hart Ranges. Furthermore, BRFN requests that the proposed caribou mitigation and monitoring plan include restoration of caribou habitat impacted by this proposed development at a level of at least double the amount of habitat impacted by the proposed Project. The amount of habitat to be restored should include a zone of influence around directly impacted habitat. This is in accordance with Environment Canada's 2014 Recovery Strategy, which recommends habitat restoration within caribou population units that are below sustainable thresholds of disturbance.	
1099	Application Section 10.12	p. 141	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	For moose, the biggest potential impact probably comes from increased hunting pressure due to access. The Proponent needs to make sure that access control is tightly managed.	The Application should include rigorous monitoring of access to ensure that non-aboriginal hunting pressure does not increase in the project area.	Coastal GasLink confirms that mitigation to address the potential effect, "increased access along the proposed route and new temporary access roads" is presented in Table 14-30, page 14-97. Mitigation includes, "implement the Access Control Management Plan and Traffic Control Management Plan including access control measures (e.g., signage, road closures, restrictions, access control structures, vegetation screens) to avoid or reduce unauthorized motorized access. The EMP (Appendix 2-A) includes an Access Control Management Plan (Appendix D.3). The Access Control Management Plan provides guidelines for blocking and/or controlling access to previously inaccessible portions of the ROW following construction and throughout the operations phase of the Project. The intent is to reduce disturbance resulting from pipeline construction on these lands and particularly in sensitive wildlife areas, riparian areas and in areas of potential high erosion hazard.	Could the proponent provide relevant peer-reviewed studies of how effective these types of access management plans have been in reducing hunting pressure? Can the proponent please identify what types of mitigations will be introduced if access management plans are not effective in preventing an increase in hunting pressure on moose populations? This information is critical in light of current concerns about moose populations across northern British Columbia, and the potential that this decline is partially related to increased non-Aboriginal hunting pressures. The BRFN is concerned about continued access to moose within their traditional territory, as moose hunting is a critical to BRFN treaty rights, including its traditional mode of life.	Coastal GasLink maintains its original response and will share information concerning the Access Control Management Plan with BRFN in accordance with the Aboriginal Consultation Plan.

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1100	Application Section 10.13.1	10-150	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	This analysis of thresholds is far too generalized for all species included in the assessment. Some species (notably caribou, but others as well) are going to be very sensitive to additional habitat loss within their ranges.	The section should look at thresholds (if indeed they exist) relevant to each species, not make generalizations about the amount of habitat lost in the Wildlife RSA. These generalizations are not relevant to specific species in specific areas. Because the pipeline traverses such a large area, the wildlife RSA should be broken down into smaller, more manageable pieces that look at cumulative effects in a biologically relevant way.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.	The proponent did not provide a response to our original query. Does the proponent find that the current approach for assessing impacts on wildlife species across the pipeline route as a whole (i.e., treating the pipeline route as a homogenous unit) is a biologically appropriate way to determine areas that are more sensitive to impacts than others? Is the current approach an effective way to identify areas where additional precautions should be taken to avoid crossing critical thresholds for local wildlife populations? If the proponent is unable to respond to this question, we request a response from the BC EAO.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1101	Application Section 10.13.1	10-151	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Literature reviews are selective.	Literature reviews in this Application seem to be very selective, and do not represent a comprehensive review of literature. While BRFN has provided limited examples, the onus is on the Proponent to do comprehensive review of relevant literature. The Proponent should include a good literature review of how the pipeline ROW could act as a barrier to small mammals, for example, and what the implications are for other species if this occurs.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.	In the absence of an adequate response, we ask the proponent to provide a literature review of how the pipeline ROW could act as a barrier to small mammals, and what the implications are for other species if this occurs. Small mammals are not included as a KI in this application; however, other KIs are dependent on an abundance of small mammals. The potential for this linear corridor to function as a barrier to small mammal movement should be assessed in light of potential adverse effects to other KIs along the pipeline corridor.	Information presented in Section 10.13.1 is provided for context regarding both the residual effects of the Project as well as the Project's contributions to cumulative effects. Please refer to sections 10.5.2, 10.8 and 10.9.2 for additional information regarding changes in movement of mammals. The Wildlife and Wildlife Habitat Technical Data Report presents further information on the key indicators for the valued component wildlife and wildlife habitat.
1102	Application Section 10.13.1	10-151	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Here the Application notes that linear corridors are attractive to predators as easy travel routes. This seems to contradict earlier statements in the application that moose may be attracted to cutblocks and forest roads because predators avoid them (Table 10-8, p. 10-70). See comment 171 above.	The Proponent is requested to investigate potential effects to wildlife along linear corridors in more detail; this is a key issue for effects on wildlife after all. How will moose use linear corridors? Will wolves be attracted to them or not? What kinds of mitigations can be put in place to ensure that ungulates attracted to the pipeline will not end up more vulnerable because of the risk of predation? Where uncertainty exists, the confidence in predictions should be reduced accordingly and greater emphasis on higher level mitigation and significance estimations adopted, and a proper follow-up monitoring and adaptive management program put in place.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The assessment was carried out in accordance with the methodology defined in Section 3 of the AIR.	The proponent has failed to address the original query. There is literature that suggests that moose have been shown to avoid roads and trails, or have decreased occurrence in association with increasing linear density (We claw & Hudson 2004; Laurian et al. 2008; Kunkel and Pletscher 2000; Snaith et al. 2002). Please address the original queries and also respond to the question of whether there is sufficient baseline information about wolf populations along the pipeline route to know, through monitoring, whether wolf populations are increasing a result of the Project.	The effects pathways by which wildlife KIs may be affected by the Project (i.e., habitat, movement, mortality risk) are inter-related. As a result, references regarding species response to linear developments are utilized repeatedly in the various sections of the Application where these effects are assessed. A comprehensive review of available scientific literature relevant to wildlife response to linear developments was conducted and summarized information is provided in the Application. There are inconsistencies in the study areas and corresponding biological factors, methodologies and conclusions between many of the studies. The statement regarding use of linear corridors by predators referenced in the issue is intended to inform the evaluation of mortality risk, and the relevant references are cited therein. Coastal GasLink notes that care was taken in the assessment to use the terminology "linear corridor" or "linear feature" to refer to source material that is relevant to various types of linear developments (e.g., roads, cutlines, seismic lines, utility corridors). The variability in documented wolf use of roads depending on levels of human use is noted in Table 10-8, and specifically refers to roads.

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											Please refer to Sections 10.9 and 10.14 of the Application for information regarding moose and predator use of linear developments, and potential changes in predator-prey dynamics. Please refer to Table 10-6 and Section 10.9.3 of the Application for mitigation that will be implemented to reduce the increased risk of predation for ungulates as a result of the Project.
1103	Application Section 10.13.2	Table 10-21	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>This table is one of the only places where location-specific effects are mentioned (e.g., with specific compressor stations).</p> <p>With very few exceptions, it is entirely possible to review the current, deficient, Application without being able to identify specific areas of heightened potential for impacts along this long linear development. This is a fundamental gap in this assessment to date and a critical gap that needs to be filled. This gap is especially important for BRFN who is attempting, with limited capacity, funds and extremely narrow timelines, to understand and assess impacts of the Project on the areas where they practice their Treaty rights.</p>	<p>To get a true picture of significance, it is important to look at each compressor station and sensitive areas individually (since they are located in different habitat types and have different degrees of existing and foreseeable habitat effects around them). Among other areas where more location-specific analysis is required include:</p> <ol style="list-style-type: none"> 1. Water crossings; 2. Areas with multiple planned physical works and activities intersecting; 3. Areas with existing disturbance from a variety of sources (i.e. brownfield areas where biological effects may already have been building up); and 4. Areas of heightened biological and/or traditional use value/productivity. 	Coastal GasLink confirms that potential locations for compressor stations were included in the assessment. The Application considers potential adverse effects associated with compressor stations. Further information required by the appropriate regulatory authorities will be provided during permitting.	BRFN fails to see how this application can be approved without a full assessment of proposed compressor station and other ancillary structural locations to determine specific environmental impacts and identify specific mitigation measures to offset these impacts. In BRFN's experience the permitting process does not allow for any meaningful consideration of the cumulative effects of individually permitted developments, such as road, particularly in relation to impacts on BRFN's constitutionally protected treaty rights. Impacts on ancillary project components, such as compressor stations, need to be considered during the EA for the Project. In the absence of an appropriate response from the proponent, we would ask the BC EAO to respond to BRFN's question.	Coastal GasLink completed quantitative analysis for the proposed route assuming a 100 m wide corridor. This corridor width was selected for the analysis since it reflects the construction right of way and temporary workspace as well as to the permanent facility footprints of the meter stations and compressor stations. Temporary ancillary facilities such as camps, stockpiles, and borrow pits were assessed qualitatively. Coastal GasLink will provide detailed information about temporary ancillary facilities to the OGC during the permitting phase. Coastal GasLink will seek to use existing roads and trails to the extent practical, and minimize the construction of new roads. Potential adverse effects of roads have been addressed in a qualitative manner in the Application. Further detail on temporary ancillary facilities will be provided to the OGC during permitting, and will adhere to the requirements of the Oil and Gas Activities Act and Environmental Protection and Management Regulation as well as the OGC's Environmental Protection and Management Guide. Coastal GasLink has provided mapping to BRFN and looks forward to continuing the dialogue about the construction footprint and construction planning and detailed engineering design advances.
1104	Application Section 10.13.3	p. 10-163	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document states that the Proponent has committed to development of additional mitigation plans to address residual adverse effects from the proposed Project within UWRs and WHAs for caribou and mountain goat. Current mitigation plans for caribou UWRs do not appear to be sufficient to reduce residual adverse effects to an acceptable level.	In light of the significance of residual effects and cumulative adverse effects to caribou (including existing effects), the construction plan within caribou habitat must be revisited.	Coastal GasLink will develop appropriate monitoring plans in consultation with the appropriate regulatory authorities prior to construction.	Please see earlier comments about impacts to caribou within the Hart Ranges.	Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.

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1105	Application Section 10.14	p. 10-164	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The document makes reference to a quantitative species-specific threshold for grizzly bears (access density). Interestingly, grizzly bears are the only mammal for which the report states "additional mitigation and strategies to address potential cumulative adverse effects of the proposed Project in combination with existing and future disturbances is warranted". This would appear to be connected to the fact that there is a measureable, quantitative threshold. Qualitative thresholds do not appear to be as rigorous since none of them result in a finding of significance or a call for "additional mitigation and strategies".	The analysis conducted for each KI is insufficient for a Project this large, complex and covering such a wide amount of ecological areas that are sensitive to change. The Proponent must reassess effects on wildlife with the support of the Working Group, including finding better quantitative cut-offs for significance and integrating them into the analysis.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014	BRFN fails to see how this application can be approved without a full assessment of the cumulative effects of development on Kis, using acceptable quantitative thresholds for impacts and focused on biologically meaningful sections of the proposed pipeline route, rather than an assessment of the pipeline route as a whole. In the absence of a response to this query, BRFN asks the BC EAO to provide a response to our original question.	An iterative process was used in the assessment, where residual adverse effects that were considered likely to be approaching or to cause a high magnitude residual effect underwent further consideration to develop and recommend additional mitigation to reduce the magnitude of the effect. These measures have been included in the Application in Section 10.6 and in the EMP (Appendix 2A of the Application). Where further measures were deemed warranted to address residual effects (e.g., detailed mitigation plans, offsets), these are noted in the Application under the discussion of the relevant KI. In addition to grizzly bear, the need for additional mitigation was also noted to address the Project's potential residual effects on caribou habitat (refer to Section 10.9.1 of the Application). This conclusion was reached in the absence of an applicable quantitative biological threshold, using qualitative assessment methods informed by quantitative information. The need for additional mitigation to address residual effects on grizzly bear is associated with the Project's contribution to cumulative effects on mortality risk as a result of motorized access. Therefore, the assessment identifies the need for additional mitigation to address grizzly bear mortality risk in the cumulative effects section. The need for additional mitigation to address the Project's contribution to cumulative effects on caribou is carried over from the mitigation committed to under Section 10.9 of the Application to address the Project's residual effects. Further to the previous statement that the quantitative threshold for grizzly bear is associated with mortality risk resulting from motorized access, Coastal GasLink notes that the anticipated response to the various effects mechanisms assessed for wildlife KIs are not necessarily consistent between each of the KIs. For many of the wildlife KIs, change in habitat is the effect mechanism most likely to influence an adverse response of the KI to the construction and operation of the Project. Conversely, mortality risk associated with human access is the primary effect pathway by which the Project will potentially cause adverse effects on grizzly bear. Although the thresholds for access density are associated with population response as a result of mortality risk, the effect mechanisms relate to habitat and mortality risk are inter-related. Similar mortality risk thresholds are not available for the other KIs assessed.

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											The assessment was completed in accordance with the AIR and following accepted environmental assessment methodology. Where accepted biological thresholds are available, they have been incorporated into the assessment.
1106	Application Section 10.14	p. 10-169	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The report states that there is a high level of existing functional habitat disturbance within the Hart Range. Provincial management plans for this area suggest work is needed to restore habitat, not remove additional habitat. BRFN is concerned that the proposed mitigations will not offset the loss of caribou habitat in this area.	A full analysis of the proposed caribou mitigation plan must be conducted by qualified caribou biologists before any construction starts on the pipeline. The qualified biologists should be selected by an independent third party to avoid bias.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014	The proponent has failed to respond to the original query. Please respond to this query with a clear commitment to how the proposed caribou mitigation plan will be developed and who will review the contents. Please see BRFN's earlier comments on this point.	Coastal GasLink will continue to implement the Aboriginal Consultation Plan which includes sharing information such as the Caribou Management Plan as it is developed prior to construction. Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.
1107	Application Section 10.14	10-176	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application states that "it is understood that the majority of access will utilize existing access roads." However, the Project Description indicates that 60 km of new access roads are required, and another 400 – 550 m of access roads will use existing infrastructure or will be "shoo-flies". Current information is not adequate to estimate significance of these proposed access roads.	Make a reasonable estimate of increases in roads as a result of the project and integrate this into the assessment, including cumulative effects assessment.	Coastal GasLink confirms that the construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during the detailed engineering and design process and evaluation criteria are presented in Section 1.4 . The assessment considers potential adverse effects associated with these temporary facilities in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the required information will be provided to appropriate regulatory agencies during the permitting process.	BRFN fails to see how a full environmental assessment of this Project can be conducted without quantitative integration and assessment of the degree of new linear corridors that will be introduced as a result of the Project, as noted in comment 1105. BRFN is particularly concerned that this approach will mean the full cumulative effects of the Project will not be considered, particularly given permitting processes do not provide an adequate opportunity for the consideration of cumulative effects. In the absence of a response to this question from the proponent, we ask the BC EAO to explain how this Project could be approved without a full environmental assessment of all ancillary development associated with the pipeline.	Coastal GasLink completed quantitative analysis for the proposed route assuming a 100 m wide corridor. This corridor width was selected for the analysis since it reflects the construction right of way and temporary workspace as well as to the permanent facility footprints of the meter stations and compressor stations. Temporary ancillary facilities such as camps, stockpiles, and borrow pits were assessed qualitatively. Coastal GasLink will provide detailed information about temporary ancillary facilities to the OGC during the permitting phase. Coastal GasLink will seek to use existing roads and trails to the extent practical, and minimize the construction of new roads. Potential adverse effects of roads have been addressed in a qualitative manner in the Application. Further detail on temporary ancillary facilities will be provided to the OGC

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											during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the OGC's Environmental Protection and Management Guide. Coastal GasLink has provided mapping to BRFN and looks forward to continuing the dialogue about the construction footprint and construction planning and detailed engineering design advances.
1108	Application Section 10.14	10-177	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The Application indicates that, with the exception of the Parsnip GBPU, the existing open motorized access density in the GBPUs intersected by the proposed Project currently exceeds the threshold of 0.6 km/km².</p> <p>This finding is important for a number of reasons. First, it illustrates the importance of having a quantitative basis for defining thresholds. As noted in Table 10-8 of this section, open road density of 0.6 km/km² is adopted in this assessment as a biological threshold for a high-magnitude effect. It would appear that quantitative assessments are more likely to find a significant effect than qualitative assessments.</p> <p>Second, it illustrates the importance of having smaller geographical areas for analyzing the significance of a proposed development such as a pipeline. The pipeline crosses 650 km of extremely diverse habitat. Much of it is undeveloped but other parts have been heavily impacted by mountain pine beetle (MPB) salvage and other, smaller scale disturbances. The significance of the additional pipeline development might be small in some areas but very large in other areas, for completely different reasons. In areas where little development has occurred, the significance of habitat loss associated with the pipeline ROW might be small. In areas where a lot of development has already occurred, the significance of additional habitat loss and fragmentation might be very large. For some sensitive species (e.g., caribou, where habitat exists but much of it is not functional), the additional habitat loss and fragmentation associated with the pipeline ROW seems likely to have significant adverse effects.</p>	<p>1) the analysis of significance (both for the project itself and as part of the cumulative effects analysis) for all indicators must be done on a smaller, ecologically-based area – not across the LSA as a whole.</p> <p>2) Quantitative thresholds using the best available science should be developed to indicate significance before the analysis is carried out, to prevent bias.</p> <p>3) In the event that quantitative analyses are not available, all qualitative assessments should be reviewed by independent third-party specialist biologists to determine if findings are valid. Otherwise, qualitative assessments of no significance in a process like the one conducted for Coastal GasLink should be treated with skepticism.</p> <p>Application must be revised in light of the above.</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	In the absence of an adequate response to this query from the proponent, we ask the BC EAO to provide a response to the appropriateness of how this assessment has been carried out.	Coastal GasLink maintains its original response.

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1109	Application Section 10.14	10-179	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The proposed mitigation plan to reduce the Project's contribution to potential cumulative adverse effects on grizzly bear must be reviewed by a) independent third party grizzly bear biologist; and b) appropriate representatives of First Nations within relevant traditional territories, including BRFN.	Please identify whether the Proponent commits to the recommendations at left, with reasons.	Coastal GasLink will comply with all applicable legislation and follow regulatory direction for the Project including implementation of mitigation deemed appropriate by the regulatory authorities. The mitigation to avoid or reduce potential adverse effects presented in the Application is included in the comprehensive assessment completed in accordance with the AIR issued by the EAO in May 2013.	The proponent has failed to answer the question. Please provide an answer to the original question associated with this comment.	Coastal GasLink maintains its original response.
1110	Application Section 10.14	p. 10-179	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Duration of residual cumulative adverse effects on grizzly bear is listed as short-term.	Please provide an analysis of how many access roads will be maintained in each of the GBPU to determine whether the duration is short-term. BRFN is concerned the effect will last throughout the project.	Coastal GasLink characterized residual adverse effects, in accordance with the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer, and therefore the reversibility was assessed as long-term.		
1111	Application Section 10.14	p. 10-180	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Effects will be in place for the entire project, and possibly longer since it will take a long time for the habitat to regenerate.	The Proponent is requested to revisit this estimate of effect duration. BRFN is concerned the effect is long term.	Coastal GasLink characterized residual adverse effects, in accordance with the methodology described in the AIR. Duration is defined as the period of the event causing the effect, whereas reversibility is defined as the period of time over which the residual adverse effect extends. The duration was found to be 'short term' because the event leading to the effect is completed during the construction phase or within any one year during Project operation. The adverse effect on the valued component is acknowledged to last longer, and therefore the reversibility was assessed as long-term.		
1112	Application Section 10.14	p. 10-181	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	For caribou, it is hard to imagine a mitigation strategy that will mitigate the impacts of the proposed development within the Hart range – apart from avoiding the UWR or using HDD to avoid fragmentation of the habitat.	BRFN recommends that the mitigation strategy be reviewed by qualified caribou biologists who remain at arm's length from the regulatory agencies and proponent, and developed through consultation with effected First Nations, including BRFN.	Coastal GasLink will consult with the appropriate regulatory authorities to develop alternative mitigation strategies where warranted. Coastal GasLink will continue to follow the approach outlined in the Aboriginal Consultation Plan approved by the EAO including engagement with Aboriginal groups about mitigation.	Please see comments above in regards to the caribou mitigation and monitoring plan.	Coastal GasLink will continue to implement the Aboriginal Consultation Plan which includes sharing information such as the Caribou Management Plan is developed prior to construction. Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements.
1113	Application Section 10.14	p. 10-182	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	As per the comments above, the scale of assessment for moose is too large. Some areas might be adversely impacted while others may be relatively unharmed.	The regional scale must be broken down further to allow for a biologically meaningful assessment, and effects assessment must be conducted on this smaller scale.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	CGL has not responded to BRFN's initial request, this remains an outstanding concern for BRFN.	The assessment of potential adverse effects of the Project on moose was completed using the spatial boundaries identified in the AIR issued by EAO in May 2013. In addition to considering the spatial boundaries defined by the AIR, the Application also presents information by LRMP area to provide insight into the spatial variation of potential Project effects along the proposed route, and take into account species management objectives.
1114	Application Section 10.17	p. 10-209	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The scale of assessments for all species in tables 10-32, 10-33 and 10-34 is too large.	Significance analysis must be re-done, both for the project alone and cumulatively, based on biologically meaningful assessment scales/boundaries across the length of the pipeline for all KIs. Determination of biologically meaningful assessment scales must be informed through TEK and consultation with relevant First Nations, including BRFN.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	Please see comments above with respect to the scale of the assessment.	The assessment of potential adverse effects of the Project was completed using the spatial boundaries identified in the AIR issued by EAO in May 2013. In addition to considering the spatial boundaries defined by the AIR, the Application also considered information by LRMP area to provide insight into the spatial variation of

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											potential Project effects along the proposed route, and take into account species management objectives.
1115	Application Appendix 2L	1	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>This section of the Technical Data Report (TDR) describes how traditional ecological knowledge was collected related to this project. BRFN, with the Firelight Group, has already provided a response regarding their views on the quality of information collected and referred to as "TEK". The report, dated Jan. 14 2013, explains why the TEK study conducted by TERA does not conform to accepted practices for the collection of TEK and how the TEK purportedly collected by the Proponent in no way represents BRFN TEK. In particular, TERA adopted inadequate research methods to collect, record, interpret and present TEK. TERA failed to use a research protocol for collecting TEK information, which resulted in incidental observations of traditional knowledge features rather than a comprehensive assessment of the knowledge held by First Nations.</p> <p>BRFN is gravely concerned that TEK from BRFN and likely other First Nations has not been used to ensure that the pipeline would not unduly impact wildlife migration corridors or important breeding areas for wildlife – especially in the absence of full baseline data across much of the pipeline route.</p>	<p>If the Wildlife TDR and associated section within the EA is going to refer to TEK, a proper TEK study with each of the First Nations across the route of the pipeline should be conducted. As set out in BRFN's cover letter, BRFN requires that all reference to purported reliance on TEK be removed from the Application or the Application be revised to set out what, First Nations specific, TEK is relied on to ensure deficiencies with respect to TEK are explicit. A dedicated BRFN TEK study is required.</p> <p>In the absence of properly conducted TEK studies, the EA should not refer to the TEK collected as helpful in identifying project-related adverse effects on wildlife KIs. The Application must be revised accordingly.</p>	<p>Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application.</p> <p>Blueberry River First Nations chose to provide field participants on biophysical field studies for the Project, but not to share TEK. However, all field participants contributed to the discussion of potential Project related effects on resources and participated in the discussion of potential mitigation.</p>	<p>Any representations made by individual BRFN members participating in field studies are made in their individual capacity, and not on behalf of BRFN. Discussions regarding mitigation must be undertaken directly with BRFN, this has not occurred to date.</p>	<p>Coastal GasLink requested meetings to discuss site-specific mitigation in January and again in April of 2014, and continues to look forward to discussions at BRFN's earliest convenience as construction planning and detailed engineering design advances.</p>
1116	Application Appendix 2L	28	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The document states that the BC MFLNRO indicated that the Sukunka River was likely the ecological range delineator for the Quintette caribou herd, and that the herd range boundary that marginally crossed to the north side of the river is likely an error attributed to the scale at which the herd range boundary was delineated.</p>	<p>Has traditional knowledge been used to confirm this assumption? Traditional knowledge holders would be able to assist with this delineation. If the herd does cross the Sukunka River, it would be important to do a full assessment of impacts on the Quintette herd. Information gathered in consultation with BRFN must inform this.</p> <p>The BC MFLNRO has a responsibility to ensure that their decision to allow the proponent to remove impacts on the Quintette herd from their Application is based on the full suite of knowledge that is available and will not incur added risk to this herd. This decision must be verified by third-party, independent caribou specialists and by traditional knowledge regarding the movement patterns and habitat use of the Quintette herd. It should also be verified by the federal agency responsible for recovery of mountain caribou in Canada.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p>	<p>CGL has not responded to BRFN's initial request, this remains an outstanding concern for BRFN.</p>	<p>Coastal GasLink maintains its original response and notes that it will comply with all applicable regulatory requirements.</p>
1117	Application Appendix 2L	117	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>No reference is provided to the proposed 2014 Recovery Strategy for Woodland Caribou, Southern Mountain Population. Application is not clear that the Hart population is considered to be decreasing.</p>	<p>Add relevant information from the 2014 Recovery Strategy to the Application and make sure it's clear that the Hart population is considered to be in decline. Effects assessment and CEA may need to be revised in light of this information.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p>	<p>CGL has not responded to BRFN's initial request, this remains an outstanding concern for BRFN. Has CGL considered information in the 2014 Recovery Strategy for Mountain Caribou, southern population? If not, with CGL do so?</p>	<p>Coastal GasLink will develop a Caribou Management Plan in consultation with appropriate regulatory authorities and in compliance with applicable regulatory requirements. The Plan will be informed by the 2014 Recovery Strategy issued by Environment Canada.</p>
1118	Application Appendix 2L	121	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The Application notes that moose populations have declined in some areas. Entire Application must reflect that moose populations are in decline in BC, based on</p>	<p>The current level of effort assessing effects on moose is a short-coming of the Application. Proper Nation-specific studies of TEK associated with wildlife use should be completed prior to EA being deemed complete and any approval of the proposed Project route. Effort should be applied to gathering TEK re: use of habitat by moose,</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28</p>	<p>BRFN is gravely concerned that CGL has not considered BRFN TEK regarding moose in assessing the environmental effects of the proposed Project. Consultation with</p>	<p>See response to issue tracking #1115.</p>

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							available data, along with reasons known to or suspected to be contributing to these declines.	particularly to identify movement corridors and key habitat features.	2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application.	BRFN regarding impacts of the proposed Project on moose (in addition to myriad other concerns) is required and outstanding.	
1119	Application Appendix 2L	177	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	This is an incredibly vague summary of traditional knowledge related to wildlife. The Application repeatedly refers to signs of various species "throughout the area". Throughout which area? There is no spatial data attached to this information and no indication that data were collected systematically with qualified knowledge holders from the various communities. Section 11 of the AIR requires that Coastal GasLink identify present, past and anticipated future uses and traditional uses of the proposed Project areas, identify specific aboriginal interests provided by Aboriginal communities, identify potential effects of the proposed Project on identified Aboriginal Interests for each Aboriginal group, and describe mitigation measures or environmental management strategies to address identified effects. The primary and preferred source for this information is affected Aboriginal communities, and TEK is an important constituent element for addressing these information requirements. The biophysical field studies relied on in the Application cannot inform the Application or discussions about how the Project's adverse impacts and infringement of BRFN treaty rights and interests can be addressed, nor can it be used to address any adverse environmental, socio-economic and socio-cultural effects. Information collected through this study cannot be used to identify traditional uses of the Project area, specific BRFN (or general First Nations') interests or rights that may be affected by the Project, nor be used to identify what potential impacts the Project may have on those rights and interests	Proper TEK studies with affected First Nations must be conducted in order to fulfill the requirements of Section 11 and the project AIR. As noted elsewhere in this table, revisions are required to Application in light of inadequate TEK collection and explicit requests from BRFN under agreements between the parties that the data collected through biophysical field studies not be relied on, in any way, in the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application.	CGL has not responded to BRFN's initial request. The fact that no BRFN TEK was considered in the Application is of serious concern to BRFN.	See response to issue tracking #1115.
1120	Application Section 12	N/A	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Metrics and statistics used throughout this section do not adequately disaggregate data to the Band/Nation level and do not consider metrics associated with traditional or subsistence economies	Data with respect to First Nations must be disaggregated. Application should be revised to incorporate Band/Nation specific data from nation and project specific reports in order to more accurately show the likely distribution of impacts across these very different sub-populations. BRFN is concerned minimum accepted standard for SEIA and general research practices are not met, nor indeed are they referred to in the Application. BRFN requests an outline of general research practices used by the Proponent for socioeconomic effects assessment.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate non-response to the BRFN comment/request. There are two information requests still outstanding from the original request. BRFN requests that the EAO require the Proponent to meaningfully respond.	Coastal GasLink maintains its original response. Coastal GasLink completed a comprehensive assessment in accordance with the AIR. The assessment was completed by a multi-disciplinary team of qualified professionals who have experience with projects of similar scale and complexity, including an understanding of the potential adverse effects and mitigation approaches. A detailed list of the qualified professionals completing the

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											assessment was provided in a technical memo to the EAO on May 13 2014. The Application has been completed using transparent and accepted assessment methodology that has been applied and tested in the context of various regulatory processes. The methodology describes the potential adverse effects of the proposed Project, outlines mitigation, and characterizes the residual adverse effects and their significance.
1121	Application Section 12	N/A	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Traditional and mixed economies are not mentioned in any meaningful way anywhere in this section of the Application. VCs and KIs addressed are not comprehensive in considering the important and crucial role that First Nations traditional economies play. Findings from BRFN's SEIA baseline and scoping reports was not adequately incorporated.	Scope of the Application must be adjusted to incorporate discussion of the role of traditional and mixed economy in a more fulsome way. Proponent must review socioeconomic baseline and scoping reports submitted by affected First Nations and integrate VCs and KIs to reflect the values documented. Proponent must review and incorporate baseline and scoping data presented in relevant socioeconomic reports. Application should be revised in light of the above.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. VCs and KIs were defined in the AIR. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5. Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment.	This is a completely inadequate response to the BRFN comment/request. There are information requests still outstanding from the original request. BRFN requests that the EAO require the Proponent to re-review socio-economic reports from affected First Nations, including BRFN's socio-economic baseline profile, and consider them meaningfully in the Application, including in a reconsideration of effects pathways, likely residual effects and significance determination for social, economic and cultural impacts on affected First Nations populations.	Coastal GasLink maintains its original response.
1122	Application Section 12	N/A	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Proper KIs ignored by the Proponent include measures of recruitment levels of Aboriginal workers, retention levels of Aboriginal workers, and development of transferable skills for Aboriginal workers (a measure of potential future career path development – advancement potential). None are considered in any meaningful way in the Application because Aboriginal employment is dealt with in an inadequate level of detail. Same with contracting/procurement capacity.	Coastal GasLink to review socioeconomic baseline and scoping reports submitted by affected First Nations and integrate VCs and KIs to reflect the values documented. If the EAO is serious about its Five Pillar approach, and actively adding a sixth pillar to the centre of EAs of Aboriginal rights and interests, human health beyond technical contaminant studies, culture beyond physical heritage, and social and economic valued components that reflect the values of Aboriginal people, need to be properly integrated into this assessment in a much more meaningful way than presented to date in this Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. VCs and KIs were defined in the AIR. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5. Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment.	see comment 1121 above.	Coastal GasLink maintains its original response.
1123	Application Section 12	N/A	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Coastal GasLink incorporated selective data from SEIA scoping and baseline reports as descriptive prose but fails to adequately address the multiple concerns raised in these reports through appropriate mitigation measures.	Coastal GasLink needs to revisit the SEIA scoping and baseline reports and address potential impacts identified in an adequate and meaningful way. Use of BRFN's socioeconomic baseline study, and development of mitigation measures, must be informed through targeted and specific consultation with BRFN.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. VCs and KIs were defined in the AIR. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5. Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment.	see comment 1121 above.	Coastal GasLink maintains its original response.

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1124	Application Section 12	N/A	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The ability to meaningfully practice treaty rights, including traditional food harvesting, is expressed as a key value in the final BRFN socioeconomic scoping and baseline profile report (p.27). This is not reflected in the VCs addressed in this section of the application.	The Proponent must meaningfully consider and incorporate BRFN's treaty rights, including the practice traditional food harvesting, into the Application. Determination of potential impacts and proposition of mitigation measures must be considered in the Application, but can only be meaningfully developed through direct consultation with BRFN.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR. The assessment carried out for the Project satisfies Part C of the AIR by providing an assessment of likely Project effects on Aboriginal Interests after the application of appropriate and effective mitigation as provided in Section 23. This has included consideration of available Aboriginal ATK, information from scientific research, literature review, as well as from consultations with potentially affected Aboriginal communities. Coastal GasLink is also committed to considering additional TK/TLU information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate. Additionally, Aboriginal groups can provide feedback concerning specific sites and planned mitigation in the context of the EAO working group.	BRFN disagrees that the assessment carried for the Project under Part C of the AIR adequately or accurately assesses the likely Project effects on BRFN interests. Effects on traditional food harvesting are not adequately assessed anywhere in the Application, this remains an outstanding concern. BRFN is unclear as to what specific information CGL has relied on in conducting this assessment, particularly given, as far as BRFN can tell, CGL has acknowledged that no BRFK TEK has been relied on in the application, and there has been no meaningful consultation with BRFN to date regarding the proposed Project. BRFN is also unclear as to how, or if at all, CGL has considered its interim and final TLU studies, which come to different conclusions than CGL with respect to Project impacts on BRFN rights and interests. BRFN requests that the Proponent outline how it has assessed Project impacts on BRFN's traditional food harvesting practices, if at all, and what BRFN and Project specific information was considered in this analysis. ad remains gravely concerned completed its TLU Study for this Project on May 30.	See response to issue tracking #1115. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN.
1125	Application Section 12.4.3	12-50	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Affected communities have expressed concerns over work-camp style and the impacts that this has on the local communities and economies. These concerns have not been addressed in the Application.	Proponent to identify, using readily available literature on this topic, benefits and adverse effects of long-distance commuting and work camp employment on First Nations workers, families and communities. Lessons learned from the literature and associated mitigation commitments are essential information that should be provided in the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is an inadequate response to the BRFN comment/request. As outlined above, BRFN reviewed the entire Application, and found it deficient, prompting the original request. BRFN requests that the EAO require the Proponent to meaningfully respond to this valid information request, which seeks only additional information about effects of work camp living and long-distance commuting on Aboriginal elements of the construction phase workforce, a critical concern that has long been subject to SEIA. We see no reason why it should be exempt in this EA, which has several large camps and will effectively require First Nations workers to live in camp environments.	Coastal GasLink completed a comprehensive assessment of potential adverse social effects in accordance with the AIR issued by EAO in May 2013. Community specific issues were considered in the assessment of the valued component, Community Quality of Life. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; and Aboriginal groups. Community-specific issues identified from these available sources include issues related to a presence of a large temporary workforce (Section 15.7.1) and are reflected in the assessment. Information about community quality of life and work environment can be found in the EA as follows: <ul style="list-style-type: none"> • Section 15: Community Quality of Life (section 15.7, page 15-98 to 15-103) • Section 23: Aboriginal Consultation • Social Technical Report (Appendix 2M): Community Quality of Life (page 7-1) • Social Technical Report (Appendix 2M): Summary of Social Issues for Aboriginal Groups (Appendix B, page B-13 to B-22) • Economic Technical Report

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											(Appendix 2N): Work Environmental Characteristics (section 3.4.2, page 3-65) • Economic Technical Report (Appendix 2N): Employment Practices (section 3.4.3, page 3-65) Coastal GasLink will continue dialogue with Aboriginal groups and local communities to address specific concerns in regards to construction camps.
1126	Application Section 12.4.1	12-20 to 12-21	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	BRFN has several Nation-owned businesses capable of taking on contracts associated with pipeline construction. Yet, there is no tangible or satisfactory plan in place around removing barriers to First Nations' ability to take advantage of business opportunities associated with the Project, let alone specific program details, targets, or identification of any mechanisms to rebalance distributional inequities in the business realm currently facing First Nations companies .	Coastal GasLink to provide more detail on all plans, programs and policies it is committed to that provide concrete details re: maximization of business and employment benefits likely to accrue to First Nations, including direct benefit tools as well as support for removal of systemic barriers to First Nations taking advantage of industrial wage employment and business opportunities. Currently this is a large gap in the Application.	Coastal GasLink follows TransCanada's Aboriginal Relations Policy and has implemented contracting programs which, designate selected activities for qualified Aboriginal businesses. Coastal GasLink will continue to meet, with Aboriginal groups to present information related to contracting opportunities. These meetings have included: community presentations, open houses, discussions with Chief and Council, discussions with companies and individuals that are partnered with Aboriginal Communities as well as Project Agreement sessions. Information gathered by Coastal GasLink from these meetings has been informed the procurement approach used on the Project.	Thank you for your response. BRFN maintains the request that more detailed information be provided in the Application review phase of the EA process. Without this information the effects cannot be adequately characterized because the likelihood of success for the only very loosely outlined mitigation to minimize adverse effects re: ability for First Nations people to take advantage of the Project, cannot be credibly estimated. For example, please provide specifics on how TransCanada's Aboriginal Relations Policy attempts to maximize business and employment benefits associated with the Project for First Nations, including BRFN members.	Coastal GasLink's prime contractors are required to maximize opportunities for Aboriginal participation for qualified Aboriginal businesses and individuals. Aboriginal participation is included in monthly contractor reporting and is monitored for both performance and compliance by Coastal GasLink.
1127	Application Section 12.4.3	12-52, 12-62 (Table 12-9)	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Coastal GasLink indicates it is in the process of developing training and education programs independent of First Nations and local community input. Aboriginal groups have little of substance to guide assessment of likely ability to take advantage of the Project without more information on: • specific First Nations preferential hiring and/or targets; • specific and detailed commitment to advance training for First Nations; and • evidence from TCPL case studies of the proportion of workers from Aboriginal communities in previous TCPL pipeline construction projects. The absence of detailed evidence of Project-related training and education programs at the time of Application, for a Project planned to break ground in 2015, is very troubling. More details are required in the final Application. At present, the lack of a detailed training plan makes the impact raised in Table	Training and education programs and opportunities must be developed in consultation with local First Nations, including BRFN.	Coastal GasLink confirms that an overview of the Aboriginal Participation Strategy is included in Section 1.5.7 of the Application. Coastal GasLink developed two programs to support community capacity building, namely, 'Pathways to Pipeline Readiness' which focuses on Local workforce readiness training directly related to the Project; and TransCanada 'Education Legacy Program' which aims for long-term community capacity building through education. Dialogue will continue with Aboriginal groups to enable and facilitate participation in these programs. Coastal GasLink is also supporting the development of community capacity including providing capacity funding for communities to engage with Coastal GasLink and building collaborative community partnerships focused on long-term community capacity building.	BRFN confirms that the Proponent's response is copied and pasted from the previous response to Comment 1028, and was equally inadequate. Please refer to BRFN's follow up comment on that line item. As outlined above, more information must be shared with BRFN during the EA process so we are comfortable with the adequacy of the conclusions - at this time we are not convinced either of the purported benefits in the application or the avoidance of adverse effects associated with continued differential ability for Aboriginal groups to take advantage of economic benefits associated with industrial development of our territory. Previous training and education programs have had mixed to poor results for our members. More information must be shared before this concern can be addressed, and plans to ensure the participation of BRFN members in the workforce must be developed in consultation with BRFN.	See response to issue tracking #1028.

Coastal GasLink Project: Working Group Comment Tracking Table

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
							12-9 "Lack of time to train local workers for skilled positions" an inevitable outcome. Based on the above, BRFN is troubled by the Proponent's estimation that there will be no residual effect related to this issue.				
1128	Application Section 12.5.1	Table 12-8 on p.12-56	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Mitigation strategies identified to enhance participation in contract opportunities are inadequate. How will Aboriginal companies compete with an influx of large, capital and equipment rich, outside companies? In Table 12-8, the Proponent suggests that there will be no residual adverse effect in the form of "limited participation in contract opportunities". This statement is not credible based on the mitigation put forward. This finding is subject to a high degree of uncertainty, and no evidence has been put forward to support the efficacy of this mitigation or the likely magnitude of this impact. This is inadequate, especially as it relates to the ability to take advantage of such developments of capacity constrained and barrier-ridden First Nations. This issue has not been adequately addressed in the Application.	Coastal GasLink needs to show evidence it is working well in advance with area Aboriginal companies to ensure that they are able to compete for the contracts at or above market standard. We strongly recommend the Proponent be required to reconsider its economic effects assessment and make it more meaningful for the most sensitive receptors – affected area First Nations, including members residing off reserve (i.e. in Fort St. John).	Beginning with the project announcement Coastal GasLink has been meeting with First Nations to gather information from First Nations about interests and capabilities regarding potential contracting opportunities. Coastal GasLink continues to support opportunities for Aboriginal participation in the Project.	CGL's original assertion in Table 12-8 is that there will be no residual adverse effect in the form of "limited participation in contract opportunities". This is an unsubstantiated statement at this point in the EA which currently relies on very loose and non-committal language such as that at left. BRFN requests either that additional supporting information re: concrete mitigation plans, policies and programs (gathering information about interests and capabilities, and loose and unverifiable statements of "support for Aboriginal participation" are by definition NOT mitigation) be provided by CGL on this topic, or that the EAO find that the Project will cause adverse effects via both "limited participation in contract opportunities" and "limited participation in employment opportunities" for Aboriginal groups.	Coastal GasLink confirms that updated information about engagement with Aboriginal groups, including information about discussions about economic opportunities, is included in Aboriginal Consultation Report 3.
1129	Application Section 12.5.1	Table 12-8 on p.12-57	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The economic effects assessment does not include consideration of "differential ability to take advantage" between Aboriginal and non-Aboriginal sub-populations. This is not acceptable practice of SEIA where there are large Aboriginal sub-populations with clearly different socio-economic starting points from surrounding populations and the population at large. This issue has not been adequately addressed.	Refocus a portion of the economic effects assessment to include consideration of "differential ability to take advantage" between Aboriginal and non-Aboriginal sub-populations. If the EAO does not require this disaggregation of baseline and effects assessment exposure between markedly different effects receptors (aboriginal and non-aboriginal sub-populations), the required assessment of "Aboriginal Interests" required by the EAO cannot be meaningfully completed.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. VCs and KIs were defined in the AIR. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered available information, including community reports developed by Aboriginal groups as noted on Page 12-5. Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment.	This is an inadequate response to the BRFN comment/request. As outlined above, BRFN reviewed the entire Application, including the noted section, and found it deficient, prompting the original request. BRFN requests that the EAO require the Proponent to meaningfully respond to the original request to refocus a portion of the economic effects assessment to include consideration of "differential ability to take advantage" between Aboriginal and non-Aboriginal sub-populations.	Coastal GasLink has completed the effects assessment according to the scope defined by the AIR issued by EAO in March 2013. The AIR had no requirement for segregating the assessment of potential adverse effects on the economies of Aboriginal and non-Aboriginal sub-populations. Coastal GasLink provided detailed information based on discussions with Aboriginal group representatives in the Application, and considered the various circumstances that affect how adverse effects and project benefits may be realized when characterizing the effects.
1130	Application Section 14.1	General, 14-1, Table 14-1	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Access to undisturbed land and nature is identified as a key value in the BRFN socioeconomic scoping and baseline report. This is not reflected in the list of VCs and KIs presented by the	The proponent should include VCs and KIs put forth by BRFN into the assessment including but not limited to the one noted here. These VCs and KIs should be jointly developed in consultation with BRFN, based on existing studies.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review		

Coastal GasLink Project: Working Group Comment Tracking Table

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							proponent		February 28 2014 and accepted the Application filed on March 3 2014.		
1131	Application Section 14.2	14-6	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Proponent's stated methods and rationale for determining valued component thresholds are not appropriate given that insufficient documentation review and research was conducted. Thresholds are essential for comparing data collected for each KI (or 'metric') and to compare the likely project or cumulative effect on the data to determine if a threshold is exceeded or not. Coastal GasLink's Application uses a flawed approach that cannot be accepted.	VC thresholds need to be articulated through meaningful dialogue with potentially impacted communities. Consultation with BRFN and dedicated TEK study is required to determine appropriate thresholds. Assessment must be revised in light with more appropriate thresholds.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is another generic and completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond.	Coastal GasLink maintains its original response.
1132	Application Section 14.4	14-19, 14-28, 14-30	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Relevant community identified VCs are not addressed as part of the 'key issues and concerns' discussion.	Incorporate community identified VCs into this discussion to ensure that they are addressed in subsequent portions of the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a generic and completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond. We note that previously, in response to Comment 1123, the Proponent stated "Community-specific issues identified from available sources, including the community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are reflected in the effects assessment." However, this is not the case in this instance, as VCs and KIs identified by BRFN in its community report are not reflected in the effects assessment.	Coastal GasLink maintains its original response.
1133	Application Section 14.4	14-49	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Desire future uses are not addressed.	The Application should include research, assessment of potential impacts and proposition of mitigation measures on the desire future land uses. Determination of desired future use can only be determined through consultation with BRFN.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO provide written guidance to the Proponent to integrate data on desired future use of Project-affected areas by Aboriginal groups into its Application support materials. Alternatively, BRFN requests EAO to identify how desired future use of lands and resources by Aboriginal peoples is being considered in this EA, given the EAO's stated confirmation to affected First Nations from February, 2014 (First Nations Working Group Meeting, Prince George, BC), that desired future use is an important aspect of the EAO process.	Coastal GasLink maintains its original response.
1134	Application Section 14.4	14-53	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The proponent concludes: "No conflicts were identified between management directions for the land use zones crossed and the proposed Project". This conclusion is based on an incomplete review, including failure to consider BRFN plans for project area.	The Proponent must consult with BRFN and revisit this conclusion.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		

Coastal GasLink Project: Working Group Comment Tracking Table

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1135	Application Section 14.4	14-82	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The ROW will be a long-term visual feature, BRFN has not been involved in the assessment of aesthetics.	Establish VQOs where the ROW plans to intersect with the lands used and relied on by BRFN for the practice of our treaty rights and ensure First Nations participation in reassessment of visual quality effects, which may well differ based on the values of the person viewing the altered landscape.	Coastal GasLink confirms that VQOs are established by the BC Ministry of Forests, Lands and Natural Resource Operations. Coastal GasLink reviewed the overlap between established VQOs and the Project route as presented in Section 14.4.5.	Thank you for your response. The adoption of VQOs established by the Crown (as represented by FLNRO), does not reflect the crucial value that BRFN and our members find in these objectives; that is, impact on land use activities - loss of enjoyment of traditional land use and occupancy and related decrease in participation and culture group well-being and quality of life. It is entirely because the VQOs established by the Crown do not consider culture-group specific values that we issued this request. To reflect the EAO process's goal that EA in BC be "values driven", we request the original information request be responded to in a meaningful way.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1136	Application Section 14.5	14-87 to 14-104	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Effects identified in independent reports are generally absent in the effects assessment without explanation. Reference to issues raised by BRFN are included in section 14.4 but are not carried forward to effects assessment.	More detailed integration of critical considerations raised in the BRFN socio-economic baseline study is required. Effects of the Project based on baseline data outlined in this study must be developed in consultation with BRFN.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered information from available sources to inform the assessment presented in Section 14, including available community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives. Community-specific issues identified from available sources, such as community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are included in the effects assessment.	This is a completely inadequate response to the BRFN comment/request. BRFN reviewed the entire Application, including the noted section, and found it deficient, prompting the original request. BRFN requests that the EAO require the Proponent to meaningfully respond.	Coastal GasLink received a socio-economic baseline data report from BRFN on January 29 2014, which is also the same date that Coastal GasLink filed its Application. Coastal GasLink looks forward to the opportunity to continue discussions about this report.
1137	Application Section 14.5	14-106 to 14-131	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The evaluation of significance is based on inaccurate assumptions. For each section, the estimated duration of the impact is short-term. However, there are many impacts that will be felt longer term and thus the significance estimate must be revisited. For example: Increased access along the proposed route is a longer-term impact that could open up harvesting areas to more and more people causing declines in hunted species.	Coastal GasLink to revisit effects characterizations. This must be informed by consultation with BRFN.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1138	Application Section 14.5	14-131 to 14-139	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Determination of significance and confidence are based on incomplete and flawed evaluation of residual impacts and impact of mitigation measures, do not reference appropriate local data sources and inadequately defend the determination.	Coastal GasLink to revisit estimation of significance once effects characterizations have been reassessed. Again, it is much preferable to have inputs from the affected parties themselves in this significance estimation exercise.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.

Coastal GasLink Project: Working Group Comment Tracking Table

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1139	Application Section 16.1.1	16-1	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The description of project interactions does not adequately describe the likely effects pathways as experienced by BRFN members. For example:</p> <p>a) There is no description of the effect pathway related to the perception of risk that is related to construction and operation activities that produce noise, dust, and other pollution on perceived contamination of food and medicine. This is a well-known and studied effect relationship that is considered in EA (Candler et al., 2011) and is known to lead to avoidance of an area at a much greater radial extent than the biophysical effect (Gibson, 2004).</p> <p>b) Long-term effects on loss of traditional knowledge in locations destroyed, locations where project reduces enjoyment of engaging in TLRU practices on land and water, and/or access is reduced or altered permanently.</p> <p>Candler, C. with the Athabasca Chipewyan First Nation. (2011, April 20). Athabasca Chipewyan First Nation Integrated Knowledge and Land Use Report and Assessment for Shell Canada's Proposed Jackpine Mine Expansion and Pierre River Mine. Gibson G, Froese K. 2004. Hazardous Waste: Disrupted Lives. First Nation Perspectives on the Alberta Special Waste Treatment Centre. Edmonton: Environmental Health Sciences, University of Alberta.</p>	<p>A revised Application should reflect that the construction of the proposed Project has the potential to directly and indirectly disrupt and change hunting, trapping, fishing, and gathering activities, including participation in these activities, by disturbing or destroying this use in areas where these practices occur. Effects may also occur indirectly through changes to broader ecological, socio-economic, cultural, and health systems. These effects may occur through temporary and/or permanent physical disturbance of land and resources, limited access, or increased public access to traditional harvesting areas and increased pressure on environmental resources. Perception of risk resulting from Project activities for all phases of the proposed Project is also a consideration in this assessment.</p> <p>Add consideration of the following effect pathways and outcomes to the TLRU effects assessment:</p> <ul style="list-style-type: none"> - Increased perceived risk resulting from Project activities for all phases of the proposed Project; and - Loss of traditional knowledge and TRLU practices related to specific geographic areas where enjoyment of being on the land and water is diminished and/or access is reduced or altered permanently. <p>Produce a revised effects assessment for TLRU accordingly, with active inputs from affected First Nations.</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that the TLRU effects assessment presented in Section 16 addresses the potential direct, indirect and cumulative adverse effects of the proposed Project in accordance with the AIR.	This is a completely inadequate response to the BRFN comment/request. BRFN confirms that our original comments still apply and that Section 16 remains inadequate. BRFN requests that the EAO require the Proponent to meaningfully respond to the original requests.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1140	Application Section 16	N/A	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>AIR for Coastal Gas Link, p. 16, bulleted list in section 3.4 requires that the Application include a Traditional Lands and Resource Use Technical Report: "Baseline information will be compiled based on the following technical reports: ... Traditional Land and Resource Use Technical Report ..." This appears not to have been included in the body or appendices of the Application.</p> <p>All third-party studies are missing from this section. BRFN and The Firelight Group undertook a Knowledge and Use study that is briefly referred to in Section 23 only, and in its interim, rather than final, form.</p>	<p>Effects assessment, mitigation, and significance for TLRU must be better informed by site-specific data collected as part of third-party studies. Greater reference to and incorporation of this material is not tangential to this effects assessment; it is fundamental and critical. The Proponent should reconsider effects on TLRU of BRFN based in large part on a more extensive incorporation of inputs from the Nation-specific TLRU. The current lack of meaningful incorporation of this material means this section of the Application is highly deficient and is inadequate to make informed estimations of significance of Project-related effects on TLRU and seriousness of Treaty right infringements caused by and contributed to by the Project. Direct consultation with BRFN is required to determine the significance of effects on BRFN Treaty rights and interests.</p> <p>Please indicate where the Traditional Lands and Resource Use Technical Report, required in the AIR, is located, or otherwise produce it.</p>	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The AIR does not require the submission of a "Traditional Lands and Resource Use Technical Report".	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond, including requiring the submission of a TLRU Technical Report. We note that at pgs. 16-17 of the final AIR, it is stated that: "Baseline information will be filed based on the following Technical Reports...Traditional Land and Resource Use Technical Report". It is expected practice in EA that all Technical Reports will be filed as appendices to the Application.	Traditional Use Studies for the Coastal GasLink Project were carried out within the terms of Traditional Knowledge Protocol agreements. Coastal GasLink will continue to act in accordance with these agreements and respect the confidentiality of the Studies. Coastal GasLink confirms that the BRFN Knowledge and Use Study Final Report was provided to Coastal GasLink on January 24, 2014. Coastal GasLink requested meetings to discuss site-specific mitigation in January and again in April of 2014, and continues to look forward to discussions at BRFN's earliest convenience as construction planning and detailed engineering design advances. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN.

Coastal GasLink Project: Working Group Comment Tracking Table

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1141	Application Section 16.4	16-5 to 16-8	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Spatial extent: On page 16-3, Coastal GasLink states that the "spatial and temporal extents of known subsistence resources are often defined by the action of the harvest itself and, consequently, examples of these traditional features are provided above".</p> <p>It is agreed that the extent of the TLRU VC must be defined by human behaviour (i.e. the "action of the harvest"). However the justification of study area boundaries on page 16-6 is not consistent with this statement on page 16-3 nor is it credible. The decision to use other VC spatial boundaries as a proxy for TLRU VC is not a credible approach. The majority of the KIs, including harvesting activities, use of travel routes, trails, habitation sites, and cultural sites, will interact very differently than other VCs (as already noted above). The spatial extent of the project-TLRU VC interaction, then, should define the boundaries of this study area.</p>	Coastal GasLink must revise the spatial boundaries for TLRU assessment for BRFN to reflect boundaries related specifically to potential interactions of the Project with traditional use activities, including appropriate buffer zones. This requires revisiting the spatial boundaries used by BRFN in its Project-specific TLRU study. Delete or revise Table 16-3, replacing references to proxy spatial boundaries for TLRU with community-accepted spatial boundaries.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond.	The assessment of potential adverse effects of the Project on traditional land and resource use was completed using the spatial boundaries identified in the AIR issued by EAO in May 2013. Coastal GasLink acknowledges the interaction between numerous valued components assessed in the Application and traditional land and resource use. As a result, the traditional land and resource use assessment cross references numerous other valued components and assessments presented in the Application. Individually established assessment boundaries are described in the discussions for each VC.
1142	Application Section 16.4	16-8	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Temporal limits of the Project are provided (i.e. construction and cooperation), but temporal characteristics of VCs are not provided, contrary to the EAO's VC Selection Guide (s. 3.1.2, at p. 16). This is necessary so that information can be collected to establish important social or seasonal cycles and longer-term trends with a certain degree of certainty.	Coastal GasLink must establish temporal characteristics for TLRU that allow for information to be collected to establish key cycles and trends for each KI.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond. Seasonal uses of territory are a part of BRFN cultural practices and Treaty rights and may provide valuable insights into the temporal distribution of effects and appropriate mitigation re: timing of activities.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1143	Application Section 16.5	16-9	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Baseline profiling of either current use, or pre-development use is almost completely absent. Section 11.3 of the AIR requires "identification of present, past and anticipated future uses and traditional use of the proposed Project area, including, but not limited to, using cultural research methods (e.g., Use and Occupancy Maps Surveys and library research)".	<ol style="list-style-type: none"> The proponent should be required to identify what documents were reviewed for the baseline characterization of BRFN use. BRFN is concerned the bibliographic listing provided is incomplete. \ The proponent should be required to identify what methods were used to verify the adequacy of these documents in describing TLRU KIs for this assessment. Evidence of this verification work must be provided (e.g. quotations from interview participants). The proponent should be required to provide a pre development and current use baseline for each aboriginal community. This is necessary to understand context of effects and trends, and to conduct a reliable assessment of Project and cumulative effects on use of lands and resources, as well as rights and interests. 	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. The adequacy or inadequacy of the EAO's screening review is not the subject here; the Application Review phase is open to discussion of all remaining information gaps and there are many remaining gaps in the understanding of traditional land and resource use. BRFN requests that the EAO require the Proponent to meaningfully respond to this and all requests for more information in what is currently an inaccurate and flawed Application characterization of traditional land and resource use in the area to be affected by the Project.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.

Coastal GasLink Project: Working Group Comment Tracking Table

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1144	Application Section 16.5	16-10	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	On line 22, Coastal GasLink refers to several third-party TLU studies but provides no reference to them in this section. All content is provided in Section 23. For comments on the adequacy of integration of information from those third-party TLU studies, go to comments on Section 23. Information presented here is very generic and offers limited insights into TLRU activities that are thus inadequate for baseline characterization, let alone for an effects assessment and significance estimation process.	Information on third-party TLU studies, including that of BRFN, is entirely missing from Section 16. This section of the Application must be revisited and properly informed by the results of these studies. Description of mitigation meetings and follow-up meetings that "confirmed the accuracy of the information" on TLU seems to apply to all First Nations. Is this the case? A more precise description of Nation-specific verification findings, including agreed upon points and remaining points of disagreement or data gaps is required.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 16 of the application presents the assessment of the potential adverse effects of the proposed project on traditional land and resource use. The information in Section 16 considers information provided in Section 23. Coastal GasLink continues to engage with Aboriginal groups as outlined in the Aboriginal Consultation Plan approved by the EAO. Coastal GasLink continues to facilitate mitigation meetings with interested Aboriginal groups. A discussion of mitigation occurred at a meeting with Nak'azdli Band and Nadleh Whut'en First Nation on January 16, 2014.	We are not sure why reference to Nak'azdli and Nadleh are referenced in a comment BRFN submitted. This is not acceptable. The EAO should require CGL to respond to BRFN's comment meaningfully. Including, by requiring CGL to outline how BRFN's TLU study was considered in section 23 (and therefore incorporated into section 16).	Coastal GasLink acknowledges that the previous response dated May 13 2014 was provided in error and apologizes for any inconvenience. Coastal GasLink confirms that the BRFN Knowledge and Use Study Final Report was provided to Coastal GasLink on January 24, 2014. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN.
1145	Application Section 16.6	16-11 (Table 16-4)	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The effects assessment for BRFN is absent. Section 11.3 of the AIR requires "identification of potential effects of the proposed Project on identified Aboriginal interests for each Aboriginal group, including effects to specific geographic areas identified as important". An effects assessment for each Aboriginal group is absent in Section 16 and appears nowhere in the Application. As outlined in the comments on Section 23, the same generic table (Table 16-4) is repeated in but has a different title, suggesting it is an effects assessment specific to BRFN, which it clearly is not.	BRFN is gravely concerned by the assessment of effects on BRFN TLRU and Aboriginal interests. Coastal GasLink has clearly not undertaken work to characterize potential effects for each First Nation and is therefore out of compliance with the AIR. The assessment is far too generic to assess for significance (for TLRU) or seriousness. Substantial revisions are required, including the integration of results from TLU into effect pathways specific to each First Nation. These pathways must consider specific geographic areas identified in these reports, such as identified key harvesting areas. Further review of this generic section is not useful until these critical deficiencies in the methods and scope of the assessment are addressed.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Issues tables are included in Section 23 of the Application identifying each Aboriginal groups' issues and concerns raised and also lists Coastal GasLink's mitigation response. Blueberry River First Nations' issues and mitigation table can be found in Section 23, Table 23-75.	This is a completely inadequate response to the BRFN comment/request. This section is generic and not useful for decision making purposes. BRFN requests that the EAO require the Proponent to meaningfully respond. Section 23, Table 23-75 has been reviewed carefully and it is clear that CGL is deficient as against the AIR as noted at left. This is a critical gap in the EA at this time.	See response to issue tracking #1140.
1146	Application Section 16.6	16-27	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Cumulative effects are a critical concern for BRFN. This section provides generic information. Substantial revision of this part of the Application is required.	Cumulative effects assessment must be Nation or territory specific. An assessment of cumulative effects on traditional land and resource use across the entire length of the Project is inappropriate and insufficient given the biophysical, cultural and traditional diversity of lands, resources and resource users along the Project route. Further to the comment directly above this, Nation specific information, provided through TLU studies must inform a cumulative effects assessment on this VC. Geographic and Nation specific assessments are required before appropriate mitigation measures can be developed. Mitigation measures must be developed in consultation with BRFN and other First Nations.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond to the original request.	See response to issue tracking #1120.
1147	Application Section 16.6	16-35 to 16-37; 16-48 to 16-48	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	BRFN is gravely concerned with the conclusions with respect to effects on current use of lands and resources for traditional purposes, and cultural sites effects assessments. As noted above, these assessments are based on an inadequate assessment of effects of the proposed Project of TLRU in specific territories and on specific Nations (see comment in line above). Mitigation measures cannot be determined without consultation with effected Nations. No meaningful consultation with BRFN on proposed mitigation measures has been undertaken to date. Until adequate assessment of project impacts on TLRU, and consultation with respect to mitigation measures has been	Conclusions under s. 16.6.9 and s. 16.7.9 must be revised. No such conclusion is appropriate in light of total lack of meaningful consultation with BRFN on mitigation measures.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond to the original request.	See response to issue tracking #1115. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN.

Coastal GasLink Project: Working Group Comment Tracking Table

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							undertaken, it is not possible to conclude that "there are no situations where there is a residual adverse effect or residual cumulative effect of high magnitude [on cultural sites and current use of lands and resources for traditional purposes] that cannot be technically or economically mitigated."				
1148	Application Section 18.4	18-10; 18-19	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>It is not clear how primary data collected for the third-party TLRU studies and how TEK was included in the assessment of heritage resources.</p> <p>TEK is a valuable resource for all phases of the assessment process, including for informing the location of field study sites. A very brief description of what is titled "TEK" in the Application is provided. It is not clear how this information was collected, how participants were selected, or how information was verified, considered, interpreted, and used in the assessment.</p> <p>It is unclear whether baseline studies with respect to archaeological and heritage resources are complete, and whether they will inform Project routing.</p>	<p>How did information on heritage and cultural features gathered through TLU studies inform the AIA? Have any archaeological or heritage sites been identified in BRFN territory in the Application?</p> <p>How has TEK been used to inform concepts like "archaeological potential" that inform field sampling locations? How did it inform KIs?</p> <p>How will TEK be studied in a way that is useful to the AIA phase of the assessment? Specific approaches and research methods must be provided.</p>	<p>Coastal GasLink confirms that Aboriginal participants are invited to participate in archaeological studies for the project. ATK information is recorded during field studies. If areas of potential archaeological sensitivity are identified by participants, the area may be investigated to support the AIA. When ATK information is gathered as part of other discipline studies, the information is shared with the archaeology team. Coastal GasLink confirms that AIA work is ongoing and activities will be carried out in compliance with the Heritage Inspection Permits.</p>	<p>The original request is not addressed; BRFN requests that the EAO require the Proponent to meaningfully respond to it. The response does not address the several initial questions related to how TLU studies informed the AIA. CGL refers again to the "collection of ATK information... during field studies", even though BRFN has already stated this is not the case as per BRFN policy, so this response is not applicable to BRFN. A third-party review of the Proponent's ATK data collection approach was conducted and found to be below accepted standard practice and failed to collect BRFN TEK. Due to inconsistencies in CGL's responses regarding the use of BRFN TEK, BRFN requests clarification as whether, if at all, CGL relies on BRFN TEK in their application. Is BRFN correct in understanding that no BRFN TEK was considered in the Application? If no, please specify what BRFN TEK was relied on and when it was collected.</p>	<p>Coastal GasLink is preparing its Archaeological Impact Assessment in compliance with regulatory requirements for submission in late 2014. Coastal GasLink continues to respect BRFN's request to participate in field programs, but acknowledges that BRFN participants in field programs will not be providing TEK.</p>
1149	Application Section 20.5.6	20-56	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Cumulative effects for health risks associated with traditional and country food quality has not been undertaken. Additional research on TLRU areas, the quality of foods in these traditional use areas (with particular time taken to consider bioaccumulation and parts of the plants/animals that are eaten), in relation to the population (i.e. the population and the effects on all important traditional use areas within each traditional territory).</p>	<p>Consideration of BRFN's knowledge and use study conducted for this Project must be considered in the overall assessment of cumulative effects on quality of traditional and country foods.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Potential Project-related chemicals are released as gases that do not accumulate in terrestrial country foods. Thus, the Project is not anticipated to have an effect on country food quality. The HHERA is used to evaluate the potential change in exposures to Project-related chemicals that may occur between baseline and Project cases. The same country food use and consumption rates are used to estimate baseline, Project and cumulative effects cases.</p>	<p>Thank you for your response. However, our treaty rights will be affected if our members perceive contamination or risk. An HHERA will show modeled exposure level changes, but our members may observe a change in smell or colour or landscape or noise or taste or risk or access on the land where they engage in TLU activities. The third party TLU study informs this analysis and does not appear to have been considered in the Application. This is a crucial gap that the EAO must have in order to understand the degree to which our rights will be affected. Please respond to this request.</p>	<p>Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.</p>

Coastal GasLink Project: Working Group Comment Tracking Table

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1150	Application Section 20	N/A	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>The effect pathway that considers the perception of risk related to noise, dust, and other pollution effects on food and medicine is not included in this assessment. This is a well-known and studied effect relationship that is considered in EA (see finding of significant cumulative effects on Aboriginal traditional land use, rights, and culture, para 9 of Joint Review Panel report for Shell Jackpine Mine Expansion, in response to ACFN submission, Candler et al., 2011).</p> <p>Candler, C. with the Athabasca Chipewyan First Nation. (2011, April 20). Athabasca Chipewyan First Nation Integrated Knowledge and Land Use Report and Assessment for Shell Canada's Proposed Jackpine Mine Expansion and Pierre River Mine.</p>	<p>Perception of risks must also be assessed as a possible effect pathway. This effect pathway must be added to Table 20-3. BRFN's Knowledge and Use Study, and Socio-economic Baseline Profile prepared for this Project must be carefully reviewed to consider likely effects on human behavior, especially as it relates to harvesting use areas. If quality of food/medicines are perceived to be degraded, then a residual effect must be characterized, as well as a cumulative effect. Mitigation measures must be developed through targeted and specific consultation with affected First Nations, including BRFN.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p> <p>The risk assessment framework, developed by Health Canada, that is used to complete this evaluation does not incorporate considerations of potential community health impacts associated with decreases in country food consumption rates due to perception concerns.</p>	<p>See comment 1149 above. Thank you for clarifying that the Health Canada risk assessment framework does not incorporate risk perception. The original request is not addressed; BRFN requests that the EAO require the Proponent to meaningfully respond to it. It is clear that this framework does not address our concern about perceived risk. A large body of scientific evidence, as well as precedent in EAs, clearly demonstrate that perceived risk is a crucial factor to consider. We request the EAO require additional information be gathered related to the characterization of effects of perceived risk on country food production and consumption. Without this information, the environmental assessment will not properly assess effects on health, traditional harvesting, or Aboriginal and Treaty rights.</p>	<p>Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.</p>
1151	Application Section 21.1.4	21-6	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Missing potential accidents and malfunctions modes related to operations.</p>	<p>Add the following to Tables 21-3 and 21-4 and subsequent sub-sections: - seismic events causing pipe rupture or landslides in areas of reduced terrain integrity</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential accidents or malfunctions to meet the requirements outlined in the AIR issued by EAO in May 2013.</p> <p>Seismic events are discussed in Section 22 of the Application, in the risk assessment of Effects of the Environment on the Project.</p>	<p>Response is sufficient.</p>	
1152	Application Section 21.2.2	21-11 (Table 21-4)	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Several potential adverse effects identified in Table 21-3 as interacting are missing from this table (Table 21-4). Notably effects on Traditional Land and Resource Use. Effects on harvesting activities do not occur in a linear way through a biophysical effect. This is a social activity and must be studied as such. Potential interactions include perceived contamination resulting from the spill that leads to avoidance of an area of a much greater radial extent than the biophysical effects (Gibson and Froese, 2004).</p> <p>Gibson G, Froese K. 2004. Hazardous Waste: Disrupted Lives. First Nation Perspectives on the Alberta Special Waste Treatment Centre. Edmonton: Environmental Health Sciences, University of Alberta.</p>	<p>Recommend adding additional direct effects on TLRU activities resulting from identified accidents and malfunctions. This must include consideration of the effect pathway linking the accident/malfunction and an actual decrease in participating in that activity due to an increase in perceived risk. This will result in a potential adverse effect on this VC that is not captured.</p> <p>This effect pathway is likely to be found for the following: - Spills - Pipeline leak or failure - Fires or explosions - Acid rock drainage/ metal leaching</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential accidents or malfunctions to meet the requirements outlined in the AIR issued by EAO in May 2013.</p> <p>Assessment of potential adverse effects on traditional use are addressed in Sections 16 and 23 of the Application.</p>	<p>This is an inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond to the original request. The assessment of potential adverse effects on TLU does NOT consider the potential effects - real or perceived - of accidents and malfunctions.</p>	<p>In accordance with the AIR, Coastal GasLink completed an assessment of risks to the identified valued components that may result from an accident or malfunction in Section 22 of the Application. Table 21-3 of the Application provides a matrix of project interactions between potential accidents or malfunctions. In this table, Coastal GasLink indicated that the valued component Current Use of Land and Resources for Traditional Purposes may be affected by the following potential accidents or malfunctions: spills, pipeline leak or failure, fires or explosions, acid or metal leaching, and sediment releases. The risk assessment for each of these potential accidents or malfunctions are presented in Sections 21.2 (Spills), 21.3 (Pipeline Leak or Failure), 21.5 (Fires or Explosions), 21.8 (Acid or Metal Leaching), and 21.9 (Sediment Releases).</p>
1153	Application Section 23	23-3	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>BRFN is no longer on Schedule C of the s. 11 Order for this EA.</p>	<p>Application must be revised to remove BRFN from line 7 of pg. 23-3.</p>	<p>Coastal GasLink acknowledges the Section 13 Order issues February 21, 2014 that placed BRFN on Schedule B of the Section 11 Order</p>	<p>Response is sufficient.</p>	

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1154	Application Section 23.18	23-478 to 480	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Baseline profiling is almost completely absent. Section 11.3 of the AIR requires "identification of present, past and anticipated future uses and traditional use of the proposed Project area, including, but not limited to, using cultural research methods (e.g., Use and Occupancy Maps Surveys and library research)".	Information, including all references to documents, in this section is wholly inadequate. The section describing TLRU information relies almost entirely on Bouchard and Kennedy (2011), which was prepared for a separate, geographically distinct, project. Baseline data provided with respect to BRFN use (traditional, present and future) of the area effected by the proposed Project is wholly inadequate. The Application must be revised to include project-specific data collected in consultation with BRFN, including the Knowledge and Use Study prepared by BRFN for this Project, and the Socio-economic Baseline Profile prepared for this Project. Additional project specific information, including BRFN TEK, must also be collected to enable an appropriate characterization of BRFNs' treaty rights and interests as they are engaged by this Project. Further, the total lack of description of BRFN's rights under Treaty 8, inclusive of the oral promises of the treaty, as they are engaged by the Project is wholly unacceptable. The Application must be revised.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms receipt of the BRFN Knowledge and Use Study Final Report provided to Coastal GasLink on January 28, 2014. Coastal GasLink understands a revised Final Report is forthcoming. Upon receipt of the final report, Coastal GasLink expects to discuss site-specific mitigation with BRFN based on the report.	This is not an adequate response to such a critical issue for BRFN. The EAO's determination of effects on BRFN rights must be grounded in the best available information. CGL has failed to address BRFN's original comment. BRFN is particularly concerned that CGL has received BRFN's Knowledge and Use Study for the Project, and will consider a revised final report (revised due a route change on which BRFN was not consulted) to consider mitigation, but will <u>not</u> rely on this information to assess impacts of the proposed Project. Mitigation (in addition to the avoidance and/or accommodation of Project impacts on BRFN rights and interests) cannot be properly determined without the best available information, which necessarily requires the consideration of the most up to date Knowledge and Use report and the consideration of this report in direct consultation with BRFN. Further, for the public record, as part of the EA process, BRFN respectfully requests that this section is revised and re-submitted to reflect the information that was found in the 2014 Knowledge and Use report.	See response to issue tracking #1115. BRFN advised Coastal GasLink via e-mail on April 25 2014 that the TLU report was being revised. Coastal GasLink looks forward to receiving this final report and discussing site-specific mitigation with BRFN.
1155	Application Section 23.18	23-481	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Table 23-73 includes distances of generic sites/locations of activities from the Project, suggesting - without any supporting evidence - that most TLRU activities for BRFN take place beyond the footprint of the Project. This is highly misleading, and is likely the result of reliance on the Bouchard and Kennedy (2011) report, prepared for the Site C, a geographically distinct project.	Table 23-73 is wholly inadequate, and must be revised with Project-specific information. The TLRU assessment section of the Application is deficient. Major revisions are required before any significance estimation can be made with any level of confidence. BRFN's Final Project-specific Knowledge and Use Study and Socio-economic Baseline Profile must be more fully considered throughout the entire effects assessment.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	CGL has failed to address BRFN's original comment, a substantive response is required. EA timelines unilaterally determined without the input of BRFN do not excuse the lack of meaningful incorporation of information from properly conducted TLU (BRFN Knowledge and Use Study) and SEIA (Socio-economic Baseline Profile) work by the Nation. BRFN requests that the EAO require the Proponent to meaningfully respond to the initial request.	See response to issue tracking #1154.
1156	Application Section 23.18	23-483 to 485	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Characterization of engagement activities are misleading. The Proponent's engagement with BRFN to date has been preliminary in nature, and has been limited to the exchange of preliminary information with respect to the Project, and BRFN's interests with respect to the Project. Discussions regarding contracting and employment, Project benefits, and the selection of the proposed route have been entirely preliminary in nature and not at all constituting meaningful consultation. Planned engagement activities (line 7 to 11) have been developed unilaterally by the Proponent and are not representative of the issues of importance to BRFN with respect to this Project.	The Application must be revised to clarify that engagement with BRFN to date has been preliminary in nature. Any determination of the extent to which BRFN's treaty rights and interests are likely to be impacted by the Project is not complete (see comments in line above). Amongst other things, a dedicated TEK study and assessment of cumulative effects of Project on BRFN rights is required. Neither has been undertaken to date.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms receipt of a final BRFN Knowledge and Use Study Final Report provided to Coastal GasLink on January 28, 2014. Coastal GasLink understands a revised Final Report is forthcoming. Upon receipt of the revised final report, Coastal GasLink expects to discuss site-specific mitigation with BRFN based on the report.	CGL has failed to address BRFN's original comment, a substantive response is required. Reliance on the AIR requirements does not justify mischaracterizing CGL's engagement with BRFN (or lack thereof) to date. It is BRFN's view that the revised Knowledge and Use Report must be used to inform both the assessment of Project impacts on BRFN rights and interests (which is currently inaccurate and incomplete), and to avoid, mitigate and accommodate these impacts. CGL's suggestion that the TLU will form the basis of mitigation discussions alone is disappointing. Does CGL commit to revisiting its assessment of Project impacts on BRFN rights and interests in light of the revised knowledge and use study?	See response to issue tracking #1154. Changes to the Application at this stage of the Application Review are not anticipated.

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1157	Application Section 23.18	23-486	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The Application references the interim Knowledge and Use Study (Olson and DeRoy, 2013) prepared for this Project. Important information such as the fact Sukunka River corridor "is one of the last remaining undisturbed areas" where members harvest resources (moose, fish, other game, berries, etc.) – it is an area "preferred for practicing traditional activities" does not appear to have been considered in the Application. This is some of the most critical context and necessary focus for this EA. BRFN is concerned that the Proponent has inappropriately selected information from the Knowledge and Use Study. BRFN is gravely concerned by the lack of consideration of cumulative effects.	The Application should be revised to include reference to the Final Knowledge and Use Study, including relevant maps and key information. Use of this information in the EA should be developed in consultation with BRFN. Important unanswered questions include the extent to which the Project will alter/disturb/destroy areas BRFN members prefer to practice their traditional activities. This question is not broached in the Application and must be. How has cumulative effects assessment on BRFN TLRU considered the additional effects of the Project on the Sukunka River corridor? Has Coastal GasLink considered how many preferred sites for the practice of BRFN treaty rights remain?	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink received and summarized the interim BRFN Knowledge and Use Study Interim Report dated August 30, 2013, for use in the application. This summary can be found in Section 23.18.2: Practices, Traditions or Customs Identified through Engagement Activities. Coastal GasLink confirms receipt of a final BRFN Knowledge and Use Study Final Report provided to Coastal GasLink on January 28, 2014. Coastal GasLink understands a revised Final Report is forthcoming. Upon receipt of the revised final report, Coastal GasLink expects to discuss site-specific mitigation with BRFN based on the report.	As outlined in the comments above, the summary in Section 23.18.2 does not address our concerns. It has not been meaningfully considered or integrated into this Application. This is a crucial issue for BRFN. We respectfully request that this section be revised and re-submitted to reflect the information that was provided in the final 2014 report dated May 30, 2014.	Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation. Changes to the Application at this stage of the Application Review are not anticipated.
1158	Application Section 23.18	23-487	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	BRFN is troubled by the Applications reference to bio-physical field studies to identify BRFN issues and concerns with the Project. BRFN has reviewed the data collected during these field studies and found that the information was entirely deficient and recommended that it be "rejected on the basis that it is an inaccurate in its depiction of "TEK", and prejudicial to BRFN rights and interests due to its methodological inadequacies and the inaccuracies and gaps" (The Firelight Group, 2014 , at p. 14). The report "does not represent the knowledge of the nation" and that it must "not be relied on to set out BRFN's interests or to assess this Project in any way" (p. 14). BRFN required that the Proponent not rely on this information as it, in no way, represented BRFN's TEK or interests. It is entirely unacceptable that the Proponent has relied on this information despite BRFN's explicit request that it not. The Firelight Group. (2014, Jan 24). Comments on Adequacy of Information in Traditional Ecological Knowledge Field Program for the proposed Coastal GasLink Project.	Reference to bio-physical field studies, and any information gleaned from those studies and relied on in s. 23.18 must be removed from the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	CGL has failed to respond to BRFN's comment. Has CGL relied on information gleaned from biophysical field studies for the proposed Project to collection information with respect to BRFN's rights and interests, including TEK? If so, does CGL agree this information was collected inappropriately, and does not, in any way, represent BRFN's TEK? BRFN requests that the EAO take action to require CGL to fill this critical gap in the Application by conducting a dedicated TEK Study.	Coastal GasLink confirms that BRFN representatives participated in biophysical field studies but did not provide TEK. Coastal GasLink is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.
1159	Application Section 23.18	Table 23-75, starting at pg 23-487	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	The issues and concerns table, and proposed mitigation measures, are wholly inadequate to address BRFN's concerns with respect to the Project.	A dedicated TEK study and the Final Knowledge and Use Study, and Socio-economic Baseline Profile prepared by BRFN with respect to the Project, must inform BRFN issues and concerns. Further, these issues must be confirmed through consultation with BRFN, which has not occurred to date. Mitigation can only be developed in direct consultation with BRFN, this remains outstanding. Table 23-75 must be revised through consultation with BRFN.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms receipt of a final BRFN Knowledge and Use Study Final Report provided to Coastal GasLink on January 28, 2014. Coastal GasLink understands a revised Final Report is forthcoming. Upon receipt of the revised final	CGL has failed to respond to BRFN's comments. The original request and subsequent response identify there are several outstanding actions that must occur before the Application Review period for this EA is complete. They include additional and proper ATK/TEK data collection along the proposed pipeline route, identification of mitigation in consultation between BRFN and CGL, and associated revisions to	See response to issue tracking #1115.

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									report, Coastal GasLink expects to discuss site-specific mitigation with BRFN based on the report.	the Application itself (e.g., Table 23-75 and other elements of the Application). BRFN respectfully submits that this work should have proceeded prior to the issuance of - and acceptance as complete by the EAO of - an Application.	
1160	Application Section 23.18	23-500 (Table 23-76)	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Section 11.3 of the AIR requires "identification of potential effects of the proposed Project on identified Aboriginal interests for each Aboriginal group, including effects to specific geographic areas identified as important". An effects assessment for each Aboriginal group is absent in Section 16 and is unsuitably generic in Section 23.</p> <p>As outlined in the comments on Section 16, the same generic table (Table 16-4) is repeated in Section 23 but is re-titled, "Potential Adverse Effects on Aboriginal Interests Identified by Blueberry River First Nations". The effects identified for BRFN in Section 23 are the same effects identified for all First Nations lumped together in Section 16. There are examples where words are inserted to replace "participating Aboriginal groups" with "Blueberry River First Nations" when referring to "site-specific mitigation". However, no effects are identified that are unique to BRFN. This is wholly inappropriate and unacceptable.</p>	<p>BRFN's treaty rights interests, and the effects of the proposed Project on those treaty rights and interests, are unique to BRFN. The Proponent's failure to recognize this, and to use substantially the same table for all First Nations (see Table 16-4 and Table 23-76) is not appropriate. The assessment of Potential Adverse Effects on BRFN's rights and interests are BRFN specific, and must be determined in consultation with BRFN. Similarly, mitigation must be issue, and Nation specific. Table 23-76 must be removed from the Application and replaced with an assessment of potential adverse effects on BRFN rights and interests that is developed in consultation with BRFN. As it stands, Table 23-76 only identifies interests summarized by the Proponent, and not by BRFN as the table suggests.</p> <p>Additional work needs to be undertaken to consider existing third-party TLU studies to develop a list of potential Project effects and undertake an assessment for each First Nation and specific geographic areas important to each First Nation as outlined in these studies. Assessments will then create a more focused and specific set of mitigations. Without this effort, an informed EAO impact seriousness determination is impossible.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p> <p>Coastal GasLink confirms receipt of a final BRFN Knowledge and Use Study Final Report provided to Coastal GasLink on January 28, 2014. Coastal GasLink understands a revised Final Report is forthcoming. Upon receipt of the revised final report, Coastal GasLink expects to discuss site-specific mitigation with BRFN based on the report.</p>	<p>CGL has failed to respond to BRFN's comment. Please provide a substantive response. BRFN notes that there simply is not enough information in the Application to support a credible informed estimation of the seriousness of potential impacts of the Project on BRFN Treaty 8 rights. BRFN requests that the EAO require the Proponent to meaningfully respond to fill in this information gap through dedicated response to our original request and/or additional Crown Information Requests. The Crown must ensure that a full and proper assessment of the effects of the proposed Project on BRFN.</p>	<p>Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.</p>
1161	Application Section 23.18	23-509	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>As noted in the comment directly above, proposed mitigation strategies have been unilaterally developed by the Proponent and are not informed by an appropriate effects assessment. The mitigations proposed in Table 23-76 are wholly inappropriate.</p>	<p>Mitigation measures must be developed in consultation with BRFN.</p>	<p>Coastal GasLink has prepared a complete assessment in accordance with the AIR issued by the EAO in May 2013. Section 23.18 of Application and the Aboriginal Consultation Reports 1 and 2 provide a description of Coastal GasLink's engagement with Blueberry River First Nations to date. As described in Section 23.18.2, Coastal GasLink plans to continue dialogue with BRFN to discuss various topics including mitigation</p>	<p>CGL has only partially addressed BRFN's original comment. Does CGL commit to developing targeted and specific mitigation measures regarding Project impacts on BRFN territory through meaningful consultation with BRFN, in addition to considering appropriate avoidance and/or accommodation measures? No meaningful consultation has occurred with BRFN to date.</p>	<p>See response to issue tracking #1115.</p>
1162	Application Section 23.18	23-509	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	<p>Effects characterization is not completed in section 23. Rather, Coastal GasLink refers the reader to the even more generic assessment in Section 16 (see lines 13-19 on p. 23-509). This assessment characterizes residual effects for all First Nations, together. However, Coastal GasLink appears to have identified two additional residual effects for BRFN, though the effect pathways and location of likely effect are entirely unclear: "disturbance of gathering places" and "disturbance of sacred areas" (p. 23-509). These are not characterized in Section 16.</p>	<p>In light of the comments above, the determination of effects on BRFN must be revised in consultation with BRFN. The assessment is too generic to determine the seriousness of the identified potential residual effect and must be found deficient. Major revisions are required to the approach taken in Sections 16 and 23 of the Application.</p>	<p>Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.</p>	<p>This is a completely inadequate response to the BRFN comment/request. BRFN requests that the EAO require the Proponent to meaningfully respond, and to revise its determination of Project effects on BRFN through meaningful consultation with BRFN.</p>	<p>Coastal GasLink maintains its original response and confirms that it is committed to considering additional TEK made available by Aboriginal groups to inform ongoing construction planning and detailed engineering design, as appropriate, as well as informing the development of site-specific mitigation.</p>

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1163	Application Appendix 3A	general	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	This list is impossible to review. Information appears to be copied from Provincial Government land use permitted components and is not a list of projects and activities at all. For example, Dokie Wind Energy Inc. is described in 250 repeated rows as "commercial/industrial facilities/features" with different activity-VC interactions (some with most VCs and others with only the economic VC in the RSA). There is no description of Dokie Wind Energy Inc. for a review to understand why they would have a different interaction for these rows.	Revise CEA List to define specific projects and activities so interactions between past/existing/future projects/activities and VCs can be identified.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects to meet the requirements outlined in the AIR issued by EAO in May 2013. The CEA Inclusion list has been prepared according to the requirements of the AIR.	CGL has not provided a meaningful response to BRFN's comments. BRFN requests that the EAO require the Proponent to meaningfully respond so that BRFN can understand the scope of projects included in the Proponent's cumulative effects assessment.	Coastal GasLink maintains its original response.
1164	Addendum March 2014	93	N/A	22-Apr-14	Emma Hume, Ratcliff & Company LLP	Blueberry River First Nations	Consultation on proposed Project alignment changes did not involve consultation with BRFN. KP3+000 Corridor Widening would affect BRFN interests.	Why was BRFN not consulted on the KP3+000 corridor widening? Please note: BRFN has not had enough time to review the Addendum material and reserves fuller comments to a later date.	Coastal GasLink confirms as detailed on page 3 Table 1-1 of the Addendum to the Application for an Environmental Assessment Certificate, BRFN were not consulted on the KP3+000 corridor widening as the modification was in response to a landowner request on private property.	Response is sufficient.	
1165	Application Section 5.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	This section appears thorough and complete. The OGC will assess in more detail whether the requirements for site restoration under section 19 of the Environmental Protection and Management Regulation (EPMR) have been met during the OGC permitting process. Should be referencing BC OGC Application Requirements for Activities Planned in the Agricultural Land Reserve Manual (2013)	Comment noted.		
1166	Application Section 5.6	N/A	N/A	25-Apr-14	OGC	OGC	N/A	Section 5.3.1 Page 5-6, line 9: Statement "adverse effects on terrain [...] are localized and confined to the proposed Project Footprint does not seem accurate. Upslope or downslope issues or evidence could have an impact (e.g. evidence of old spillways, runouts, the pipeline could cause downslope instability, etc.). Table 5-8 generally: It is difficult to determine whether mitigation is appropriate. 'Drainage Improvement Measures' and 'Erosion Control Measures' could mean a number of things. More detail on this will be required in the EA and/or OGC permitting phases. Section 5.6.2, page 5-51, lines 1 and 2, and Section 5.6.3, page 5-51, lines 3, 4 and 5: there does not appear to be sufficient information at this time to conclude that there are no potential adverse effects. The presence of the pipeline and changes to slope as a result could cause long term increase in instability/landslides/etc. . Further assessment of this will be needed.	Acknowledged.		
1167	Application Section 5.7	N/A	N/A	25-Apr-14	OGC	OGC	N/A	This section appears to be thorough and complete.	Comment noted.		

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1168	Application Section 6.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	The predicted noise level for the Wilde Lake Compressor station is less than the 40 dBA permissible sound level at 1.5 km specified in the BC Noise Control Best Practices Guideline. Acoustic report indicates Low Frequency Noise at all eight residences within 5 km of Wilde Lake Compressor Station. It does not address why Low Frequency Noise will not result in noise impacts.	Coastal GasLink confirms that the effects assessment for noise is performed by assessing the predicted sound levels at receptors against the regulatory thresholds, requirements, and guidance. It is generally accepted that if noise emissions from a facility comply with the regulatory limits and guidance, the effects are considered as acceptable or not significant. If regulatory guidance is exceeded the effects are generally considered significant. For Wilde lake Compressor Station, the regulatory guidance regarding noise emissions (including the low-frequency noise) was met. In regard to low-frequency noise (LFN), there are no regulatory limits on noise levels. However, both Health Canada and BC OGC provide a guidance as to the circumstances under which the low frequency noise effects may become significant. The first consideration in the assessment is the difference between the C-weighted and the A-weighted noise levels. If such difference exceeds the cautionary limit (10 dB for HC and 20 dB for BC OGC) a further assessment should be conducted. If the cautionary limit is not exceeded, it can be said that LFN is adequately masked by the overall noise and its effects are not significant. For residences near Wilde Lake Compressor Station, the HC and BC OGC cautionary limits are exceeded and correspondingly further effects investigations were performed in accordance with BC OGC Guideline and HC Guidance. Wilde lake compressor station is not expected to produce low-frequency tones and the noise emissions from the station in 16-Hz, 31.5-Hz and 63-Hz octave bands are predicted to be below 65 dB. Correspondingly, as described in Section 6.5.3 of the EA, the magnitude and character of the LFN were found to be within the BC OGC and HC guidance and therefore, the effects were classified as not significant.		
1169	Application Section 6.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	This will be reviewed in more detail during OGC permitting. The report also states that follow up and monitoring may be required. OGC will require that they conduct a noise survey to confirm noise levels following start-up of Wilde Lake Compressor Station.	Acknowledged.		

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1170	Application Section 6.6	N/A	N/A	25-Apr-14	OGC	OGC	N/A	<p>The dispersion modelling runs used to assess the potential impacts on ambient air will be reviewed by the OGC in relation to the issuance of any required permits under EMA.</p> <p>There is a potential concern regarding meeting ambient standards. Page 6-6 mentions several existing ambient air quality standards and objectives. The table and text do not appear to include any reference to the Canadian Council of Ministers of the Environment (CCME) work that is ongoing. Under the new Air Quality Management System (AQMS) there may be changes to the federal SO₂ and NO_x standards see http://www.ccme.ca/about/communiques/ text to note: "Governments have agreed on new standards under the AQMS for fine particulate matter and ozone, the two main components of smog. Work has also begun on new standards for sulphur dioxide and nitrogen dioxide, which are significant components of air pollution." Page 6-40 indicates the NO₂ levels are within 30-69% of the range for existing ambient standards for 1 hour average, the contribution to the 24 hour and annual ambient standards would be useful to include. The OGC will assess the application of any updated standards, if any, in relation to any required EMA permits.</p> <p>Additional detail regarding the emissions released during construction could be included. This could include emission estimates for construction equipment, and welding operations. With the exception of PM₁₀ from road dust, it is likely true that these will not result in exceeding ambient standards and should be relatively straight forward to provide.</p> <p>Other minor questions that should be addressed for completeness:</p> <ul style="list-style-type: none"> • Page 6-34 - What is the other existing source in the vicinity of the Wilde Lake compressor station? Could it be expanded in future to have increased emissions? • Page 6-39 – The brief discussion on ozone formation is not clear and the application does not appear to rule out a potential ozone problem. Stantec 	Coastal GasLink confirms that the notes included in Table 6-3 (page 6-6) indicated that the Canadian Ambient Air Quality Standards are referenced. Coastal GasLink will address the changes to SO ₂ and NO _x objectives when the announcements are made. The Air Quality TDR provides the results for the 24-hour and annual predictions. Additional information may be required during permitting. Appendix C of the air quality TDR has detailed construction emissions. Ozone formation is driven by two major classes of directly emitted precursors: nitrogen oxides (NO _x) and volatile organic compounds (VOC). The relation between O ₃ , NO _x and VOC is driven by complex nonlinear photochemistry. The EA statement referred to states that any increases in ozone will be minimal due to interactions with the ambient NO _x and VOC concentrations.		
1171	Application Section 7.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	This section appears to be thorough and complete and aligns with OGC regulatory requirements.	No response required.		
1172	Application Section 7.6	N/A	N/A	25-Apr-14	OGC	OGC	N/A	This section appears to be thorough and complete and aligns with OGC regulatory requirements.	No response required.		
1173	Application Section 7.7	N/A	N/A	25-Apr-14	OGC	OGC	N/A	<p>Generally thorough with abundant material drawn from various "Guideline" documents. The content appears consistent with regulatory requirements. A few comments from Table 7-30 are provided:</p> <p>Ensure all notifications are completed in accordance with the BC Water Act and Water Regulations - The OGC does not currently have authority to use the notification process defined in the Water Regulation. At the present time the proponent will require approvals under Section 9 of the Water Act, for "works in and about a stream".</p> <p>Schedule instream work for low-flow periods when possible – There is no indication of what the proponent will do to ensure protection if instream works cannot be done during periods of low flow. Table 7-8 indicates that works will follow instream "work windows" (except under frozen channel, dry channel, or where trenchless techniques are used, or where approved in a permit). If, during the instream work window: river flows are high (e.g., due to summer rain), detail on implication to construction or risk mitigation would be helpful.</p>	Coastal GasLink will ensure all notifications and approvals will be forwarded to the appropriate regulatory agencies as required. Every effort will be made to construct pipeline watercourse crossings in low flow periods that also coincide with instream windows of least risk. In situations where high flow is experienced during construction, appropriate mitigation will be implemented. Appendix C of Appendix 2 provides the Adverse Weather and Flood and Excessive Flow Contingency Plans.		

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1174	Application Section 7.8	N/A	N/A	25-Apr-14	OGC	OGC	N/A	Re: EPMR 4(a) – protection of water supply wells within 100 m of pipeline corridor. The hydrogeology report (21 Hydrogeology_Rev_1.pdf) indicates that the BC Wells Database was used to identify registered groundwater wells in the area to indicate locations of groundwater use, and that field reconnaissance was not completed for the hydrogeological characterization. While this approach provides an indication of general areas of groundwater use, the Wells Database is known to be incomplete and in many cases inaccurate. Aquifers in the area of operational and abandoned wells may be vulnerable to near surface disturbances due to infiltration of surface drainage at recharge areas or at the well bore; therefore it is important to confirm well locations and groundwater use in the field in order to mitigate potential impacts. It is expected that OGC permitting will involve confirmation of actual well locations, use, and capture zones and specific mitigation actions where impacts may occur. Stantec	Coastal GasLink confirms that Table 4-1 in the Hydrogeology TDR notes that the proposed route crosses seven (7) aquifers mapped by BCMOE – six (6) are classified as having “low vulnerability” and one (1) [i.e., Aquifer #0646] as having “moderate vulnerability”. The Hydrogeology TDR (Section 4.1.8) also refers to four (4) inferred aquifers – three (3) with “low vulnerability” near the communities Anzac, Endako and Savory, and one (1) potentially with “high vulnerability” near the Municipality of Kitimat. Wells constructed in the nine (9) mapped and inferred “low vulnerability” aquifers have no risk of constructed related water quality effects, as these deeply buried water sources are naturally protected from surface sources of contamination, including surface water with elevated TSS. Accordingly, OGC permitting will include requisite confirmation of the locations, operational condition/use and capture zones (if required) and corresponding mitigations for registered and unregistered wells within 100 m of the Project and constructed within mapped Aquifer #0646 and the inferred aquifer near the Municipality of Kitimat.		
1175	Application Section 7.8	N/A	N/A	25-Apr-14	OGC	OGC	N/A	Table 7-39 – Disruption of groundwater flow during construction is indicated as a short term potential environmental effect. The longer term potential influences/disruptions on groundwater flow where springs (or shallow groundwater) are intersected could be further discussed. There is potential for a local spring to be diverted in long term due to the intersection with a higher permeability pipeline trench. How might the above considerations affect the analysis of “duration” and “reversibility”. Table 7-38 (also Table 26B)– Mitigation could be expanded with: • specific indication of how the above concerns related to wells will be addressed – locating existing wells and preventing impacts • more detail regarding mitigation for any short term disruptions on groundwater availability in nearby wells if they occur (this is addressed in Table 26B but not 7-38) • more detail regarding the type of mitigation that would be implemented if a spring or shallow groundwater were encountered so that short term and long term disruptions in groundwater flow are minimized	Construction and operation of the Project does not require withdrawal of groundwater and all groundwater interactions will be temporary and related effects have been defined and can be effectively mitigated Trench blockers can be installed during construction, if and as required, to limit the potential for subsurface water flow along/in trenches backfilled with permeable granular fill that could be a preferred flow pathway for groundwater. Since the eventual trench backfill material will be of similar texture and density as the surrounding natural sediments, the completed trenches will not represent preferred pathways for groundwater, and therefore, will not alter natural groundwater flow characteristics. Appropriate additional mitigation when springs are encountered will be developed on a site-specific basis, following direction received from regulatory authorities during permitting.		
1176	Application Section 8.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	1. OGMA's are not currently legal under OGAA, just FRPA. There is work ongoing with FLNRO to bring OGMA's under OGAA. Coastal GasLink 2. Table 8-7, under Key Mitigation (EMP Reference): “leave patches and single “leave trees” left on the landscape, will have to fall under Wildlife Tree Patches or Wildlife Tree Retention Areas to have regulatory authority under OGAA, or FSC Plans to be clarified in terms of relevance to OGC permitting and enforcement.	Acknowledged.		
1177	Application Section 8.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	3. Mitigation 8-43 In alpine/subalpine areas move floristically rich – moss, lichen, small herbs, rocks out of the work area and return to the work area following construction. Might contradict with EPMR guidance to avoid lichen-rich areas in ungulate habitat. Clarification may be required for P&A staff to recognize priority of avoidance criteria before mitigation (following provincial Mitigation Hierarchy).	Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink acknowledges the importance of avoidance in addressing adverse effects of the proposed Project. Section 1.4 of the Application outlines the route and facility site selection process, and identifies the factors considered. During construction planning and detailed engineering design, Coastal GasLink continues to seek opportunities to avoid environmentally sensitive areas, including lichen rich areas in ungulate habitat. Where		

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									avoidance is not practical, mitigation, such as moving floristically rich rocks out of the work areas, will be implemented to aid with the reclamation of these habitats.		
1178	Application Section 8	N/A	N/A	25-Apr-14	OGC	OGC	N/A	This section appears to be thorough and complete and aligns with OGC regulatory requirements.	Acknowledged.		
1179	Application Section 9.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	In general this section seems thorough and complete. There are, however, a few points that should be clarified. Pg 9-7 (lines 9 & 10) wetland crossings require approval of BC OGC, not MOE. Pg 9-7 lines 11-17, the BC OGC authorizes works within a stream, not MFLNRO (DFO may need to authorize as well depending on situation)	Acknowledged.		
1180	Application Section 10	N/A	N/A	25-Apr-14	OGC	OGC	N/A	1. Mitigation proposed for 100m setback from mineral licks as per EPMR Guidebook. Commission P&A staff must have access to CDC masked occurrences and Mineral Licks – OGC and MOE to draft Commission Confidentiality Agreement to allow review staff to properly assess impacts and proposed mitigations. No proponent response required2. Proposed mitigations adhere to Timing Windows, but they overlap if all applied. Therefore Commission will have to issue exemption from the EPMR. No proponent response required3. Proposed mitigation measures for wildlife follow MOE's Environmental Mitigation Policy (and procedures) and FLNRO-developed guidance and BMPs for ungulates. Apart from offsetting requirements, these guidelines will be applied by the OGC consistent with existing regulatory requirements. No proponent response required4. "Retain a shrub buffer between existing corridors and the Project Footprint during clearing and construction" – how wide, and how to align with breaks in veg/stockpiles to allow for movement? Will be difficult to regulate. No proponent response required5. 10-6 (page 10-43) UWR u-9-001; clarification that OGC is to be consulted (not FLNRO) before starting clearing and construction activities where not practical to avoid sensitive winter months for ungulates. 6. "...recommended that operators avoid intensive activities or overlapping operations during these timeframes". Definition of overlapping activities and which intensive activities will be avoided required for OGC permits will be required. No proponent response required7. Table 10-8 (page 10-68) "In cases where development will occur in high elevation winter habitat, approval conditions will require proponents to develop detailed reclamation programs, and mitigation and monitoring plans. Financial and habitat offsets might be required where potential significant residual adverse effects occur after efforts to avoid, mitigate and reclaim potential adverse effects on caribou and their habitat". Province and OGC have not yet come to agreement with regards to offsetting. OGC not currently structured to collect offsets. 8. Coastal GasLink will apply for regulatory approval of deviation from the GWMs set out by the UWR orders for Caribou and Mountain Goat, and the best practices (e.g timing restrictions) recommended by the OGC. No need to adhere to GWMs under the EPMR. No proponent response required9. EMP: Area-specific management zones: "reduce timber harvesting in the Herd Dome and Morice River Area-Specific Management Zones (ASMZs), where practical. OGC to confirm that these are legal layers for spatial review. No proponent response required	1 – 4: No proponent response required. 5: Acknowledged. 6: No proponent response required. 7: Acknowledged. Coastal GasLink will work with appropriate regulatory agencies to address potential adverse effects on caribou, and explore appropriate mitigation options. 8-9: No proponent response required.		
1181	Application Section 14.5	N/A	N/A	25-Apr-14	OGC	OGC	N/A	In general this section appears to be thorough and complete. Stakeholder engagement for tenure holders will be conducted as part of the OGC permitting process as per the Consultation and Notification Regulation under OGAA. It should also be noted that authorizations for ALR lands within NEBC will go through the OGC.	Comment noted.		
1182	Application Section 18.6.2	N/A	N/A	25-Apr-14	OGC	OGC	N/A	The Commission will issue all section 12 permits for this proposed project. Page 18-40 line 9 states, "Where avoidance is not practical, effects mitigation strategies will be developed with the guidance and approval of the BC Archaeology Branch". Suggest adding a statement to the effect that "if site alteration is necessary, an application for a section 12 permit under the HCA will be submitted to the OGC".	Acknowledged.		

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1183	Application Section 26	N/A	N/A	25-Apr-14	OGC	OGC	N/A	Please refer to comments included in the Atmospheric Environment, Aquatic Environment, Vegetation, Wetlands and Accidents or Malfunctions sections for aspects relating to health regulated by the OGC. The OGC will seek to work further in more detail with the BC EAO to review proposed mitigation strategies in order to develop effective EA certificate conditions.	No response required.		
1184	Application Section 26	N/A	N/A	25-Apr-14	OGC	OGC	N/A	<p>Table 21-3, page 21-7: larger sediment releases into waterways could result in changes to flow and erosion patterns which could impact terrain integrity, and potentially species of concern in the area of the waterway. I am not sure if this was considered and eliminated due to other factors, or not considered.</p> <p>Table 21-5 generally: It is difficult to determine whether mitigation is appropriate. 'Implement the EMP and ERP' could include a variety of actions.</p> <p>Spills Scenario 2 mitigated, general: the analysis seems to assume that the spill will be detected, which is often not the case in a small leak from a vehicle.</p> <p>Table 21-6, third party pipeline leak mitigation: What requirements are referred to by 'all requirements of CSE-Z662-11 [I assume CSA] for work operating close to an operating pipeline'? (this applies to other tables as well)</p> <p>Table 21-9, effects of a power outage unmitigated consequence: moderate seems low given that loss of power, particularly in the winter, has a potential for fatalities.</p> <p>Table 21-9, effects of a power outage mitigation: some of these appear to relate to pipeline crossings instead of utilities.</p> <p>Page 21-50 line 1-2: There will likely be little to no cellular coverage for some communities near the route. Loss of telephone would be more than an inconvenience in the event of a need to contact emergency services with no back up available.</p> <p>General: impacts of terrain destabilization due to construction/blasting etc. were not discussed. It is unclear if this is because it was eliminated as a risk somehow, or if it was not considered.</p>	<p>Coastal GasLink considered potential adverse effects of the proposed project on the valued component Terrain Integrity in Section 5 of the Application. Potential adverse effects on of sediment on fish species of concern is addressed in Section 7 of the Application, for the valued components Protection of Recreationally, Commercially and/or Culturally Important Fish and Fish Habitat, and Species of Conservation Concern. Table 21-5 focuses on characterizing the mitigated risk of residual adverse effects resulting from a spill. The implementation of the EMP and ERP are considered as a follow-up program to address the risks associated with spills. More detailed mitigation is outlined in Table 21-4. Through the implementation of the EMP, and Coastal GasLink's environmental inspection program, detection of small leaks is expected to be feasible.</p> <p>Table 21-6: When referencing CSA-Z662-11, Coastal GasLink is indicating that it will adhere to appropriate standards for the design of the proposed Project.</p> <p>Table 21-9: Coastal GasLink acknowledges the comment. Table 21-9 outlines the unmitigated consequence. With the implementation of mitigation, the characterization of risk presented in the Application is appropriate.</p> <p>Table 21-9: The mitigation presented addresses not only power lines, as in addition to power lines, the proposed project crosses other types of utility lines, such as natural gas and phone lines.</p> <p>Page 21-50: Comment noted. Coastal GasLink will include appropriate mitigation in its Emergency Management Plan.</p> <p>General: Potential adverse effects on terrain were discussed in Section 5 of the Application.</p>		

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1185	Application Section 26	N/A	N/A	25-Apr-14	OGC	OGC	N/A	<p>Section 22, Page 22-1: There are a few hazards that could impact the project that do not appear to be discussed in this section. It is not clear whether information about the route made them not risks, or if they were not considered. Specific issues are: Streambed stability (in terms of scour depth, and in terms of route stability) could lead to pipeline exposure and erosion/strain and eventually rupture; exposure and protection for any surface lengths of pipeline; Soil issues other than marine clays such as soil acidity or potential for water to collect in the soil around the pipeline.</p> <p>Section 22.2.2, page 22-12, lines 16-20: High winds could be a significant issue for any aerial crossings, if any exist on this project.</p> <p>Section 22.3, general: This is difficult to assess, since specific engineered mitigations for seismic and/or geotechnical issues in areas of higher risk which could not be avoided have not been discussed. This will need to be reviewed in more depth at detailed design to confirm adequacy.</p> <p>Section 22.4, page 22-22 general: There is very little information provided on mitigation/protections for above ground pipe or facilities which could be impacted by wildfires.</p> <p>Section 22.9, general: This is difficult to assess, since there is limited information on the areas of flooding and the specific mitigations/protections included in the design. This will need to be reviewed in more depth at detailed design during the permitting process to confirm adequacy.</p>	<p>Section 22: Coastal GasLink discussed potential effects on the project resulting from extreme weather events in Section 22.2 of the Application. Coastal GasLink confirms that information about streambed stability informs the construction planning and detailed engineering design of the Project. Coastal GasLink has addressed the potential for acid rock drainage, wet soils, and terrain stability and appropriate mitigation in Section 5 of the Application.</p> <p>Section 22.2.2: Coastal GasLink is not currently planning to install any aerial crossings for the proposed project.</p> <p>Section 22.3: Coastal GasLink provided further information regarding terrain hazards in Section 5 of the Application. Information about construction planning and detailed engineering design will be provided to the appropriate regulatory authorities during the permitting phase.</p> <p>Section 22.4: Coastal GasLink is not currently planning to install any aerial crossings for the proposed project. Detailed information about facility design, including design parameters around wildfire potential, will be developed during construction planning and detailed engineering design, and provided to the appropriate regulatory authorities during the permitting phase.</p> <p>Section 22.9: Comment noted.</p>		
1186	Application Section 26	N/A	N/A	25-Apr-14	OGC	OGC	N/A	<p>More detailed information on areas that will require blasting and how inspection and maintenance/emergency response access will balance with line of site measures for the right of way will be required during the permitting process.</p>	Acknowledged.		
1187	Application Section 3.2.3	Table 3-4	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	<p>Point of clarification: Water quality standards missing – CCME and provincial standards for aquatic life and drinking water should be presented. Also reference regional water quality objectives; these guidelines identify turbidity values for specific watercourses such as Morice, Bulkley and Kitimat rivers and will likely be used by regulatory agencies during effects monitoring.</p>	Comment noted.	Acknowledged.	
1188	Application Section 5.3.1	Table 5-2	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	<p>Point of clarification: Please confirm RSA spatial boundaries relevant for acid rock drainage assessment. EA document indicates RSA expanded to sub-basin level while TDR indicates spatial boundary limited to 5km on either side of proposed route (TDR Sec. 3.7, pg. 30).</p>	Coastal GasLink confirms the description in Section 5.3.1 is accurate.	Acknowledged.	
1189	Application Section 5.7	N/A	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	<p>Comment: Summary of ARD potential focused on pipeline route and does not include potential as a result of new access routes. Acknowledged that further ARD investigations will be completed during detailed engineering and design and expect access routes will be assessed at that time.</p>	Acknowledged.	Acknowledged.	
1190	Application Section 6.2.2	Table 6-3	N/A	23-Apr-14	Warren McCormick	MOE	N/A	<p>Comment: The proponent should note that the Ministry is about to release new interim objectives for NO₂ and SO₂, which will be approved by the time this application reaches the ministers for decision. These will be followed closely by new Federal (National) standards in 2015.</p>	Comment noted.	Acknowledged.	
1191	Application Section 6.4.2	Table 6-8	N/A	23-Apr-14	Warren McCormick	MOE	N/A	<p>Point of clarification: Row containing 1-hour PM_{2.5} data should be removed (since there is no 1-hour objective). Value for the Annual PM_{2.5} % of Most Stringent Objective should be 60.0 and the row containing the Annual CO data should be removed (since there is no annual objective)</p>	Comment noted.		

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1192	Application Section 6.6	N/A	N/A	23-Apr-14	Warren McCormick	MOE	N/A	Comment: The proponent should note that the Ministry is about to release new emission standards for gas turbines, which will be approved by the time this application reaches the ministers for decision. This may change the type of turbine units specified in the assessment.	Comment noted.		
1193	Application Section 6.6.3	N/A	N/A	23-Apr-14	Warren McCormick	MOE	N/A	Comment:Elevated Concentrations of CACs (Construction) – Magnitude: since this is not quantified statement should be changed to indicate that this conclusion is in the professional judgment of the proponent and that certain actions will be taken if any unacceptable impact is observed.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in may 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1194	Application Section 6.6.3	N/A	N/A	23-Apr-14	Warren McCormick	MOE	N/A	Comment: Elevated Concentrations of CACs (Operation) – Magnitude: this statement might change with the adoption of the new objectives, particularly those for NO2.	Comment noted.		
1195	Application Section 6.6.5	N/A	N/A	23-Apr-14	Warren McCormick	MOE	N/A	Comment: While no future facilities could be determined at the present, it is know that other projects, especially other pipelines, will overlap with this project. The proponent should be prepared to re-assess any component through permitting should a situation develop.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in may 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1196	Application Section 7.4	N/A	surface water quality	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Baseline information does not incorporate discussion of existing effluent discharge permits, water treatment facilities, or identified mine sites within the RSA (i.e. Brule, Endako, Equity, or Silver Queen). Equity mine site is known to have water quality issues associated with metal leaching and New Nadina has monitored discharge from the Silver Queen mine site. There are also several effluent discharge permits for locations on the Kitimat River in close proximity to the proposed crossing at Kitimat, BC. Potential surface WQ effects from these existing discharges should be incorporated into the effects assessment.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in may 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	Acknowledged.	
1197	Application Section 7.4	N/A	groundwater quality	31-Mar-14	Hanna Van de Vosse	MOE	N/A	There is mention of Silver Queen mine site in the TDR (Figures), yet this mine was not mentioned in the TDR text nor the Application during discussion of water quality. Application should define how/which mine quality data were determined to be relevant to the project. Note that Silver Queen was an underground mine site that operated for a short period during the early 1970's.	Coastal GasLink confirms that in Section 1.2.2 of the Hydrology Technical Data Report, characterization of water quality considered historical data available within the LSA and also within a broader 5km wide offset from the proposed route. Other potential sources of water quality data located outside the 5km offset, including EMS sites associated with Silver Queen Mine (Figure 8), were also represented on the 1:20,000 scale mapbook figures for reference purposes.	To clarify, water quality data located outside of the 50 km offset were included on the figures of the TDR for reference purposes only and actual water quality data from these locations were not included in historical data review.	
1198	Application Section 7.7	Table 7-30	Surface Water	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Confirm that Bullet #2 on Page 7-130 includes the requirement to notify downstream users under the BC Water Act. See Page 7-152, line 21-24 for reference.	Coastal GasLink will comply with all applicable legislation.	Acknowledged.	
1199	Application Section 7.7	Table 7-30 Pg 132	Hydrology	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Expected that the site specific watercourse crossing plan will provide adequate and appropriate erosion and sediment control measures specific to the watercourse crossings, as required.	Coastal GasLink confirms that erosion and sediment control measures will be implemented at watercourses or waterbodies as presented in Table 7-8 and Section 8.4 EMP. The Environmental Inspector may also implement additional site-specific mitigation measures, where warranted. Section C.7 of Appendix C of the EMP includes a Soil Erosion Contingency Plan.	Acknowledged.	
1200	Application Section 7.7	Table 7-30 Pg 133, Bullets 1 and 3	Hydrology	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Water quality monitoring plans should be developed prior to constructing watercourse crossing to ensure protection of downstream water quality (e.g. turbidity values within relevant water quality objectives/guidelines) during all instream work activities encountering flowing water not just trenchless methods.	Coastal GasLink will develop Water Quality Monitoring Plan prior to construction, in consultation with the appropriate regulatory authorities.	Acknowledged.	
1201	Application Section 7	N/A	Hydrology	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Regarding identification of residual effects on surface water quality, it is recommended that effects resulting from accidental release of drilling mud (e.g. frac out) during trenchless crossing methods be presented and evaluated as a separate residual effect rather than tied to suspended sediment effects. Rationale being that drilling mud may introduce other deleterious substances aside from suspended sediment that would have an effect on surface water quality.	Coastal GasLink confirms that mitigation to reduce the risk of occurrence and severity of drilling mud release and the potential residual adverse effects of such events are outlined in Section 21, Accidents and Malfunctions. The Directional Drilling Procedures and Instream Drilling Mud Release Contingency	Acknowledged.	

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									Plan in Appendix C of the EMP has been developed to ensure that appropriate measures are in place to reduce the risk of adverse effects during directional drilling.		
1202	Application Section 7	Pg 7-151 to 7-153; Pg 7-160	Hydrology	31-Mar-14	Hanna Van de Vosse	MOE	<p>Issue: Concur that duration of reduced surface water quality as a result of suspended sediment during construction or erosion from banks/approaches is immediate to short-term in duration. However, based on professional experience and cited literature, magnitude of these effects would be expected to exceed turbidity water quality guidelines/objectives: not to exceed 8 NTU at any time when background >8 and <80 NTU, or not to exceed 10% of background at any time when background >80 NTU.</p> <p>With respect to Morice, Bulkely and Kitimat river crossings, the regional water quality objectives are lower: Not to exceed 5 NTU at any time when background <50 NTU, or Not to exceed 10% of background at any time when background >50 NTU. Existing literature or previous project data supporting rationale of low or medium magnitude in comparison to environmental standards/regulatory targets is requested. Comment #3 – Evaluation of reversibility (effects due to release of hydrostatic test water Pg 7-154 and 7-155; Pg 7-161) (Ref: S.M. Reid and P.G. Anderson. 1999. Effects of sediment released during open-cut pipeline water crossings. Canadian Water Resources Journal 24:3, 235-251.)</p>	Immediate reversibility rationale should incorporate environmental monitoring of the discharge site to ensure erosion protection is adequate and hydrostatic water is not released into watercourses.	Acknowledged.	Acknowledged.	
1204	Application Section 7	N/A	Hydrology	31-Mar-14	Hanna Van de Vosse	MOE	See issue IR #1202	Existing literature or previous project data supporting rationale of low or medium magnitude in comparison to environmental standards/regulatory targets is requested.	Coastal GasLink provides the following information: A summary of open-cut watercourse crossing effects studies was published in by Reid and Anderson (1999). Various literature (e.g. Newcombe and Jensen (1996); Anderson, Taylor and Balch (1996); Newcombe and MacDonald 1991 etc.) describes a dose exposure relationship to predict effects to fish and fish habitat. Various models have been developed for different species and life stages that predict severity of ill effects to fish, including mortality, based on the duration and concentration of sediment exposure. These models used onsite with real time water quality monitoring data to predict effects on fish and fish habitat. Should an event occur that causes construction activities to exceed CCME and BC water quality guidelines,	Acknowledged.	

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									<p>construction crews will be notified and additional mitigation will be initiated to reduce instream suspended sediment load. As a result the likelihood of increased fish mortality and injury is low.</p> <p>Reference: Scott M. Reid & Paul G. Anderson (1999) Effects Of Sediment Released During Open-Cut Pipeline Water Crossings, Canadian Water Resources, 24:3, 235-251.</p>		
1205	Application Section 7.7.5	N/A	Hydrology	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Stream crossing density is considered a suitable metric to evaluate cumulative effects since the project footprint will largely be linear; however this metric doesn't account for existing polygonal disturbance as a result of forestry or agriculture land uses (i.e. cutblocks and pasture land). The Application states: crossing density data underestimates cumulative adverse effects in agricultural watersheds where riparian clearing, rather than density of crossings in an important source of sediment. A level of uncertainty or a measure of how much existing polygonal disturbance attributes to sedimentation should be included in determining cumulative effects.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR. Coastal GasLink's considerations for selecting pipeline watercourse crossing installation methods is described in Section 1.2.5, Pipeline Watercourse Crossing Construction Activities and Section 1.4.16 Alternative Construction Methods for Pipeline Installation at Watercourses. Coastal GasLink has provided the stream crossing catalogue cards to the EAO.	Proponents response doesn't address comment related to identification of measure of uncertainty in cumulative effects assessment using only stream crossing density in areas of increased polygonal disturbance (i.e. forestry cutblocks and agriculture).	In addition to stream crossing density, riparian disturbance was also used as a metric to assess cumulative adverse effects on fish and fish habitat. Section 7.5.6 of the Application provides further information.
1206	Application Section 7.7.5	Table 7-37	Hydrology	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Confirm site-specific watercourse crossing plan will be implemented (refer to Table 7-8 Pg 7-56).	Coastal GasLink confirms that site-specific plans may be developed and implemented for specific locations, as indicated in Section 7.1 and Section 8.4 of the EMP.	Acknowledged.	
1207	Application Section 7.8	N/A	Groundwater Effects	31-Mar-14	Hanna Van de Vosse	MOE	N/A	<p>Identification of potential adverse effects on groundwater quality and/or quantity is limited. Several additional items should be identified, mitigation measures proposed and evaluation of adverse effect conducted, including:</p> <p>1: potential concerns related to hazardous chemical/petroleum spills, particularly for those users within 200 m of the pipeline.</p> <p>2: monitoring program identifies pre-construction determination of existing water quality/quantity for users within 200 m of proposed Project but does not include post-construction monitoring. Post-construction monitoring will be important since groundwater transport of contaminants is long-term.</p> <p>3: effects on groundwater flow pattern. Pipelines are known to interact with and disrupt groundwater flow patterns; subdrains and trench blockers are often installed during construction to limit movement of groundwater along the exterior of pipelines. Potential interaction will be tied to vulnerability, stratigraphy of aquifer or depth of trench in relation. For example, Aquifer identified within Kimitat River valley highly vulnerable.</p> <p>4: potential use of groundwater to supply infrastructure (camps and compressor stations) with potable water sources along the route and effects on quantity for nearby users or wetland environments. Depending on timing of construction, this could be expected to fall under the new provincial Water Sustainability Act and associated regulation(s).</p> <p>5: effects of groundwater quantity in relation to wetland recharge. Wetlands, particularly swamps, fens and marshes have been identified along the corridor and are important sources for groundwater recharge.</p>	<p>1. Due to the lack of groundwater quality guidelines, by applying the surface water quality mitigation summarized in Section 7 of the Application generally to surface water encountered in all forms along the Project, potential effects on groundwater quality within actual groundwater recharge areas/sites will be mitigated. Importantly, by addressing surface water quality within recharge areas/sites, the quality of groundwater available to down gradient users, whether domestic wells or some natural receptor, is likewise addressed.</p> <p>2. As discussed in Section 21 (Accidents and Malfunctions), small spills will have minimal effects on water quality due to immediate clean-up and remediation (p. 21-26 of Section 21). Spills of large magnitude are considered rare, but should they occur, appropriate follow-up program will be established and adhered to.</p> <p>3. Trench blockers can be installed during the construction phase, if and as required, to limit the potential for subsurface water flow along/in trenches backfilled with permeable granular fill that could be a preferred flow pathway for groundwater. Since the eventual trench backfill material will be of similar texture and density as the surrounding natural sediments, the completed trenches will not represent preferred pathways for groundwater, and therefore, will not alter the natural groundwater flow characteristics.</p> <p>4. Any newly drilled water supply wells will be constructed, commissioned and operated in agreement with applicable Regulations and operational permits.</p>	Acknowledged.	

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									5. Areas of natural groundwater recharge will be maintained through maintenance of pre construction subsurface flow patterns, using trench blockers to limit potential for flow along trench alignment.		
1208	Application Section 7.8	cumulative assessment	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Provide rationale for justification of inconsequential effects on groundwater quantity as a result of interactions with trenching activities in comparison to existing uses (domestic, agricultural, industrial etc.), and minimal contribution to cumulative adverse effects. Rationale should be tied to vulnerability, stratigraphy of aquifer or depth of trench in relation. For example, Aquifer identified within Kimitat River valley is considered highly vulnerable.	The Project crosses seven mapped and classified aquifers. All but one of these aquifers are classified as having "low vulnerability" to contamination from surface sources (see Table 4-1 of Hydrogeology TDR). The one exception is mapped Aquifer 646, which is classified as having "moderate vulnerability". BCMOE has not mapped or classified any aquifers within the Kitimat River estuary. • The Hydrogeology TDR (Section 4.1.8) refers to the presence (unconfirmed) of four unmapped aquifers, in the locality of Anzac, community of Endako, community of Savory, and Municipality of Kitimat. The vulnerability of these inferred aquifers is interpreted to be "low", except for the aquifer inferred in the Municipality of Kitimat. • The six mapped aquifers and three inferred aquifers with "low vulnerability" are naturally protected from surface sources of contamination by relatively thick sequences of fine textured sediments that overlie each mapped/inferred aquifer. These sediments will not be fully penetrated by Project works; therefore, these aquifers remain completely isolated from the Project. • Accordingly, any discussion of potential Project interactions with aquifers relates specifically to Aquifer 646 (moderate vulnerability) and the inferred aquifer below the Kitimat River estuary (high vulnerability). • Aquifer 646 Water levels in Aquifer 646, as measured in water supply wells at the time of construction, range from 60 ft to 180 ft below ground surface. The relatively shallow Project trench works will not directly intercept the deep aquifer water and, therefore, will not alter aquifer flow characteristics. • Inferred Aquifer – Municipality of Kitimat There is one water supply well constructed in this inferred aquifer and located within 1,000 m of the Project. It is located up gradient from the Project and, therefore, despite the interpreted (i.e., not confirmed) "high vulnerability" of the source aquifer, this well will not be affected by potential construction	Acknowledged.	

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									related water quality effects. Further, there are no wells constructed in this inferred aquifer at locations directly down gradient of the Project. Construction of buried works on the Kitimat River estuary/valley floor will likely intercept the water table. However, because the eventual trench backfill material will be of similar texture and density as the surrounding natural sediments, the completed trenches will not represent preferred pathways for groundwater and therefore will not alter the natural groundwater flow characteristics. There is not likely to be a cumulative interaction between the Project and other activities or developments because the potential residual effect (i.e., disruption of groundwaterflow where springs are encountered) is not likely to occur (i.e., low probability).		
1209	Application Section 14.6	N/A	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Application identifies that determination of potential adverse effects was based on literature but examples are not presented.	Coastal GasLink notes that literature cited is provided in Section 9.2 of the Social Technical Report and 14.7.2 of the Application. The Social Technical Report (Appendix 2M of the Application) on page 2-2 includes the general approach for data sources. A review of existing literature occurred during the desktop information gathering and these published sources include community newspapers, plans, policies, reports and strategic documents.	acknowledged.	
1210	Application Section 14.6	N/A	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Point of clarification: BC Water Quality standards for the purposes of protecting drinking water will also apply.	Acknowledged.	acknowledged.	
1211	Application Section 14.6	Pg 14-166 Lines 32-36	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Issue: This does not incorporate expected or anticipated decommissioning/reclamation phase effects.	Section 1.2.7 describes decommissioning and abandonment activities. The Application considers potential adverse effects associated with decommissioning and abandonment in a qualitative manner. Section 13.0 of the Application Social Effects Assessment states that "Any decision on the appropriate timing for decommissioning and abandonment will be influenced by future service requirements. It is difficult to predict when or how the proposed Project will be decommissioned and abandoned, or to predict the social or economic conditions at that time. As a result the Application does not include consideration of potential adverse effects associated with decommissioning and abandonment. If abandonment of all or a portion of the Project is proposed in the future, Coastal GasLink will comply with all	Acknowledged.	

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									applicable regulatory requirements in force at that time."		
1212	Application Section 14.6	Table 14-37	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Proposed monitoring mitigation does not address avoidance/reduction of effect (14.6.2) and pertains only to pre-construction.	Coastal GasLink continues to apply the philosophy of the mitigation hierarchy. Coastal GasLink acknowledges the importance of avoidance in addressing adverse effects of the proposed Project. The mitigation outlined in Table 14.37 states that Coastal GasLink will "provide shallow domestic well owners within 200 m of the proposed route the option to participate in a water well monitoring program before construction to determine preconstruction quantity conditions." Coastal GasLink believes that this is an appropriate mitigation to reduce the potential effect of "alteration of well water flow". Section 7 of the Application (Table 7-38), notes that the monitoring program includes Coastal GasLink reviewing the area, if springs and groundwater are encountered, to determine the appropriate mitigation.	Initial comment still valid.	In following the route selection process described in Section 1.4 of the Application, Coastal GasLink is avoiding adverse effects on existing landowner activities to the extent practical. Management of potential adverse effects on domestic water supply from wells is completed on a case by case basis, and in consultation with the landowners. TransCanada's experience has shown that construction and operation of similar projects very rarely has resulted in adverse effects on domestic water supply. To prevent against such circumstances from occurring, Coastal GasLink will work with individual landowners who have wells within 200 m of the proposed route to monitor well performance before and after construction.
1213	Application Section 14.6	Table 14-37	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Identification of potential adverse effects and mitigation strategies appears to be limited and does not incorporate all potential effects. See Comment #1 related to section 7.8 groundwater effects assessment and identification of potential effects. Depending on depth, vulnerability and location of wells, water movement along pipe may occur. Use of trench blockers often results in subsurface flows coming to the surface (also see 14.6.3 disruption of flow).	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.	Acknowledged.	
1214	Application Section 14.6	N/A	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Pg 14-170, lines 10-13 require clarification. As it currently reads water quality is linked to flow rates.	Page 14-171 of the Application notes that "Under the BC Water Act, groundwater that has discharged to ground surface is regulated as surface water. Therefore, the quality of groundwater contributing to stream flow is inherently considered in the significance criteria for surface water quality."	Acknowledged.	
1215	Application Section 14.6	N/A	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	True that no regulation is currently in place for groundwater withdrawal under 75 L/second and discharged groundwater is surface water. However, depending on timing of construction, groundwater quality and quantity may fall under the newly proposed provincial Water Sustainability Act. Also consider BC water quality standards for the protection of drinking water.	Acknowledged.		
1216	Application Section 14.6	Table 14-40	Drinking Water Supply	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Point of clarification: Confirm number of wells in the LSA – previous tables indicate 48 wells within 1km.	Coastal GasLink confirms that Table 14-40 of the Application should state that there are a total of 48 wells in the Land and Resource Use LSA.	Acknowledged.	
1217	Application Section 15.4	Table 15-17/18.	N/A	22-Apr-14	Ann Godon	MOE	N/A	A review and discussion of existing capacity of communities within the study area to handle additional wastewaters from portable toilets and construction camps is missing. There is a good likelihood that some of the construction camp sites will not be suitable for in-ground disposal of wastewater. The mitigation presented in Table 15-17 is superficial and does not support the characterization presented in Table 15-18.	Acknowledged		
1218	Application Section 15.5.6	Table 15-21	N/A	22-Apr-14	Ann Godon	MOE	N/A	This discussion is very limited with regard to the potential effects of similar pipeline projects (Pacific Trails Pipeline, Pacific Northern Gas Looping) who may be locating construction camps in the same vicinity (i.e. Terrace). The time frame of 3 months given in Table 15-21 to discuss potential overlaps with other projects is far too short. A much more detailed examination is needed to support the conclusion.	Acknowledged.		

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1219	Application Section 20.4	N/A	Air	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Section does not describe agricultural land use within the LSA or RSA nor refer to other sections in the Application which would contain this information.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Section 6.1.1 of the AIR states that the Application will provide a baseline description of the current use of land and resources that might be adversely affected by the proposed Project. Refer to Page 14-59 of the Application for a description of agricultural land use.	Acknowledged.	
1220	Application Section 25	N/A	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Site specific or high risk construction tasks such as watercourse crossings, will need to have construction environmental management plans (CEMPs) developed following detailed design phase. These plans will need to address erosion and sediment control. In addition watercourse crossing plans may require approval by regulatory agencies.	Section 7 of the EMP includes resource-specific mitigation that has been developed for sensitive environmental features including watercourse crossings. Site-specific designs for watercourse crossings will be developed as construction planning and detailed engineering design advances. Required information will be provided to the appropriate regulatory authorities during permitting. Appendix C of the EMP provides information about the Soil Erosion Contingency Plan.	Comment to BCEAO: Recognize construction related details are needed to address/develop site specific plans and as such will largely be regulated by the OGC. Will there be a requirement by the OGC to approve these as individual plans or will they fall under approved, routine stream crossing methods using industry standard best management practices? Note that certain segments of the pipeline have considerable slopes (Murray and Sukunka) and constricted valleys (Hirsch Creek) and while watercourse crossing methods may be considered routine crossings and fall under industry standard Best Management Practices, it is recommended that these areas have specific plans developed to address erosion and sediment control and water quality.	Question not directed to Coastal GasLink.
1221	Application Section 25.1.2	N/A	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Roles and responsibilities of Environmental Inspectors (EIs) are clearly presented (sections 25.1.2 and 25.3) however, expected qualifications of EIs are not provided.	Coastal GasLink confirms that qualifications for the Environmental Inspectors are included in Section 4 of the EMP.	Acknowledged. Additional information was provided in the CGL_Memo_Aquatic Resources	
1222	N/A	N/A	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	PCMPs need to evaluate effectiveness of mitigation measures implemented to avoid or reduce identified potential adverse residual effects. Currently identified residual effects on the following components are not included within the PCMP: Surface water quantity Groundwater quantity and quality Definition of wetland function in the PCMP and the types of information collected during the PCMP is requested since, earlier in the Application (section 9) wetland function was divided into three categories: hydrologic, habitat and biogeochemical. The PCMP should consider development of a monitoring program that addresses all three components and not strictly habitat function, for example, inclusion of surface water quality program to compare pre- and post-construction values.	Coastal GasLink will develop a Post-Construction Monitoring Plan in advance of construction in consultation with the appropriate regulatory authorities.	Acknowledged.	
1223	Application Appendix 2A	N/A	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Plans must address surface water quality with adequate erosion and sediment protection measures. Review of plans by regulatory agencies may be required.	Comment noted.	Acknowledged.	
1224	Application Section 21.8	N/A	Acid or Metal Leaching & Sediment Release	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Historical evidence and previous project experience is needed in these sections to justify or support effectiveness of proposed mitigation strategies. This is particularly relevant when considering confidence in assessing residual adverse effects: application currently states "Confidence is ... based on TransCanada's extensive experience, the effectiveness of mitigation..." but the application lacks specific details.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Section 3.7 of the application provides information about the methodology to determine the level of confidence.	Acknowledged.	

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1225	Application Section 21.8	N/A	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Application references yet to be drafted Acid Rock Construction Response Plan (ARCRP) (Table 21-17 Pg 21-71 and Section 5.7.1 Pg 5-51) but doesn't provide details on the information that will be contained in this document beyond "incorporating mitigation through a detailed geohazard assessment before construction". Additional context/content details to be included in the ARCRP are requested.	Coastal GasLink confirms that the Acid Rock Construction Response Plan (ARCRP) will be developed prior to construction and form a basis for decision-making during and following construction with respect to potentially acid generating (PAG) rock along the proposed pipeline route. The ARCRP will include the following: - the criteria used to classify acid rock drainage/metal leaching (ARD/ML) potential, - the pre-construction process used to delineate PAG rock including desktop and field/laboratory assessments, - results of engineering evaluation of expected PAG rock locations and associated construction-related quantities, - additional planned characterization steps prior to construction to complement initial assessment results, - protocols to be followed during construction to verify results of PAG characterization and engineering assessments, - a flowchart outlining material handling steps for confirmed PAG rock, - associated mitigation and monitoring options for exposed in situ and disposed PAG rock, and - mitigation selection criteria. The ARCRP will also include typical drawings and typical specifications for mitigation such as soil covers and rock slope face barriers (e.g., shotcrete and synthetic spray cover).	Which regulatory agency will be responsible for oversight/review of ARCRP and disposal methods of PAG? ARCRP mitigation strategies should also incorporate temporary/interim management of PAG to address time between excavation/exposure and implementation of long-term mitigation strategy. Water management strategies should be considered to limit introduction of water into/over/through PAG rock areas.	Question not directed to Coastal GasLink
1227	Application Section 21.8	Table 21-17	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Application indicates that glacial till may be used as an impermeable cover layer in some instances where PAG rock is encountered. Glacial till will need to contain sufficient proportion of fines to fill the voids between gravel particles to create an impermeable cover layer. Will glacial till specifications, in particular maximum coarse particle size and percentage of fines, be provided and/or included in the Acid Rock Construction Response Plan?	Coastal GasLink confirms that the Acid Rock Construction Response Plan (ARCRP) will be developed prior to construction. Glacial till is one possible source of material for a low permeability cover layer to be placed where potentially acid generating (PAG) rock is exposed on the excavated right-of-way (ROW) construction surface. Gradational specifications for cover layer barriers composed of glacial till and/or other materials will be included in the Acid Rock Construction Response Plan (ARCRP)..		
1228	Application Section 21.8	Table 21-17	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Identification of potential adverse effects is limited to the construction phase and does not address potential long-term water quality effects. Recognize that operations will have limited influence on PAG rock; however decommissioning may increase exposure of PAG rock.	Section 1.2.7 describes activities during decommissioning and abandonment. At the time of the activities, Coastal GasLink will comply with applicable legislation and regulatory direction.	Acknowledged.	
1229	Application Section 21.8	Table 21-17	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Mitigation included in Table 21-17 includes surface water monitoring for pH and sulphate but doesn't specify a commitment to monitoring timeframe. Please clarify monitoring period (e.g. limited to construction, extend into operational phase, 3-5 yr monitoring period following decommissioning???)	Coastal GasLink has included detailed monitoring recommendations and follow-up programs in Section 25 of the Application.	Initial comment referred to water quality monitoring as a result of PAG rock identification. Please clarify that monitoring plan developed in ARCRP will include post construction monitoring details, or provide additional details under PCMPs in section 25 that address ARD.	Coastal GasLink confirms that post-construction monitoring will be completed at sites where the ARCRP was implemented.
1230	Application Section 21.9	Table 21-19	N/A	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Please clarify rationale for changes in likelihood between mitigated occurrence (i.e. rare) and unmitigated (i.e. unlikely) since mitigation strategies presented in Table 21-19 relate to post-release rather than measures designed to reduced occurrence of the potential adverse effect (i.e. preventative or avoidance measures).	Coastal GasLink has defined the evaluation criteria of likelihood and consequence in Table 21-1 of the Application.	Acknowledged.	

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1231	Application Section 25.1	N/A	N/A	22-Apr-14	Ann Godon	MOE	N/A	Environmental Management Plan: Given the length and size of the pipeline, there will be significant fuel requirements during the construction phase. Best practices for fuel transfers and refueling operations will need to be well thought out, including designation and design of semi-permanent sites located well away from receptors. Additionally the Spill Contingency Plan and the Emergency Response Plan should address these types of spills.	Coastal GasLink will employ industry-accepted best practices and the mitigation measures explained in Section 8.1 (Pipeline Construction) and the Chemical and Waste Management Plan (Appendix D.1) of the Environmental Management Plan (EMP – Appendix 2-A) for equipment refueling and servicing activities. Specific measures for equipment refueling and servicing are detailed in Section 8.1.3 (Specific Measures) of the EMP. The Spill Contingency Plan, presented in Appendix C.1 of the EMP (Appendix 2-A), details the protocol and responsibilities of construction staff in the event of a spill during construction. In addition, Coastal GasLink has adopted the measures and guidelines for emergency response developed and implemented by TransCanada as detailed in Section 25.4, Emergency Response, of the Application. An ERP designed specifically for the construction of the proposed Project facilities will be prepared to address potential emergency situations during the construction of the proposed route, meter stations, compressor stations and other permanent and ancillary sites, including access development.		
1232	Addendum March 2014	N/A	Erosion and Sediment Control	31-Mar-14	Hanna Van de Vosse	MOE	N/A	Recognize that final engineering design is currently on-going and much of the mitigation for identified potential adverse residual effects will be site-specific and to some level "field-fit". However, there are a number of locations along the proposed alignment that appear to have confounding factors such as steep gradients or constricted valley walls that may lead to difficulties managing sediment laden water onsite, increasing the risk of sediment release into fish-bearing watercourse. Some of these areas include the valley walls of the Murray, Sukunka and Upper Kitimat rivers. As well, the upper portion of the Hirsch Creek watershed contains a section of pipeline roughly 10km in length (KP632 to KP641) that crosses numerous tributaries along the steep (often > 10%) valley wall. These crossings are often within several hundred meters of the fish-bearing mainstream at the valley bottom. Also the realigned Highway 16 crossing has the pipeline encountering what appears to be a steeper slope than the previous alignment with constricted available space for water management at the slope's toe with the railway, highway, pipeline, and what appears to be agricultural land between the slope's toe and the fish-bearing Endako River. Erosion and Sediment Control Plans should be developed for these areas following detailed design phase. These plans should identify site-specific measures to be implemented that will mitigate potential for sediment release into fish bearing waters (e.g. erosion and sediment control plan developed). The plans should also include development and implementation of a water quality monitoring program to address turbidity/TSS and possible ammonium-nitrates as a result of blasting activities.	Section 7 of the EMP includes resource-specific mitigation that has been developed for sensitive environmental features including watercourse crossings. Site-specific designs for watercourse crossings will be developed as construction planning and detailed engineering design advances. Required information will be provided to the appropriate regulatory authorities during permitting. Appendix C of the EMP provides information about the Soil Erosion Contingency Plan.	See additional comments for IR#1116.	
1233	Application Appendix 2E	N/A	N/A	23-Apr-14	Warren McCormick	MOE	N/A	I request that the proponent send me (preferably on an external hard drive) the following files: All CALMET input files except the WRF dataset(s) CALMET output files for Wilde Lake, Clear Creek, and Titanium Peak sites for January and July All CALPUFF input files except the CALMET dataset(s)	Coastal GasLink notes that the size of these data files and the necessary software to utilize the data could be challenging for sharing the materials beyond those parties having access to the necessary software. For this reason, Coastal GasLink will follow direction from the EAO for providing this data.		

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1234	Application Section 6.7.1	N/A	GHG	25-Apr-14		CAS	N/A	GHG Emissions data: The proponent provides emission numbers for each of the scenarios within the technical report. However, this information is not included at any point in section 6 of the Application. Instead, the proponent only provides the ratio of the facility's emissions to overall Provincial, National and Global GHG emissions. For full transparency, the proponent should provide actual GHG emissions for construction and operations for each of the three proposed scenarios. This information is necessary in sections 6.7.1 and 6.7.2.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Information about GHG emissions is included in Section 6 and in the GHG Emissions TDR.		
1235	Application Section 6.2.3	N/A	N/A	25-Apr-14		CAS	N/A	There are some minor factual errors within this section that should be revised. <ul style="list-style-type: none"> • Line 18—the emission reductions for BC for both 2020 and 2050 were legislated in the Greenhouse Gas Reductions Target Act, not the Greenhouse Gas Reduction (Cap and Trade) Act • Line 23—The interim targets were set by the Climate Action Team rather than the Natural Gas Climate Action Team • Line 26-27—Remove the words "...designed, and in some cases,..." • Line 34—Remove reference to cap and trade since it is not a plan of the province of BC 	Acknowledged.		
1236	Application Section 6.4.3	N/A	N/A	25-Apr-14		CAS	N/A	Minor error. According to the BC inventory report, 2011 emissions were 62 Mt rather than 59 Mt. Please see: http://www2.gov.bc.ca/gov/topic.page?id=50B908BE85E0446EB6D3C434B4C8C106#1	Coastal GasLink notes that at the time of the assessment and preparation of the jurisdiction profile, BC had not publicly released the 2011 provincial totals. Therefore, provincial totals (59.1) cited in the National Inventory Report were used. This results in more conservative percentages in the assessment.		
1237	Application Section 6.7.2	N/A	N/A	25-Apr-14		CAS	N/A	Nominal emissions for construction and operations should be provided in this section. It is also necessary, when discussing how facility emissions relate with global, national and provincial emissions to provide the context that all geographical levels are in the process of reducing emissions. The IPCC has set the goal of reducing global GHG emissions by 80% by 2050. Canada has committed to reducing emissions by 17% by 2020 and BC has legislated emission reduction targets of 33% by 2020. Therefore any increase in emissions requires even more emission reductions from other parts of the global, national and provincial economies. As a result, emissions on a global scale should not be classified as "small".	National and Provincial targets are discussed in the assessment. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. IPCC targets were not included in the AIR and are were not included in the assessment. Coastal GasLink confirms that National and Provincial targets are discussed in the assessment.		
1238	Application Section 6.7.3	N/A	N/A	25-Apr-14		CAS	N/A	Nominal construction and operations should be provided. In order to be consistent with previous Environmental Assessments and for the reasons discussed under section 6.7.2, construction emissions (2.4 Million tonnes over the construction period) should be considered to have a high magnitude.	Section 6.7.1 defines the categories of magnitude used in the assessment of GHG emissions. Based on the defined categories, the magnitude of construction GHG emissions has been assessed to be of medium magnitude. Coastal GasLink notes that if construction phase emissions are assumed to be evenly distributed over 3 years (2,418kt CO ₂ e over 3 year), when compared to 2011 Provincial and National Inventories, annual construction emissions will increase the totals by 1.36% and 0.11 %, respectively. This accounts for all construction phase emissions and assumes the expansion scenario will be constructed over 3 years. If construction continues beyond 3 years, the impact to any 1 given year's jurisdictional inventories will be reduced.		
1239	Application Section 6.7.4	N/A	N/A	25-Apr-14		CAS	N/A	For the reasons discussed above, operations and construction should be considered to have a significant adverse effect. Emissions from the proposed Project are at a level that will make it more challenging for the Province to achieve its legislated GHG emission reduction targets and will materially impact BC's ability to avoid further climate change.	Section 6.7.1 defines the categories of magnitude used in the assessment of GHG emissions. Based on the defined categories, the magnitude of construction GHG emissions has been assessed to be of medium magnitude.		

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1240	Application Section 6.7.5	N/A	N/A	25-Apr-14		CAS	N/A	In the third paragraph, after the first sentence, we recommend adding the lines, "The IPCC has confirmed the effects that GHG emissions have on the environment and human health. These effects will be widespread and impact many areas with limited resilience to imposed stresses. Discerning which of these effects throughout the globe are attributable to a specific emission source is difficult and unnecessary as each tonne of GHG emissions has exactly the same impact as any other tonne." Also, in the context of the need to decrease emissions, as discussed in the points above, it is not accurate to describe the facility's emissions increase as being "not significant in a global context".	Coastal GasLink acknowledges that the IPCC has confirmed the effects that GHG emissions have on the environment and human health. These effects will be widespread and may impact many geographic regions which have a limited resilience to imposed stresses. Discerning which of these effects throughout the globe are attributable to a specific emission source is difficult and unnecessary as each tonne of GHG emissions (in the form of CO _{2e}) has exactly the same impact as any other tonne.		
1241	N/A	N/A	N/A	25-Apr-14		CAS	N/A	The appendix is useful as an example of technological decisions that the proponent can make to reduce emissions of the project. The final table (6A-1) appears to contain several mathematical errors that should be corrected to help the reader better understand the proponent's options: • GE's CO _{2e} emissions are less than its CO ₂ emissions • The Value % difference doesn't appear to represent the percentage difference between the two turbines. If it is meant to correspond with something else (e.g. how the turbines compare for a set volume of power output), this should be made clearer	Coastal GasLink notes the following typographical errors in Table 6A-1 of the GHG Emissions TDR:1) Instead of a CO ₂ emission rate of 406.88 tonnes/day for the General Electric PGT25+G4. The table should have specified a value of 396.2 tonnes/day 2) Instead of a CO _{2e} emission rate of 369.6 tonnes/day for the General Electric PGT25+G4. The table should have specified a value of 398.2 tonnes/day These information listed above does not change the conclusions of the assessment.		
1242	Application Section 12	12-1 to 12-81	Economy	23-Apr-14	Barb Oke	Northern Health	N/A	While Northern Health does not specialize in economics, the economy is an important socio-economic determinant of health and as such, we would like to note the following: • Income distribution and income inequities are an important socio-economic indicator of health. To fully assess the impacts on community resilience, the impacts to income distribution and income inequities should be discussed. • Northern Health is aware of a "Human Economic Hardship" Index and wonders why this was not used in the economic assessment • Northern Health is aware of literature that provides information on impacts experienced by communities (including economic impacts) that experience a large influx of transient workers or are/have been impacted by boom/bust type resource development activities. It would be our expectation that the Effects Assessment provides reference to this type of literature to identify the likely impacts that may result from this project, which in our experience go beyond those identified in the effects assessment. For instance, it is our understanding that increases in average wages and influx in population can lead to increased costs of goods, services and accommodations which can significantly impact the marginalized populations. This is especially true when considering the cumulative impacts of this project in the context of the current and anticipated increase in economic activity for the region. Please ensure that these potential impact are identified in the Economy section and carried forward to the Community Quality of Life section, if applicable.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. The economy effects assessment was completed considering the short-term nature of the construction phase (including clearing, soil handling, grading, trenching, testing, cleanup, and facility construction), as outlined in Table 1-13 of the Application. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; and Aboriginal groups. Community-specific issues identified from these available sources are reflected in the effects assessment. The potential effect on community quality of life includes economic-related issues, such as those raised by Aboriginal groups with respect to increased proposed Project employment and related disposable income as described in Section 15.7.4 of the Application.		
1243	Application Section 12.5.2	20	Economy	23-Apr-14	Barb Oke	Northern Health	N/A	Coastal Gas Link indicates that with the application of the identified mitigation, no potential residual adverse effects have been identified. We feel that for this statement to be accurate, it would need to be backed by evidence. Our experience and understanding suggests that this may not be accurate, especially when considering the cumulative impacts of this project in the context of the current and anticipated economic activity for this region.	Coastal GasLink confirms that the economy effects assessment identified the potential residual effect 'temporary disruption of resource-based activities in the proposed Project, including guide outfitting, hunting, trapping and agriculture' are identified and discussed the 'This potential residual effect in Section 14.		
1244	Application Section 15	15-9	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Table 15-3: Please note that firefighters (e.g. in Fort St. John) are not first responders to medical calls.	Acknowledged.		

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1245	Application Section 15	15-11	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Table 15-4: Please provide more details on the Moberly Lake Fire Department. For the West Moberly First Nations, the distance to Chetwynd for fire services should be noted.	The Social Technical Data Report in Appendix 2M provides additional community-specific information on fire services available in the Project RSA which is described in Section 5.1 of the Application.		
1246	Application Section 15	15-16 Line 28.	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please note that Northern Health is not the sole provider of health care services in Northern BC. For instance, health care facilities that service aboriginal communities are generally provided by the First Nation Health Authority while medical and health services can also be provided by private clinics and specialists.	Acknowledged.		
1247	Application Section 15	15-16 Line 37	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	In addition to the concerns identified, please note that Northern Health's funding allocation is based on permanent residents and does not include funding for the temporary workforce/shadow population. Given that primary care resources for the resident population are already at capacity in many communities (e.g. the recent closure of the walk-in clinic at the Fort St. John Medical Clinic and the closure of the Taylor Medical Clinic exemplifies these capacity concerns), Northern Health would be looking to companies to provide on-site primary and preventative care services (for both physical and mental health) to their temporary workforce.	Coastal GasLink has conducted an assessment of emergency services as part of the Application for Environmental Assessment Certificate in Section 15. We will be continuing dialogue with local and regional emergency service providers before the construction phase of the proposed Project. Information about emergency services was collected in support of the Application for Environmental Assessment Certificate and can be found in Section 15.4.1 with technical data presented in Appendix 2M (Social Technical Report). Coastal GasLink is committed to ensuring sufficient numbers of emergency medical personnel with appropriate certifications, supplies and requirements are available based on numbers of workers, work activity and proximity to medical facilities. Coastal GasLink will also ensure senior medical providers are available onsite during construction to provide medical care if a worker needs treatment. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations. First aid rooms will be outfitted with proper equipment and running water as outlined in the WorkSafe BC regulations.		
1248	Application Section 15	15-17 Line 2	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	The concern also centres around temporary workforce seeking primary care in emergency room departments and/or walk-in clinic type facilities which are generally already at capacity. As above, Northern Health would be looking to companies to provide on-site primary and preventative care to their temporary workers.	Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.		

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1249	Application Section 15	15-17 Line 12-13	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please note that prior communication has indicated a shortage of medical personnel. Because of this, Northern Health would expect that mitigation strategies for impacts to services would go beyond communication with medical service providers to Coastal Gas Link providing primary care services on-site.	Coastal GasLink has conducted an assessment of emergency services as part of the Application for Environmental Assessment Certificate in Section 15. Coastal GasLink will continue dialogue with local and regional emergency service providers before and during the construction phase of the proposed Project. Information about medical services was collected in support of the Application for Environmental Assessment Certificate and can be found in Section 15, Table 15-7 with technical data presented in Appendix 2M (Social Technical Report). Coastal GasLink is committed to ensuring sufficient numbers of medical personnel with appropriate certifications, supplies and requirements are available based on numbers of workers, work activity and proximity to medical facilities. Coastal GasLink will also ensure senior medical providers are available onsite during construction to provide medical care if a worker needs treatment. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations. First aid rooms will be outfitted with proper equipment and running water as outlined in the WorkSafe BC regulations.		
1250	Application Section 15	15-17 Line 8-18	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please detail the type of medical care that would be available in the field and at work camps. Northern Health would like to see proponents use a model similar to the one being utilized at the Kitimat Modernization Project and currently under development for at least one pipeline project in the region. This model includes: <ul style="list-style-type: none"> · On site primary and preventative care for the temporary workforce by on-site nurse practitioners and/or advance care paramedics with physician oversight. This would include such things as first line antibiotics, prescription renewals, suturing, immunization clinics, health promotion, mental health/counselling, etc. · Collaboration with existing service and emergency providers to ensure that the needs of the transient workforce are being met without compromising the needs of the resident population 	Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.		

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1251	Application Section 15	15-17	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	<p>There are numerous inaccuracies and inconsistencies in this table. For instance:</p> <ul style="list-style-type: none"> In some rows certain detail is provided while it is not in others (e.g. the available physicians, availability of pharmacy services, etc.); The number of beds listed do not align with the number of beds on our records; Services listed under each Medical Facility appear to be inconsistent and do not align with our records; The Taylor Medical Clinic recently closed due to physician shortages. The Fort St. John Regional Hospital and Fort St. John Hospital and Health Centre are the same facility called the Fort St. John Hospital. Etc. <p>Available number of beds/stretchers/physicians/etc. often cannot be easily summarized and/or changes continuously. Overall, we do not think baseline information down to specific number of beds/stretchers/physicians/etc. is necessary/useful to assess the impacts of the project, especially since Northern Health's funding allocation is based on the resident population only and therefore available primary care services to the temporary workforce can be assumed to be zero.</p> <p>Please see attached PDF for service level summary. Better baseline indicator for health service impacts would have been:</p> <ul style="list-style-type: none"> An identification of existing service capacity challenges experienced in the LSA, especially as it relates to impacts from resource development and the shadow population; A review of available literature associated with similar past and current resource development projects (locally, nationally and globally) which could act as baseline knowledge to help identify the likely impacts to health services 	<p>Comment noted. Coastal GasLink clarifies that information was gathered from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; emergency service providers; and Aboriginal groups. Coastal GasLink held technical discussions with Northern Health officials, who provided information and issues on various topics including but not limited to accommodation, accessibility, substance abuse, workcamps and capacity.</p> <p>Community-specific issues identified from these available sources are reflected in the effects assessment such as the information provided on page 15-16 of the Application. In addition, Section 5.2 of the Social Technical Data Report in Appendix 2M provides further community-specific information regarding health care where available.</p>		
1252	Application Section 15	15-21 Line 9	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	<p>Coastal Gas Link notes that the "workforce of the proposed Project would increase pressure on support programs in some of the communities". Please detail what is meant by "some" (e.g. which communities and what level of pressures would be faced). It is our current understanding that these pressures would be faced by most communities impacted by the project.</p>	<p>Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; and Aboriginal groups. Community specific issues provided related to capacity and increased pressure are listed under Section 5.3 of the Social Technical Report (Appendix 2M of the Application) and assessed in the community utilities and services effects assessment. Coastal GasLink has committed to continue to communicate with local and regional social service providers to confirm current community social service issues and provide key personnel for the proposed Project with contact information and construction schedules for local and regional social service providers.</p>		
1253	Application Section 15	15-21 Line 9 & 19	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	<p>As with health care services, Northern Health would be looking for companies to provide on-site care for mental health treatment and prevention as these services are generally at capacity and resource allocation is based on resident population.</p>	<p>Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.</p>		
1254	Application Section 15	15-21 Line 16	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	<p>The application notes that Coastal Gas Link has not confirmed the provision of social support services in construction camp. Can you please elaborate on this sentence? Please note that Northern Health's resource allocations currently do not include resources for the temporary workforce and as such, we would be looking to companies to think about providing these services on-site.</p>	<p>Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the</p>		

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									construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.		
1255	Application Section 15	15-21 Table 15-9	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Noted available services do not align with our records. For instance, for several communities where it is noted that Drug or Alcohol Clinics, Counselling Programs are available, these are only available as part of the Mental Health and Addiction services; Mental Health and Addiction services are not available in Hudson Hope (they are referred to Fort St. John), and social workers in Fort St. John and Dawson Creek are only available as part of other services.	Comment noted. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; emergency and social service providers; and Aboriginal groups.		
1256	Application Section 15	pg. 15-42: Table 15-18 and page 1-52-33	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	We would expect that the effects assessment for 'Health Services' provides details on the types of expected effects. The type of information that would be useful in identifying the magnitude of impacts would include: <ul style="list-style-type: none"> • The numbers of workers expected to work on the project (while this may be provided in other sections, it would be pertinent to re-summarize this information in this section in the context of health service utilization); • Whether these workers are expected to originate from within or outside of Northern Health (this type of information would be considered useful as the current funding structure for Northern Health is based on resident population); • Where work camps will be located (in the vicinity of which health service centre and for what period of time) • The expected demographic and health care status of these workers • The type of health services that these workers would access and how often access to these services would occur. It is our expectation that this information may be available through literature searches, from Coastal Gas Link's previous project experience (e.g. accident reports, absenteeism data, etc.), surveys and dialogues with employees in the pipeline industry, academic literature review, in depth discussions with appropriate Northern Health representatives, etc. • The proposed work shifts and how these may impact when and how often health care services will be accessed; • The project's impacts on the socio-economic determinants of health and how and to what extent these impacts are expected to impact the demands on health services. 	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1257	Application Section 15	Pg. 15-52, Line 27	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	The application notes that "Many... facilities and services do not expect capacity challenges due to an increase in a temporary workforce, as they are adequately staffed and could handle additional usage". We do not agree with this statement. Health care generally runs at very high capacity almost all of the time and primary care access is and has been a concern in rural remote areas. Capacity challenges have recently been exemplified by the closure of Taylor Medical Centre and the walk-in clinic at the Fort St. John Medical Clinic.	Comment noted. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; emergency and social service providers; and Aboriginal groups.		
1258	Application Section 15	15-52 Line 31	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	The application notes that municipal representatives expressed concerns about the Chetwynd and Mills Memorial Hospitals. Please note that Northern Health representatives would be a better reference to provide information on capacity. As noted above, generally health care runs at high capacity and many hospitals in the LSA, including the Bulkley Valley District Hospital, Dawson Creek and District Hospital, Fort St. John Hospital, Kitimat Hospital, Mills Memorial Hospital, St. John Hospital, St. John Hospital, University Hospital of Northern BC have approached or experienced full capacity over the last 5 years.	Comment noted.		
1259	Application Section 15	15-52 Line 36	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	The application notes that medical personnel will be available in the camp. Please detail the type of medical personnel that will be available and the services they will provide to workers.	Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to		

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									accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.		
1260	Application Section 15	15-53 Line 4	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please note that Northern Health would be looking to proponents to provide day-to-day medical needs to their workers.	Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.		
1261	Application Section 15	15-53 Line 15	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please detail the likely accident/malfunction rates that require off-site medical treatment based on past accident reports and Work Safe claims.	<p>Section 15.5.3, page 15-53 notes that Coastal GasLink will adhere to all WorkSafe BC safety standards on work sites during construction, and TransCanada's Health, Safety and Environment commitment in Appendix E of the Social Technical Report (Appendix 2-M).Coastal GasLink will develop an ERP before construction for proposed Project-related emergencies. Several plans will be developed to prevent accidents and reduce the risk of injury to workers during construction including the:</p> <ul style="list-style-type: none"> • ERP • Traffic Control Management Plan • Spill, Fire Suppression and Adverse Weather Contingency Plans <p>The Total Recordable Case Rate (TRCR) is the number of injuries which require medical aid based on 100 man years of experience. The most recent fully compiled statistics are from 2012. At that time the TRCR for contractors in the field was 2.66. The target rate for 2014 is 1.39.</p> <p>It is estimated that it will take approximately 16 million field hours to complete the construction of the proposed Project over a period of about 3 years. Based on past experience and our current target rates as well as the projected number of field hours there could potentially be 110 – 215 injuries requiring medical assistance. That would equate to 37 - 72 medical aid injuries per year. It is estimated that at least 90% would be injuries that could be treated to return to work immediately.</p>		
1262	Application Section 15	15-53 Line 29	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please note that the ERP, should include notifying the Medical Health Officer of an emergency that has the potential to impact public health or result in a significant impact to hospital/health services.	An ERP will be developed for the construction phase of the proposed Project and will include details about parties to be notified should an emergency situation occur. During the operations phase, an ERP will be in place in alignment with TransCanada's Emergency Management Program that ensures appropriate notification and reporting to identified company and external parties including affected community members, regulatory agencies and local emergency and health services contacts.		

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1263	Application Section 15	15-53 Line 29	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please note that Northern Health would expect the proponent to develop and implement a Health and Medical Plan (in consultation with Northern Health) which details the level of on-site primary, first aid and preventative care that will be received as well protocols to minimize and manage disease outbreaks.	Coastal GasLink has conducted an assessment of emergency services as part of the Application for Environmental Assessment Certificate in Section 15. Coastal GasLink will continue dialogue with local and regional emergency service providers before the construction phase of the proposed Project. Information about medical services was collected in support of the Application for Environmental Assessment Certificate and can be found in Section 15, Table 15-7 with technical data presented in Appendix 2M (Social Technical Report). Coastal GasLink is committed to ensuring sufficient numbers of medical personnel with appropriate certifications, supplies and requirements are available based on numbers of workers, work activity and proximity to medical facilities. Coastal GasLink will also ensure senior medical providers are available onsite during construction to provide medical care if a worker needs treatment. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations. First aid rooms will be outfitted with proper equipment and running water as outlined in the WorkSafe BC regulations.		
1264	Application Section 15	N/A	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	We would like the proponent to provide more detail in this section and to "identify and analyze all technically and economically feasible mitigation measures" as per Section 3.6 of the AIR. Information that we feel should be included in this section is as follows: • Detail on the medical and social service personnel that will be available at the Site and how these compare to best management practices used and/or proposed by others in the industry (locally and internationally). As noted previously, Northern Health's resource allocations do not include funding for the temporary workforce and therefore, Northern Health would be looking to companies to think about providing their own preventative and primary care (for both physical and mental health) to their workers (e.g. first line antibiotics, suturing, immunizations, health programs, etc.). Northern Health is aware that this type of model being used by the Kitimat Modernization Project and is currently under development by at least one BC pipeline project; • Evidence-based information (if available) on the likely effectiveness of the proposed mitigation strategies; • Further information on the level of communication, collaboration and potential partnerships with health service and emergency providers to ensure health care and emergency response services are provided to workers while not compromising these services for residents; • The development of a Health and Medical Plan (developed in consultation with Northern Health; a preliminary copy of which could/should be included as an appendix) which details the level of preventative care and primary care for physical and mental health that will be met by the proponent. This Health and Medical Plan should also include outbreak prevention and management protocols, including information such as: o measures in place to prevent communicable outbreaks, protocols that will be adhered to in the event of an outbreak, contact information for persons responsible for carrying out the protocol, communication protocols with local service providers and notification requirements, etc. • Information on how induced health care impacts (due to socio-economic impacts on resident populations) can and will be mitigated.	Coastal GasLink has completed an assessment of the potential adverse effects on community and regional infrastructure and services presented in Section 15 of the Application in alignment with the AIR. Mitigation to avoid or lessen potential adverse effects on community and regional infrastructure and services is included in Section 15. Coastal GasLink will continue dialogue with local and regional emergency service providers to determine requirements and share information before and during the construction phase of the proposed Project. TransCanada is committed to being an industry leader in health, safety and environmental practices, to maintain a safe and healthy workplace and to protecting environmental quality. We believe excellence in Health, Safety and Environment practices is vital to the wellbeing of all people everywhere and essential to all aspects of our global business. TransCanada conducts business so it meets or exceeds all applicable laws and regulations and minimizes risk to employees, the public and the environment. Through careful and collaborative planning we accomplish this through various plans and initiatives including TransCanada's Health, Safety and Environment Commitment Statement (Appendix 2M), Construction Camp Plans (in development), Coastal GasLink Emergency Response Plan (in development), WorkSafe BC Safety Standards and through community partnerships with emergency service providers to support community capacity		

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									building. For example, our partnership with the District of Kitimat for a Fire Protection Services Study. Prime Contractors are also required to submit project-specific safety plans that address emergency procedures aligned with TransCanada health and safety expectations.		
1265	Application Section 15	Page 15-54: Line 9	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Context: The application notes that the project "will interact with infrastructure and services in communities that have a long history of supporting resource-based activities" and "have previously accommodated the needs of an industrial workforce and are therefore considered to be resilient to short-term increases in service demands" For health care services, we would be looking for evidence that supports this statement as it does not align with our current understanding of health care demands. We believe that past, current and expected demands on the health care system resulting from resource development activities and/or boom/bust cycles may have resulted in additional vulnerabilities and demands on the system, potentially rendering them less able to adapt to additional pressures. This is especially true when considering the cumulative impacts of this project and the many planned and current projects that are placing or expected to place pressures on health care services within Northern Health.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink conducted technical discussions with Northern Health officials, who provided information and issues on various topics including but not limited to accommodation, service accessibility, substance abuse, workcamps and infrastructure capacity.		
1266	Application Section 15	Page 15-54, Line 23	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Frequency: Please provide evidence on which the conclusion "accidental and isolated" is based on?	Coastal GasLink clarifies that the term isolated denotes a potential effect confined to a specified phase of the assessment period, in this case construction. Coastal GasLink does not anticipate potential adverse effects on emergency services, health care services, social services and housing and commercial accommodation to occur outside of the construction phase of the proposed Project, other than in the case of an accident or malfunction during operations as described in Section 21 of the Application.		
1267	Application Section 15	Page 15-54, Line 26	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Magnitude: Based on the information provided, we do not agree with the statement "there is no effect on the social environment beyond that of an inconvenience".	Section 3.5of the Application provides information about the characterization of residual adverse effects and provides definitions of magnitude for each of the 5 pillars.		

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1268	Application Section 15	Page 15-55, Line 3	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	As noted previously. Northern Health is not resourced to provide these types of services to the temporary workforce and would be looking to proponents to provide these services on site and in collaboration/partnership with Northern Health.	Section 15.4.1 (Page 15-17) of the Application describes the medical services that will be available in construction camps for the proposed Project. This section also notes Coastal GasLink's commitment to comply with all applicable regulations including the WorkSafe BC regulations. First-aid personnel will be available in the construction camps for emergencies and available at the appropriate times to accommodate workers who require medical treatment as outlined in the WorkSafe BC regulations.		
1269	Application Section 15	Page 15-55, Line 13	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	As with health care services, social services provided by Northern Health are generally at capacity at most locations and are not set up to accommodate a shadow population.	Comment noted. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; emergency and social support service providers and Aboriginal groups.		
1270	Application Section 15	Page 15-55, Line 34	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Context: As with health services, we do not agree with the statement that because communities have previously accommodated the needs of an industrial workforce, they are considered to be resilient to short-term increases in services. As noted above, past, current and expected demands on the system and boom/bust cycles resulting from resource development activities may result in additional vulnerabilities and demands on the system, potentially rendering them less able to adapt to additional pressures.	Comment noted.		
1271	Application Section 15	Page 15-34, Line 31	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	The application notes that counsellors will be available on site. Please provide details and include this information in Table 15-18 under "mitigation"	Coastal GasLink is committed to ensuring a safe and respectful workplace. Individuals in construction camps will have access to medical services as required by BC Worksafe regulations. Workers seeking access to additional social services may access support through various means including on-site medical staff support, help lines, online services and services available in the municipalities in the Community and Regional Infrastructure and Services LSA. Coastal GasLink will continue to communicate with local and regional social service providers to provide schedules and identify service gaps.		
1272	Application Section 15	N/A	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Impacts to Health Services, Emergency Services and Social Services. Through the application, impacts on the above-noted services appear to be limited to the direct impacts from the temporary workforce. Based on our understanding, boom-bust, resource development projects also have the ability to impact the socio-economic determinants of health (income inequities, availability of adequate housing, drug and alcohol use, domestic violence, etc.) within the communities which can impact health and social service needs. Please provide details of how this project (especially in light of the cumulative impacts of the various projects anticipated or occurring in the region) may impact the socio-economic determinants of health in the communities within the LSA and how these may impact health and social service levels throughout the boom/bust life cycle of the project.	Coastal GasLink confirms the information about Cumulative Effects, Mitigation and Social Management Strategies is provided in Section 15.5.6.		
1273	Application Section 15	Page 15-61 Line 11-29.	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Northern Health does not agree with the determination of impacts to Health Services and Social Services being "not significant" especially in light of the current proposed mitigation strategies and follow up program, the existing challenges faced by the health care sector and the cumulative impacts from existing and proposed projects for this region.	Coastal GasLink confirms that information provided on Page 15-60 of the Application identifies that a potential residual adverse effect is considered significant if it is predicted to have a severe reduction in the capacity of community utilities and services, has short to medium-term reversibility, is regional, provincial or national in extent and cannot be technically or economically mitigated; or if it is predicted to have a severe reduction in the capacity of community utilities and services, has long-term or permanent reversibility, occurs in any		

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									spatial boundary and cannot be technically or economically mitigated. The identified potential residual effects were determined not to meet this definition.		
1274	Application Appendix 3A	N/A	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please detail how projects were included or excluded to interact with the Community Utilities and Services and Community Quality of Life LSA and RSA. It is not clear if only project directly located in the LSA/RSA identified were included or also projects that are located outside of the LSA/RSA but whose impacts are experienced within the LSA/RSA. We would argue that all projects that impact the Economy/Employment RSA/LSA would have the potential to impact the Community RSA/LSA as workers for these projects would likely reside and/or seek services from within the RSA/LSA.	Section 3.8.4 of the Application outlines the selection process for existing and future activities and projects included in the cumulative effects assessment. A project or activity was included if it was within the largest spatial boundary considered for the VC. Coastal GasLink confirms that Site C is in the inclusion list and considered in the social and economic effects assessment. The project is outside of the RSA for the other VCs.		
1275	Application Section 15	Page 15-65, Table 15-21	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Additional important projects to mention in the "existing activities" column would be Site C, the proposed LNG facilities, existing and proposed coal and mineral mines, etc.	Table 15-21 of the Application lists the existing activities and reasonably foreseeable future developments that could act in combination with the proposed Project and includes those activities and projects listed in Appendix 3A (Cumulative Effects assessment Inclusion List), which includes LNG facilities and existing and proposed mines. Site C is also considered in the social and economic effects assessment, as it is thought to affect communities that are in the RSA for social and economic VCs.		
1276	Application Section 15	Page 15-67 Table 15-2	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Additional mitigation (in addition to those suggested above) may also include communication and collaboration with other projects expected to interact with the project.	Coastal GasLink has conducted an assessment of emergency services in its Application for Environmental Assessment Certificate in Section 15. This assessment includes cumulative and residual adverse effects of the proposed Project (section 15.5.6). Details about projects included in the cumulative effects assessment inclusion list can be found in Appendix 3A.		
1277	Application Section 15	Table 15-23	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Given the current and anticipated projects in the LSA and RSA, it would be pertinent to provide more detail on how the frequency of "isolated" and "accidental to isolated" was reached for the cumulative emergency, health care and social services impacts.	Coastal GasLink clarifies that the term isolated denotes a potential effect confined to a specified phase of the assessment period, in this case construction. Coastal GasLink does not anticipate potential adverse effects on emergency services, health care services, social services and housing and commercial accommodation to occur outside of the construction phase of the proposed Project, other than in the case of an accident or malfunction during operations as described in Section 21 of the Application.		
1278	Application Section 15	Page 15-71, Line 21	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	As above, we question the comment "many facilities and services do not expect capacity challenges with an increase in a temporary workforce because they are adequately staffed and could handle additional usage" since this does not align with our current understanding of health care service capacities.	Comment noted. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; emergency and social support service providers and Aboriginal groups.		

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1279	Application Section 15	Line 7-31 and 28-11	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Context: As noted previously, we do not agree with the statement that because infrastructure and services in the LSA/RSA have a long history with resource-development activities, they are considered to be resilient to short-term increases in service demands. Given the past, current and foreseen impacts to health and social services in the LSA/RSA these systems may be more vulnerable to pressures. Duration: For social services, please provide justification for "short-term" especially in light of potentially social services that may be required due to impacts on the mental health for community residents associated with the boom/bust nature of the cumulative projects (e.g. loss of employment and opportunities following the "boom" has been cited to result in impacts to social services); Frequency: please provide justification of "accidental to isolated" frequency when considering the cumulative impacts of all of the projects on the health and social services provided in the LSA/RSA as a whole. Reversibility: please provide justification of "short-term" based on the cumulative impacts associated with the various projects that will rely on health and social services as a whole. This should include legacy health service demands arising/remaining as part of the boom/bust nature of the rapid development happening in the RSA/LSA (e.g. mental health concerns associated with job losses following the boom, etc.)	Section 3.5of the Application provides information about the characterization of residual adverse effects and provides definitions of magnitude for each of the 5 pillars. Definitions specific to the assessment of social effects is provided in Section 15.5.3.Coastal GasLink held technical discussions which informed context, with Northern Health officials, who provided information and issues on various topics including but not limited to accommodation, service accessibility, substance abuse, workcamps and infrastructure capacity.		
1280	Application Section 15	Page 15-76, Table 15-24	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Based on information provided in this application, Northern Health is not confident of the significance determination for residual cumulative effects of the proposed project and the recommended follow-up and monitoring, especially in light of the volume of current and anticipated projects for this region. More detail should be provided in the residual cumulative adverse effects that are anticipated (location, type, extent, etc.)	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1281	Application Section 15	Page 15-39 and 15-40	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	For Community Quality of Life, we would expect the proponent to link the results of the social and economic technical reports to the socio-economic determinants of health. We would expect that this section include baseline information on community health indicators such as drug and alcohol use, community cohesion, socio-economic indices, community engagement and volunteerism, children and youth at risk, etc. as well as information on the existing community impacts that have been experienced by communities in the LHA from past and/or existing resource development projects.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1282	Application Section 15	Page 15-95, Line 27	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Given that community quality of life can be impacted throughout the boom/bust cycle of the project, the assessment should focus on the entire lifespan of the project including how workforce reductions following construction and operations may impact community quality of life.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1283	Application Section 15	Page 15-95	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Please further identify how quality of life indicators were chosen and eliminated. In our opinion, the full range of potential quality of life indicators were not assessed and/or identified (e.g. community/social cohesion, family cohesion, impacts from shift work/remote work to family life, youth at risk, children at risk, impacts from economic inequities, drug and alcohol use, level of STIs, etc.). In our view, the assessment would require a review of available literature from similar resource-development projects (from within Canada and internationally) to identify the types of Community Quality of Life impacts that are typically associated with these types of projects.	The VC and KI were identified in the AIR issued by the EAO in May 2013.		
1284	Application Section 15	Page 15-98, Line 1-21	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	It is not clear whether the identified mitigation will be adequate to significantly reduce the adverse social effects since the potential adverse social effects before and after mitigation appear to be the same in Table 15-32. It does not appear that all technically and economically feasible mitigations measures were considered (e.g. how will impacts to marginalized populations be mitigated?). Please also detail the construction camp policies that will be implemented.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink confirms that all employees and contractors are required to comply with Company policies including: • Alcohol and Drug Policy, • Harassment-free Workplace Policy,		

Coastal GasLink Project: Working Group Comment Tracking Table

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									<ul style="list-style-type: none"> • Aboriginal Relations Policy, • Code of Business Ethics 		
1285	Application Section 15	Page 15-102, Line 2	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	The application notes that the proponent "cannot predict the choices that may be made by individuals as a result of the employment opportunities made available." While this is true, we argue that proponents can take steps to work with the communities to identify potential solutions that will minimize negative impacts associated with the project.	Comment noted.		
1286	Application Section 15	Page 15-102, Line 20-37	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Context: As previously noted, communities that have a long history of supporting resource-based activities and have experienced the influx of population are not necessarily more resilient to impacts. Based on our experience and understanding, boom/bust resource-based communities can be more vulnerable to additional pressures. Duration/frequency/reversibility: Please identify why legacy impacts of boom/bust cycles on the Community Quality of Life were not included in the assessment and how this may impact the duration/frequency/reversibility of the impacts.	Comment noted. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; emergency and social support service providers and Aboriginal groups. Coastal GasLink held technical discussions which informed context, with Northern Health officials, who provided information and issues on various topics including but not limited to accommodation, service accessibility, substance abuse, workcamps and infrastructure capacity.		
1287	Application Section 15	Page 15-103, Line 23	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Context: as above	Comment noted. Coastal GasLink gathered information from available sources, including community reports developed by Aboriginal groups and through discussions with representatives from municipal, regional and provincial governments; economic development agencies; emergency and social support service providers and Aboriginal groups. Coastal GasLink held technical discussions which informed context, with Northern Health officials, who provided information and issues on various topics including but not limited to accommodation, service accessibility, substance abuse, workcamps and infrastructure capacity.		
1288	Application Section 15	Page 15-104, Table 15-34	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Based on information provided in this application, Northern Health is not confident of the significance determination for residual effects of the proposed project and the adequacy of the recommended follow-up and monitoring. More information should be provided in regards to the type, extent, etc. of the residual adverse social effects simply identified as "change in community quality of life" in the report.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1289	Application Section 15	Page 15-106 to 15-113	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	As in the effects assessment, the cumulative effects assessment does not appear to provide enough detail on the expected cumulative impacts to the Community Quality of Life. It does not look at the wider potential Community Quality of Life indicators noted above and did not provide sufficient rationale or references for the effect characterization, mitigation options, etc.. More evidence-based information should be provided in regards to the type, extent, etc. of the cumulative adverse effects and residual effects that can be expected on the Community Quality of Life as well as a more in-depth discussion of the technically and economically feasible mitigation options available to reduce residual cumulative impacts to as low as reasonably achievable.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		

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1290	N/A	N/A	Community and Regional Infrastructure and Services	23-Apr-14	Barb Oke	Northern Health	N/A	Based on the information provided, Northern Health is not confident in the determination of impacts to Community Quality of Life being "not significant", especially in light of the volume of current and proposed resource development projects for this region.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014.		
1291	Application Appendix 2L	N/A	N/A	28-Apr-14	June Yoo Rifkin & David Leung	Environment Canada, Environmental Assessment Unit	N/A	See Environment Canada letter dated April 28 2014 - Attachment 1 Advice on Marbled Murrelet for proposed Coastal GasLink Pipeline Project	Acknowledged.		
1292	Application Appendix 2L	N/A	N/A	28-Apr-14	June Yoo Rifkin & David Leung	Environment Canada, Environmental Assessment Unit	N/A	See Environment Canada letter dated April 28 2014 - Attachment 2 Advice on Southern Mountain Population of Woodland Caribou for proposed Coastal GasLink Pipeline Project	Acknowledged.	See Environment Canada letter dated June 23 2014 - Attachment 4 Southern Mountain Caribou	
1293	Application Appendix 2L	N/A	N/A	28-Apr-14	June Yoo Rifkin & David Leung	Environment Canada, Environmental Assessment Unit	N/A	<p>The proposed project traverses three Bird Conservation Regions, Bird Conservation Regions 5, 10 and 6. There are publicly available plans for each region which outline birds of conservation concern (http://nabci.net/Canada/English/bird_conservation_regions.html). - Despite use of expert opinion and data, Environment Canada (EC) notes that species-habitat models are still hypotheses, particularly when applied to new geographic areas. EC requests clarification on how species habitat models will be tested to ensure accurate assessment of risk.</p> <p>EC notes that poor sampling occurred in many BEC zones, especially Alpine, MH BEC zone and Rangeland habitat. Alpine surveys may have been too early in the season and/or conducted in weather that was too extreme. Rangeland surveys are more sensitive to time of day (singing reduced significantly later in the morning, even within the recommended survey window) and more likely to be windy so are best performed in early part of the allowable survey window. It is particularly difficult to assess effects in Alpine areas where only 2 surveys of 100m radius were performed, with no birds detected at all. EC suggests that replication of point counts would help monitor long-term or potential effects.</p> <p>EC advises that field surveys should be conducted for Common Nighthawk - only expert opinion and untested hypotheses species-habitat models were used. Given this species' status as a Species at Risk (SAR), it is particularly important that baseline data are the result of field-based surveys. It is questionable that linear openings are creating high-quality habitat for this ground-nesting species which could be particularly vulnerable to nest predation and a potential increase in nest predators which may use linear openings for their movements.</p> <p>EC suggests that more clarity is needed on assessment of potential effects on Olive-sided Flycatcher as this SAR species was detected in over half of Acoustic recorder surveys and within the top 25 species recorded at point counts.</p> <p>EC recommends the assessment of the overall mortality of birds due to a number of anthropogenic threats. Some of the anthropogenic threats were identified by Coastal GasLink Pipeline Ltd. (the Proponent), including; night lighting (which can affect navigation during migration and may cause collisions with structures), noise from machinery and additional road infrastructure (roads can cause significant mortality due to vehicle collisions or sub-lethal effects such as stress and avoidance due to noise). Common Nighthawk may be at increased risk to collisions with vehicles, as they have a propensity to sit on roadways to help them thermo regulate on cold nights and mornings. While threats to breeding birds are a very important consideration, threats to migrating birds should be considered as well. The boreal forest is the breeding bird nursery of North America and consequently densities of birds using or passing over the project area during the migratory period can be very high. These areas may be different in the fall as later pulses of insects and berries make alpine areas attractive and</p>	Coastal GasLink confirms that the model confidence was determined using field-based wildlife habitat assessments that were completed in 2013 as part of the TEM field program. A total of 293 TEM survey plots were visited by wildlife biologists and habitat suitability was assessed for the bird and mammal indicators. Confidence in the wildlife habitat models was determined by comparing field-based habitat suitability ratings to office-based ratings assessments, and viewing the range of agreement or disagreement. Histograms illustrating the range of variability between office- and field-based ratings are provided in Section 4.5.2 of the Wildlife Technical Data Report (Appendix 2-L of the Application). Coastal GasLink acknowledges that habitat models do not necessarily reflect exact conditions, and the model results are used as a tool for planning. Appropriate mitigation will be implemented to reduce the risk of the Project adversely affecting migratory birds, including but not limited to clearing outside of identified breeding periods, pre-clearing surveys and application of protective buffers. Thank you for the suggestion. The majority (147 of 269; 55%) of songbird point count surveys were completed within the SBS zone. The 147 point count surveys are sufficient (from a statistical analysis perspective) to provide a precise estimate of songbird density within the SBS zone (see standard error estimates in Table 4-32, pg. 250 of the TDR). Coastal GasLink made no inferences about bird density in any sub-zone, including the SBSdk and SBS mc2, as the required sample size (i.e., > 60 detections - see Line 8, Page 56 of the TDR) was insufficient to calculate bird density at the sub-zone scale. The effects assessment is based on available information and uses a precautionary approach by assuming that effective habitat in the study area may be utilized by common nighthawk. The habitat model results indicate that although effective habitat for common nighthawk (i.e. moderate + high quality habitat) is predicted to increase, the amount of high quality habitat is expected to	See Environment Canada letter dated June 23 2014 - Attachment 3 Wetlands	

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							<p>potentially critical refueling areas for south-bound migrating birds. EC suggests the following issues to be taken into account:</p> <ul style="list-style-type: none"> • The spread of invasive exotic species (both plant and animal) from the habitat fragmentation and linear developments. As well as the spread of native species which may adversely affect the existing community, e.g., nest-parasitic brown-headed cowbirds, as mentioned by the proponent, but also Barred Owls, which may outcompete and or directly depredate or affect behaviour of native owl species, including Western Screech Owls and red-winged blackbirds which can successfully outcompete Rusty Blackbirds in altered habitats. While certain species may appear to be minimally affected by linear development when examining certain measures such as habitat use or species richness, it is critical to focus on species that are sensitive to disturbances and also account for the range of factors that affect birds both during breeding and on migration. • Effects of habitat loss: potential loss of significant prey volume for a broad range of birds that may not even use wetlands directly for nesting. Aerial insectivores are declining as a guild across North America, many of them significantly, including Olive-sided flycatcher, Common Nighthawk, Barn Swallow, Bank Swallow etc. In addition, many birds use wetland/riparian areas during other stages of their life cycles, and/or during the post-fledging period. The impacts of loss of these habitats cannot be measured by the apparent use of nesting birds only. <p>EC advises that proponents should be aware that construction during the nesting period for migratory birds carries with it high risks of incidental take. Many bird nests are difficult to locate, even with highly trained observers. Proponents should be aware of the risks and take appropriate action to ensure they are in compliance. See the links for more information: http://www.ec.gc.ca/paom-itmb/.</p>	<p>decrease. This is a function of low quality forested habitat being converted to early seral stages that are considered of moderate habitat quality for common nighthawk. As noted in Section 10.11.4 of the Application, common nighthawks utilize open habitats and therefore could potentially benefit from the increased openness that will result from the proposed Project. However, anthropogenic clearings might be less suitable habitat than naturally occurring open habitats as a result of predation or other factors. This was considered in the assessment. Despite an apparent increase in effective habitat indicated by the habitat models, the Project is still considered to have an adverse residual effect. The assessment was completed in accordance with the AIR, which does not include olive-sided flycatcher as a species-specific KI. The assessment of the Mature/Old Seral Forest Birds, Early Seral Forest Birds and Wetland bird community KIs are relevant to olive-sided flycatcher (please refer to Section 10.11 of the Application). The assessment of potential effects on the Mature/Old Seral Forest Birds, Early Seral Forest Birds and Wetland bird community KIs included consideration of potential Project effects related to change in habitat, change in movement and change in mortality risk, and included both direct and indirect pathways arising from the construction and operations of the proposed Project (see Sections 10.11 and 10.16 for details). Olive-sided flycatcher is listed as Threatened under Schedule 1 of SARA and by COSEWIC (2014) (Environment Canada 2014), is Blue-listed in BC and has a Conservation Framework Priority rating of 2 (BC CDC 2014). Population declines over the last 40 years may be related to anthropogenic forest disturbances acting as ecological sinks, habitat loss, or reductions in prey (insect) availability (COSEWIC 2007, Robertson and Hutto 2007, Nebel et al. 2010). Olive-sided flycatchers are considered an early post-fire dependent species and make use of natural openings (Robertson and Hutto 2007). The proposed Project will increase open habitat; however, anthropogenic disturbances may act as ecological sinks (Robertson and Hutto 2007). Therefore, habitat on the disturbed Project footprint may not be effective for olive-sided flycatcher until the forest structure no longer has characteristics of a human development. Regeneration of forest vegetation will begin during the operations phase over much of the Project footprint, with the exception of facility sites and portions of the proposed pipeline right-of-way that will be maintained with low vegetation for maintenance and operation. Restoration of forested habitat to mature or late seral stages with natural openings will take decades. Sensory disturbance and mortality risk associated with construction is reversible immediately upon completion of activities. Sensory disturbance from compressor and meter stations will occur continuously over the operations phase, and is reversible upon</p>			

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									<p>decommissioning. Implementation of the mitigation proposed in the Application is expected to reduce the magnitude of the Project's residual effects to low.</p> <p>British Columbia Conservation Data Centre. 2014. BC Species and Ecosystems Explorer. British Columbia Ministry of Environment, Victoria, BC. Website: http://a100.gov.bc.ca/pub/eswp/. Accessed: May 2014. Committee on the Status of Endangered Wildlife in Canada. 2007. COSEWIC assessment and status report on the Olive-sided Flycatcher <i>Contopus cooperi</i> in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, ON. vi + 35 pp. Committee on the Status of Endangered Wildlife in Canada. 2014. Canadian Species at Risk. Website: http://www.cosewic.gc.ca/eng/sct5/index_e.cfm. Accessed: May 2014. Environment Canada. 2014. Species at Risk Public Registry. Website: http://www.sararegistry.gc.ca/default_e.cfm. Accessed: May 2014. Nebel, S., A. Mills, J.D. McCracken and P.D. Taylor. 2010. Declines of aerial insectivores in North America follow a geographic gradient. <i>Avian Conservation and Ecology</i> 5(2):1. Robertson, B.A. and R.L. Hutto. 2007. Is selectively harvested forest an ecological trap for olive-sided flycatchers? <i>Condor</i> 109(1):109-121. Potential adverse effects of the proposed Project on migratory birds were considered in the assessment for the bird Key Indicators (KIs). Pathways of direct and indirect mortality were evaluated. Given the progressive nature of construction activities along a linear development such as the proposed pipeline, activities that have potential to directly affect migratory bird mortality risk are of short-term duration at any given location. The Application proposes mitigation to reduce the potential for the Project to affect migratory bird mortality risk. Mitigation will be refined in consultation with the appropriate regulatory authorities, and with site-specific information collected prior to construction. Coastal GasLink will consult with regulatory authorities to determine whether alternate mitigation to address common nighthawk on Project access is warranted. With implementation of the proposed mitigation, the Project is unlikely to have adverse effects that would substantially affect migratory bird mortality risk or abundance at the population scale. The Application considered the suggested effect pathways in the assessment of effects on bird KIs. Changes in vegetation community structure and composition, including invasive species, are addressed in the Application. Mitigation to avoid introduction and spread of weeds is expected to effectively reduce this potential effect. Potential effects of interspecific competition was identified as a potential concern (please refer to context provided for bird KIs in Section 10.11 of the Application) where relevant. For example, competition with dominant species such as red-winged blackbird, disease, pest control (in the wintering grounds in the USA), and</p>		

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									<p>increased predation and interspecific competition in fragmented habitats are suggested contributing factors for rusty blackbird declines (Greenberg and Matsuoka 2010, COSEWIC 2006). This context is considered in the characterization and significance conclusions provided for bird KIs in the Application.</p> <p>Greenberg, R. and S. Matsuoka. 2010. Special Section: Rangewide ecology of the declining rusty blackbird. Rusty blackbird: mysteries of a species in decline. The Condor 112(4):770-777.</p> <p>Committee on the Status of Endangered Wildlife in Canada. 2006. COSEWIC assessment and status report on the Rusty Blackbird <i>Euphagus carolinus</i> in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, ON. vi + 28 pp. The assessment approach identified the residual adverse effects of the Project on wildlife KIs as the combined suite of effect mechanisms (changes in habitat, movement, mortality risk), whereby the Project could interact with and affect each KI. This allows for the assessment to not only incorporate consideration of KIs experiencing combined effects from multiple pathways, but also the effects associated with various life stages and Project phases. The quantitative analyses completed (e.g., habitat modelling) provides information on habitat used during KI life stages expected to be most sensitive to effects or most likely to experience and interaction with the Project. The information provided informs the assessment, however, other factors are considered in the effects characterization and significance determinations.</p> <p>The proposed Project is not expected to result in the loss of significant prey volume for birds. Small mammals may avoid the proposed pipeline corridor due an increased perceived predation risk; however, the proposed mitigation (e.g. redistributing large-diameter slash (rollback) over select locations on the ROW such as locations where high levels of coarse woody debris occur prior to construction) will help mitigate this potential adverse effect. Mitigation to minimize effects on wetlands and riparian areas will reduce the potential Project effects on insect populations, as well as birds that use wetland/riparian areas for life cycle stages other than nesting.</p> <p>Current information suggests there may be various factors contributing to insectivore declines, potentially including intensive agricultural practices, liberal pesticide use, climate change, habitat change and interspecific competition. Some research has demonstrated that aerial insectivores (bats) use forest edges created by anthropogenic disturbance for foraging. Forest edges are often associated with elevated bat foraging activity, likely because they provide openings needed by bats, provide movement corridors, or accumulate insects (Morris et al. 2010, Jantzen 2012).</p> <p>Morris, A. D., Miller, D. A., and Kalcounis-</p>		

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									Rüppell, M. C. 2010. Use of forest edges by bats in a managed pine forest landscape. The Journal of Wildlife Management 74(1): 26-34. Jantzen, M. K. 2012. Bats and the landscape: The influence of edge effects and forest cover on bat activity (Doctoral dissertation, MS thesis. University of Western Ontario, London, Ontario, Canada). Coastal GasLink is aware of the identified risk and referenced documents, and will consider these when refining mitigation.		
1294	Application Appendix 2L	N/A	N/A	28-Apr-14	June Yoo Rifkin & David Leung	Environment Canada, Environmental Assessment Unit	N/A	The Proponent has acknowledged that caves, mines and tall rock faces with deep fissures are likely the primary hibernacula and possible roosting habitat for bats. It was commented that steep topography was avoided for the project RoW whenever practical, and that no known mines or caves exist along the proposed pipeline route. The focus for the modeling was old/mature seral forest habitat that parallels the habitat for birds. As field surveys or specific desktop surveys for cliffs/caves were not conducted specifically, what assessment was performed to detect presence or absence of mines or caves, and at what scales (i.e. RoW, LSA or RSA)? EC requests information on the methods that will be used to perform field surveys in selected areas. EC advises that habitat assessments and mapping are preliminary steps in locating landscapes with features that could support bat hibernacula. Field surveys employing methodologies such as radio-tracking, mist netting, inventories of bats inside caves or mines or acoustic monitoring with bat detectors could be used to locate actual hibernation sites and confirm their use by bats. These methods are in line with the RICS survey methods. Ministry of Environment, Lands and Parks. 1998. Inventory methods for bats. RISC Standards- for components of British Columbia's Biodiversity no. 20. Version 2. 51 pp.	A bat was observed during field studies crawling on a rock face, which might indicate roosting or hibernation habitat (Wildlife and Wildlife Habitat TDR in Appendix 2-L of the Application). A site visit will be completed prior to construction to assess this feature, its proximity to the construction footprint and additional mitigation will be developed, if warranted. As construction planning and detailed engineering design advance, the information collected to date for the Application will be reviewed to determine where additional field work related to bat hibernation habitat is warranted. If additional mitigation is warranted, Coastal GasLink will discuss the approach with the appropriate regulatory authorities.		
1295	Project Overview	1-8	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Approximately 32 meter right of way - what is definitive number?	Coastal GasLink confirms that Table 1-3 of the Application describes the permanent ROW as approximately 32m wide.		
1296	Compressor stations	1-10	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Up to 8 metering stations- what is definitive number?	As described in Section 1.2.1 of the Application, the proposed Project will have an initial capacity of approximately 2 - 3 bcf/d with the potential for expansion up to approximately 5 bcf/d. In Section 1.2.2, the Application states that the proposed Project includes the installation of compressor stations at up to eight locations in the expansion scenario. At least one compressor station required initially will be constructed concurrently with the pipeline. The proposed Project is designed to include metering facilities at three potential locations.		
1297	N/A	1-13	Access	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	There will be 60 km of new access roads - where will they be?	Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. The complete temporary facility footprint was not included because the locations for these will be developed during the construction planning and detailed engineering design. For example, in the case of access roads as shown in Table 1-5 of the Application, in some cases, there will be no work required, while in others there may be a need for road upgrades or new road construction. Each of these scenarios would have a different requirements for clearing, depending on the		

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									location and type of access needed.		
1298	N/A	1-13	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	[Is] Clean up, landscaping and demobilization included with the GHG [emissions calculations] numbers?	Coastal GasLink confirms that the GHG assessment considers construction and operations of the Project. Construction activities include cleanup, reclamation, and demobilization of construction equipment.		
1299	N/A	1-14, 1-15, 1-17	Temporary camps, temporary storage areas, stockpile sites, main camps, railway sidings, contractor storage areas, laydown areas, borrow sites, temporary ancillary sites	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	What is total amount of sites, what is total areas used and are all these included in the project footprint?	Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. The complete temporary facility footprint was not included because the locations for these will be developed during the construction planning and detailed engineering design. For example, in the case of access roads as shown in Table 1-5 of the Application, in some cases, there will be no work required, while in others there may be a need for road upgrades or new road construction. Each of these scenarios would have a different requirements for clearing, depending on the location and type of access needed.		
1300	Application Section 1.2.4	1-21	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	No references to aboriginal activities?	The description of traditional land and resource use is included in Section 16 of the Application.		
1301	Decommissioning	1-36, 1-37	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	What are the plans for the end of the project?	Section 1.2.7 describes decommissioning and abandonment activities. The Application considers potential adverse effects associated with decommissioning and abandonment in a qualitative manner. At an appropriate time prior to the decommissioning and abandonment phase, specific mitigation will be developed for the proposed Project considering the regulatory context at that time and input from Aboriginal Groups and interested parties.		
1302	Application Figure 1-5	1-43	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	What were the evaluation criteria and baseline studies list?	The determination of evaluation criteria is described in Sections 1.4.4 (route evaluation criteria), 1.4.13 (temporary workspace evaluation criteria), 1.4.14 (facilities evaluation criteria), and 1.4.15 (access road evaluation criteria). Section 1.4.16 includes considerations for determining pipeline installation methods for watercourse crossings. Section 1.4.1 refers to baseline desktop studies undertaken to support considerations of the conceptual corridor and progression to the study corridor, as described on page 1-44.		

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1303	Temporary workspace	1-64	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	What is the total hectares for all sites?	Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. The complete temporary facility footprint was not included because the locations for these will be developed during the construction planning and detailed engineering design. For example, in the case of access roads as shown in Table 1-5 of the Application, in some cases, there will be no work required, while in others there may be a need for road upgrades or new road construction. Each of these scenarios would have a different requirements for clearing, depending on the location and type of access needed.		
1304	Division of east and west Coastal GasLink-LP	1-66	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	At which metering station is it?	Coastal GasLink Pipeline East BC Limited Partnership will own the beneficial interest in the proposed Project assets upstream of a point near Vanderhoof, British Columbia, and Coastal GasLink Pipeline West BC Limited Partnership will own the beneficial interest in the proposed Project assets downstream of this point. The proposed meter station located near Vanderhoof is identified on Figure 1-1 of the Application.		
1305	Open trench crossings	1-69	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Open trench crossings How many?	Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. The table in this Appendix indicates the recommended pipeline crossing method for each watercourse.		
1306	EA Seeping	1-90	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Saik'uz wasn't a part of the seeping [scoping] of this project.	The AIR for the proposed Project was developed following the EAO's process that included Working Group review, Aboriginal Consultation, and Public Consultation. Saik'uz FN is on Schedule B of the Section 11 Order, and are members of the EAO Working Group and had opportunity to provide input to the development of the AIR.		
1307	Application Section 1 Appendices	1-94 to 1-128	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	On RoW - how much will require soil stripping and how much [will be] done?	Coastal GasLink is continuing its construction planning and detailed engineering design. It is expected that the typical construction ROW width will generally be 60 m. Topsoil will be conserved to the extent practical to maintain equivalent land capability.		
1308	Application Section 1 Appendices	1-94 to 1-128	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	There are no construction drawings for compressor or metering stations for review.	Coastal GasLink confirms that as construction planning and detailed engineering design advances, detailed information about compressor station and meter station construction will be provided to the OGC as part of the application for a permit under Section 25 of the <i>Oil and Gas Activities Act</i>		
1309	EA Process	2-2, 2-3, 2-4	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Need minutes from all sub-working group meetings.	The meeting minutes from all sub-working group meetings are available on the EAO's e-PIC site.		
1310	ACP	2-9	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Who approved this? Saik'uz was given and didn't approve.	Coastal GasLink submitted the Aboriginal Consultation Plan for the proposed Project to the EAO pursuant to Part G, Section 14.1.1 of the Order under Section 11 of the BC EAA. BC EAO approved the Aboriginal Consultation Plan on May 30, 2013.		

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									Appendix B of the Aboriginal Consultation Plan summarizes the comments received from Aboriginal groups on the draft Aboriginal Consultation Plan.		
1311	EA Methods	3-7	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Temporal boundaries don't include past forest uses and access roads already developed.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR, issued by the EAO in May 2013. The EAO completed its screening review on February 28, 2014, and accepted the Application filed on March 3, 2014. Section 3.2.2 of the AIR provides information about temporal boundaries for the assessment.		
1312	N/A	3-7	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	No administrative boundaries were used- why not?	Section 3.2.3 of the AIR states: "Administrative boundaries refer to the effects of political, economic or social boundaries on an EA. These may include existing datasets collected on the basis of regional or provincial boundaries that are not the same as the spatial boundaries of the selected VCs and could affect the assessment of the potential adverse effects." Coastal GasLink did not use any administrative boundaries in the Application, as these were not required.		
1313	Biophysical Field Studies	3-10,3-15	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Gathering of TEK information was given with full consent? See Saik'uz letters to both proponent and consultant.	Section 3 of the Application describes the methodology for the assessment in accordance with the AIR. Section 23.13 of the Application provides a description of engagement activities with Saik'uz FN about TEK and TLU.		
1314	Information Accuracy	3-15	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Did not report this at TEK review meeting with community on Nov 27, 2013, which was presentation, see letters to proponent and consultant.	Comment noted.		
1315	Cumulative Effects	3-25	Cumulative effects	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	List of projects is incomplete- incomprehensive to properly address due diligence or identify all effects of projects or they're impacts to rights, title or interests.	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR, issued by the EAO in May 2013. The EAO completed its screening review on February 28, 2014, and accepted the Application filed on March 3, 2014. Section 3.11.1 of the AIR outlines the process to identify reasonably foreseeable future projects as of August 2013.		
1316	N/A	3-26	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Temporal boundaries includes past development - this is contrary to page 3-7	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR, issued by the EAO in May 2013. The EAO completed its screening review on February 28, 2014, and accepted the Application filed on March 3, 2014. Information on page 3-7 outlines methodology for the characterization of residual adverse effects, whereas the content on page 3-26 outlines the methods used for cumulative effects assessment.		
1317	N/A	7-6	Aquatics	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Has DFO signed off on the Operations statement?	Coastal GasLink is committed to constructing the pipeline in accordance with the habitat protection provisions of the <i>Fisheries Act</i> , as well as DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat (formerly DFO Operational Statements).		
1318	N/A	7-37	White Surgeon	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Spawning sturgeon at Vanderhoof - please use the MoE and DFO reports for critical habitat.	Coastal GasLink submitted an Addendum to the Application identifying six revisions to the Application Corridor on March 24 2014. Section 3.0 of the Addendum discusses the alternate corridor at the Stuart River crossing location that was chosen as a result of the identification of critical habitat for white sturgeon in this section of the Stuart River at the previous crossing location.		

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1319	N/A	7-39	Crossings	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Where are the 32 large crossings between 11km2 to 1000km2?	Figure 1 of Appendix J of the Hydrology TDR identifies the boundaries of the hydrologic zones referenced in Table 7-5 of the Application, as well as the kilometer posts for each of these zones. The mapsheets in Appendix B of the Fish and Fish Habitat TDR indicate the locations of watercourse crossings along the proposed route.		
1320	N/A	7-42	Flow information	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Did they receive input from Rio Tinto Alcan who release water into the Nechako River? Should be taken into account for correct flows and turbidity rates.	Coastal GasLink did not collect input from Rio Tinto Alcan regarding release of water into the Nechako River. The analyses did not include the Nechako River below the reservoir, as this is outside of the hydrology RSA.		
1321	N/A	7-74	Reversibility	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	There are long term effects on 4 of them- which?	Coastal GasLink followed the methodology defined in the AIR. Two of the temporal aspects used to characterize residual adverse effects are duration and reversibility. The term "duration" refers to the period of the event that causes the residual adverse effect (e.g., clearing, construction). Reversibility refers to the time it takes for the residual adverse effect to be reversed, or in other words, the length of time the effect lasts. In Table 7-9, the duration and reversibility is a characterization of the residual effects listed in the first column of the Table. Table 3-5 of the Application defines reversibility for environmental effects as being "greater than 10 years to reverse residual adverse effects".		
1322	N/A	7-85 to 7-90	Crossings	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	How many are trenched crossings? And how many zones of influences?	Appendix C of the Fish and Fish Habitat TDR presents the Master Watercourse Crossing List. The table in this Appendix indicates the recommended pipeline crossing method for each watercourse.		
1323	Table 7-12	7-95	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Is the tertiary include current forest service roads in use?	Coastal GasLink confirms that the category "Tertiary/Access Roads" includes forest service roads.		
1324	N/A	7-98	Fish	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Total area of riparian habitat disturbed?	Table 7-12 of the Application shows the total estimated existing and future riparian disturbance in the Aquatic Environment RSA.		
1326	N/A	7-100,7-103	Fraser Basin	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	50% stream disturbance of major watersheds assumption - can recovery occur at this rate?	The statement on lines 25 to 28 on page 7-103 acknowledges the fact that not all existing crossings continue to contribute to instream habitat loss. Continuing habitat losses due to encroachment and sediment issues following construction at stream crossings varies widely depending on site. The potential effect of existing activities on instream habitat disturbance was reduced to 50% of crossings, a value that reflects the range of results reported in Harper and Quigley (2000).		
1327	N/A	7-102	Post construction recovery	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Use pictures for accuracy of pre-construction conditions for visual esthetics	Comment noted.		
1328	N/A	7-105	Fish compensation plans	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Nechako watershed plan commitment needed - the river is already over acceptable disturbance level s in our professional judgment.	Coastal GasLink will continue dialogue with the appropriate regulatory authorities about alternative mitigation strategies, such as compensation or offsets. Site specific plans will be developed for locations as required by DFO under its <i>Fisheries Act</i> authority. Such plans may include habitat enhancement or creation and reclamation.		

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1329	N/A	7-107	Stream crossings	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Density is under estimated because locations of temporary and permanent access roads are not known nor included in quantitative analysis	Locations for ancillary facilities will be selected during the detailed engineering and design process. The Application considers potential adverse effects associated with these temporary facilities in a qualitative manner. More detailed, spatial assessment of these facilities will be completed and the information will be provided to appropriate regulatory agencies during the permitting process.		
	N/A	7-108	Users affecting fish					Incorrect to assume that other land users follow federal and provincial guidelines- i.e.. ATV's, off-roading , skidoing, etc.	Comment noted.		
1330	Application Table 7-18	7-108, 7-111	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	What is the change in hazard index score for this and other 4 proposed projects?	The cumulative effects assessment took into account all of the projects in the Aquatic RSA, as listed in Appendix 3A of the Application.		
1331		7-119	Regional land use plans	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	They don't have thresholds or benchmarks as we know them.	Coastal GasLink clarifies that the Land Use Plans are provided as an example of "other planning documents" to identify species that are considered to be of conservation concern.		
1332	N/A	7-119	SARA	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Nechako White Sturgeon is protected by section 34 of Fisheries Act, please include.	Coastal GasLink will comply with all applicable legislation and regulatory direction, including the <i>Fisheries Act</i> .		
1333	N/A	7-121	FEARO 1994	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Use a more updated standard about cumulative effects.	Coastal GasLink applied the methodology for cumulative effects assessment outlined in the AIR, issued by EAO in May 2013.		
1334	N/A	7-124	Riparian disturbance	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	How came up with 93 hectares of disturbance number?	Table 7-12 of the Application shows the total estimated existing and future riparian disturbance in the Aquatic Environment RSA. Tables 7-24 to 7-27 provide the estimated existing and future riparian disturbances for each watershed basin crossed by the proposed route. Section 7.5.6 describes the process used in the cumulative effects assessment analysis.		
1335	N/A	7-194	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	How came up with 984 disturbance for other proposed projects?	Coastal GasLink requests clarification on the page reference for this comment.		
1336	N/A	7-127	Table 7-20	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Does this follow section 34 of federal fisheries act?	Coastal GasLink will comply with all applicable legislation and regulatory direction, including the <i>Fisheries Act</i> .		
1337	N/A	7-129	Table 7-20	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Disagree- the potential residual & cumulative effects will be significant.	Coastal GasLink applied the methodology for residual and cumulative effects assessment outlined in the AIR, issued by EAO in May 2013.		
1338	N/A	7-154	Surface water quality	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	For Saik'uz territory - what will be the erosion controls, reclamations, revegetations, bank stabilizations and monitoring be?	Coastal GasLink will implement mitigation to avoid or reduce the potential adverse effects on surface water quality, as outlined in Table 7-30 of the Application. Coastal GasLink will also implement the Environmental Management Plan, Appendix 2A of the Application.		
1339	N/A	7-166	Acid rock drainage	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Where are the 57 km on Fraser and Skeena River Basins?	Table 4-9 in the Terrain TDR provides a description of locations of acid rock drainage potential along the proposed route.		
1340	N/A	7-168	Watershed stream crossing density	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	We're already at high density at .72 to 2.71 crossings km2 so how can say at no cumulative effects?	Coastal GasLink applied the methods for cumulative effects assessment outlined in the AIR, issued by EAO in May 2013.		
1341	N/A	7-174	Table 7-38	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Has construction numbers but not the operation numbers - what will they be?	The potential interactions between the proposed Project and groundwater are expected to be limited to the construction phase. Any potential interaction during the operations phase would be as a result of an accident or malfunction, which are discussed in Section 21 of the Application.		

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1342	N/A	16-1	Cumulative effects	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Traditional use on Crown land- Crown hasn't proven ownership of land	Section 16 of the Application provides an assessment of the potential adverse effects of the Project on traditional land and resource use.		
1343	N/A	Table 16-1	Cumulative effects	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Nothing other than subsistence- add spiritual sites	The valued components and key indicators were defined in the AIR issued by the EAO in May 2013. The valued component, cultural sites, and the key indicator, gathering places and sacred areas are described in Section 16.1.3.		
1344	N/A	22-1	Environment effects on the Project	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Long term consequences of leaving this pipe in the ground permanently	Section 1.2.7 describes decommissioning and abandonment activities. It is anticipated that any one of the following three scenarios may occur during pipeline decommissioning or abandonment: pipeline removal, abandonment-in-place, and a combination of abandonment in place and pipeline removal.		
1345	N/A	22-21	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Operations monitoring of pipe - First Nation involvement needs to be a condition of certificate and all permits.	Comment noted.		
1346	N/A	14-2, 14-5	Land and Resource Use	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Vanderhoof LRMP, municipal OCP and RDBN plans referenced, need First Nation strategic land use plans reviewed	Comment noted. Coastal GasLink gathered information from available sources to inform the assessment presented in Section 14, including available Aboriginal land use plans and policies such as the Nak'azdli Stewardship Policy as noted on pages 14-3, 14-4.		
1347	N/A	14-50	Metis Nation of BC	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	First Nation title holders hold the collective title of all BC lands, see statements of claim to Canada by CSTC for Saik'uz First Nation (1982).	Comment noted.		
1348	N/A	14-51	Private and Crown Land	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Activities should include spiritual and health i.e.. Medicinal plants	Comment noted.		
1349	N/A	14-124	Increased access	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	We need access management plan for review	Coastal GasLink will develop an Access Management Plan prior to construction in consultation with the appropriate regulatory authorities. Coastal GasLink will continue to implement the Aboriginal Consultation Plan approved by the EAO. The Plan describes Coastal GasLink's commitment to continue engagement with Aboriginal groups from pre-application through construction and operations.		
1350	N/A	23-3	Aboriginal consultation	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Four additional groups not listed on the Section 11 order either b or c?	Correct. Coastal GasLink also provided information to the four additional Aboriginal Groups and organizations listed on page 23-3 that may be affected by or have an interest in the Project.		
1351	N/A	23-354	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Where it says tribe for Saik'uz- should be clans!	Acknowledged		
1352	N/A	16-28	Traditional Land and Resource	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Residual should be significant for alteration of subsistence resources - when land taken away, we can't do activities either	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR, issued by the EAO in May 2013. The EAO completed its screening review on February 28, 2014, and accepted the Application filed on March 3, 2014. Section 3 of the AIR provides information about the characterization of residual adverse effects.		
1353	N/A	16-38	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	Incorrect that project contribution to cumulative is not significant as this is only one of a thousand cuts experienced by First Nations over time	Coastal GasLink has completed a comprehensive assessment in accordance with the AIR, issued by the EAO in May 2013. The EAO completed its screening review on February 28, 2014, and accepted the Application filed on March 3, 2014. Section 3 of the AIR provides information about the characterization of residual adverse effects.		

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1354	N/A	16-51	N/A	30-Apr-14	Jackie Thomas	Saik'uz First Nation	N/A	How does notifying and communicating the disturbances expected reduce the cumulative effects of the project and what case studies show this as effective mitigation to use?	The additional mitigation for cumulative adverse effects described in Table 16-15 regarding notification is intended to facilitate and continue ongoing communication about scheduling specific activities of the project and activities at cultural sites to reduce adverse effects, and also to communicate with potentially affected Aboriginal groups regarding additional site-specific measures for specific access points along the proposed route.		
1355	Application Section 12.2.1	pg 12-2		15-May-14	Emily Colombo	District of Fort St. James		Applicant lists six provincial LRMP boundaries but does not include the Fort St. James LRMP. The Fort St. James LRMP maps available online are of poor quality and difficult to determine if perhaps the proposed pipeline ROW crosses in the Necosli/Stuart Lake and the Salmon Resource Management Zones outlined in this secondary document.	Coastal GasLink confirms that the proposed route does not cross the boundary of the Fort St. James LRMP. Section 3.2.2 of the Social Technical Report (Appendix 2M) identified the six LRMP boundaries crossed, including Dawson Creek, Prince George, Vanderhoof, Lakes, Morice and Kalum LRMP areas.		
1356	Application Section 12.3.2	pg 12-5		15-May-14	Emily Colombo	District of Fort St. James		Agreed that it is difficult to predict social and economic conditions at time of decommissioning if a lifespan on the project has not been set. That said we know that the project will someday be decommissioned, and abandoned. Lack of knowledge about when this will happen shouldn't absolve the company from having to plan for the social and economic adverse effects this will create when it does, regardless of other conditions at that time. We know some employees will be left jobless at that time, and that their shift into other employment and potentially other education needed to achieve future employment will have an impact on communities.	Coastal GasLink clarifies that the majority of the employment generated by the Project will be during the construction phase. The operations phase will provide few long-term employment opportunities and, as a result, decommissioning is not predicted to affect economic stability within communities. Tables 3-17, 3-18 and 3-19 on page 3-64 of the Economic Technical Report identifies the proposed project employment opportunities during pipeline construction, compressor station construction and operations.		
1357	Application Section 12.4.1	pg 12-6, line 26		15-May-14	Emily Colombo	District of Fort St. James		I would view the project's proposed 30+ year lifespan as having more than just a potential temporary impact on these activities. Anticipating the activities are disrupted for a minimum of 30 years, that is a multi-generational impact and intimate knowledge relating to these resource based activities, particularly of trapping, hunting, and foraging practices, could be lost forever if not shared inter-generationally.	Table 14-30 of the Application describes the predicted adverse effects and mitigation to reduce the potential effects of the Project on trapping, hunting and foraging activities, as well as registered trapping tenure holders, registered guide outfitter tenure holders and agricultural landowners and leaseholders. With the implementation of mitigation, the residual adverse effects were found to be not significant.		
1358	N/A	N/A		15-May-14	Emily Colombo	District of Fort St. James		In regards to eco-tourism and guiding the eco-tourism sector could be impacted for 30+ years. Building an eco-tourism sector is a long-term effort at developing critical mass of tourism providers. Reducing the number of providers in this area over potentially multiple generations would have a significant impact on this economic sector in a long term way.	Table 14-30 of the Application describes the predicted adverse effects and mitigation to reduce the potential effects of the Project on tourism, recreation and guiding outfitting activities, as well as on commercial recreation tenure holders. With the implementation of mitigation, the residual adverse effects were found to be not significant.		
1359	Application Section 12	pg 12-13		15-May-14	Emily Colombo	District of Fort St. James		Line 31 states 65 workers in agricultural and resource-based industries. I believe this number to be much higher given the large number of forestry and mine workers in town.	Coastal GasLink confirms that the employment estimates provided on page 12-13 are from the Statistics Canada 2011 National Household Survey. Only residents living in the community at the time of the survey are recorded. Temporary workers would not have been included in the employment sector estimates.		

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1360	Application Section 12	pg 12-31, line 6		15-May-14	Emily Colombo	District of Fort St. James		<p>Line 6 states Ruby Rock JV and Frost Lake Logging have obtained a forest license to log in the Fort St. John Area. Seems odd they would be logging in the Fort St. John Area – I would think the report means to suggest the Fort St. James area.</p> <p>There is a great amount of concern in the area over accelerated harvesting already taking place in the forest sector. We would appreciate if the company would prioritize logging in areas where the bulk of timber is deadwood (effects of the Mountain Pine Beetle), as we have a scarcity of green wood which traditionally is more profitable for forestry companies.</p> <p>This is perhaps an area for consideration of a cumulative effects assessment.</p>	Coastal GasLink notes that Page 12-32, line 6 should read Fort St. James. Table 14-30 on page 14-102 of the Application outlines mitigation to reduce potential effects on timber supply and forest harvesting operations. This mitigation includes consulting with BC forest companies to discuss mitigation to reduce the potential adverse effects on the tenure holders.		
1361	Application Section 12.4.3	pg 12-46		15-May-14	Emily Colombo	District of Fort St. James		<p>I did not read any community descriptions stating they will not be able to supply services. I did read that communities experience challenges finding employees for service-level workers i.e.. In restaurants and grocery stores and that early communication could help businesses to prepare for this.</p> <p>I also read that there is concern the increased need for employees will result in pulling workers away from other lower paying sectors such as forestry.</p>	Baseline information on the infrastructure and services that may interact with the Project are identified in the Application in Section 15, Community and Regional Infrastructure and Services. Discussions with community representatives identified issues for each community in the project area. Information about each community is presented in Table B-1, B-2, B-3 and B-4 of the Social Technical Report. Mitigation to address the potential effect of "skilled labour shortage" is presented in Table 12-9, page 12-62.		
1362	Application Section 12	pg 12-47, Table 12.3		15-May-14	Emily Colombo	District of Fort St. James		Information is given on the proposed construction section, workforce and camp capacity; it would be helpful to have a timeframe associated with this – timeframes for labour needs have been clearly identified by communities as important.	Table 1-3 on page 1-10 of the Social Technical Report provides a table entitled, "Proposed Construction Section, Main Construction Camps and Construction Schedules" that outlines the proposed construction section, workforce, camp capacity and expected timing.		
1363	Application Section 12.4.3	pg 12-47, lines 14/15		15-May-14	Emily Colombo	District of Fort St. James		An Aboriginal Participation strategy relates to Aboriginal employment directly. No mention of how Coastal Gas Link will seek these opportunities locally for non-aboriginal workers. How will these efforts be extended beyond those of prime contractors to ensure subcontractors also take these efforts? Where can I find the Aboriginal Participation Strategy?	Coastal GasLink is committed to sharing information, identifying qualified businesses/individuals and optimizing opportunities for local contracting for both Aboriginal and non-Aboriginal businesses/individuals. The Aboriginal Participation Strategy is a commercially confidential document, and as such, is not publically available, however, highlights of the Strategy can be found in Section 1.5.7 in the Application.		
1364	Application Section 12	pg 12-50		15-May-14	Emily Colombo	District of Fort St. James		Does TransCanada anticipate to pay workers for travel time? If workers are travelling 2 hours to site this is an additional 4 hours/day.	Coastal GasLink notes that the process to select construction contractors is ongoing. Construction contractors will determine how workers are paid, however contractors are expected to follow TransCanada's policy that limits a work day to 12 hours inclusive of travel.		
1365	Application Section 12	pg 12-53		15-May-14	Emily Colombo	District of Fort St. James		...this technically, culturally and traditionally based program has 11 youth from 11 Aboriginal groups participate in five weeks of valuable work experience and cultural mentorship with Elders... Great work!!	Coastal GasLink appreciates the comment.		

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1366	Application Section 12	pg 12-57, Table 12.8		15-May-14	Emily Colombo	District of Fort St. James		<p>Potential adverse economic effects are listed as: 1) Limited participation in contract opportunities; 2) Alteration of existing community economic patterns; 3) Disruption of guide outfitting, hunting, trapping, and agricultural activities in the proposed Project area.</p> <p>Would like to request to be included in this table: Decommissioning – potential adverse effect of loss of operational jobs to the local economies and families.</p> <p>Construction – potential adverse effect to drive up local rental housing and supply prices.</p> <p>Communities are already experiencing shortage of rental housing. Bringing many workers to these areas may further complicate and create pressure on housing availability. In particular women and families are more vulnerable to be displaced should rents increase in response to an influx of people in the area. For local suppliers an increase in demand for products may drive up prices for other purchasers including families and other resource sectors. This is perhaps an area for consideration of a cumulative effects assessment.</p> <p>All other elements of this table are satisfactory.</p>	<p>Coastal GasLink has completed a comprehensive assessment of effects in accordance with the Application Information Requirements (AIR) issued by EAO in May 2013. The Application was deemed complete and accepted for review by the EAO in March 2014.</p> <p>Tables 3-17, 3-18 and 3-19 on page 3-64 of the Economic Technical Report identify the proposed project employment opportunities during pipeline construction, compressor station construction and the operations phase. The majority of the employment generated by the Project will be during the shorter-term construction phase. The operations phase will provide few long-term employment opportunities and, as a result, decommissioning is not predicted to affect economic stability within communities.</p> <p>The potential effect "reduction in available rental housing and commercial accommodation" is identified in Table 15-18 on page 15-47 of the Application, and assessed in Section 15.5.3.</p> <p>Page 15-59 states that the construction workforce will be housed in construction camps along the proposed route. Limited rental housing will be needed for the temporary workforce.</p>		
1367	Application Section 12	pg 12-60, line 3/4		15-May-14	Emily Colombo	District of Fort St. James		"Inform the Aboriginal groups who the successful Prime Contractor is, after the prime contract is awarded" This action should also include how the Prime Contractor can be contacted.	Coastal GasLink confirms that once the Prime contractor(s) are selected contact information will be provided to Aboriginal groups and local communities.		
1368	Application Section 12	pg 12-59/60		15-May-14	Emily Colombo	District of Fort St. James		<p>Many of the tactics being used to encourage Aboriginal participation would be appreciated by local contractors including:</p> <p>Information sessions on Coastal's contracting practices, being included in a database of contractors, bundles of work packages made to sizes that will allow local businesses to compete successfully, and the opportunity to participate in de-briefing meetings with unsuccessful contractors to help understand why they were not selected.</p>	Coastal GasLink has met with local Chambers of Commerce and has presented information to members of the local business communities. Coastal GasLink maintains a database of contractors that includes both local Aboriginal and non-Aboriginal suppliers and will work with the prime contractors to help local businesses to compete for work packages.		
1369	Application Section 12	pg 12-61, lines 3-11		15-May-14	Emily Colombo	District of Fort St. James		To facilitate qualified Aboriginal and local businesses obtaining contracts... interested in providing relevant goods and services. Thank you!	Coastal GasLink appreciates the comment and is committed to providing opportunities for local business and individuals.		
1370	Application Section 12	pg 12-63		15-May-14	Emily Colombo	District of Fort St. James		Would like to see specific focus given to this in regional campuses and Aboriginal communities. The need to travel to Prince George in order to receive training is often a barrier to local and Aboriginal populations wishing to obtain education.	Coastal GasLink understands the value of education and training and is committed to providing local opportunities. As a result, Coastal GasLink has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. Coastal GasLink expects to have further information about partnerships for local education and training initiatives in mid-2014.		

Coastal GasLink Project: Working Group Comment Tracking Table

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1371	N/A	N/A		15-May-14	Emily Colombo	District of Fort St. James		<p>Note has been given to of barriers to employment for First Nations communities to include substance abuse, alcohol and drug testing, lack of life skills and financial literacy. (P. 12 – 29) For some, increased disposable income exacerbates additions and social issues. (P. 12 – 29)</p> <p>Is there any consideration being given to help develop programs for First Nations struggling with these barriers to economic participation? As some First Nations communities have cited that 'increased disposable income exacerbates additions and social issues', should this be considered a potential Adverse Economic Effect?</p>	<p>Coastal GasLink acknowledges the issues raised by Aboriginal groups with respect to increased Project employment and related disposable income. Coastal GasLink believes the proposed project presents an opportunity for local residents to benefit through implementation of training and education programs, as well as development of skills for ongoing career opportunities. However, Coastal GasLink cannot predict or control the choices made by individuals as a result of the employment opportunities presented by the Project. Coastal GasLink is committed to ensuring a safe and respectful workplace. Individuals in construction camps will have access to medical services as required by BC Worksafe regulations. Workers seeking access to additional social services may access support through various means including on-site medical staff support, help lines, online services and services available in the municipalities in the Community and Regional Infrastructure and Services LSA.</p>		
1372	Application Section 12	pg 12-64		15-May-14	Emily Colombo	District of Fort St. James		<p>Please ensure these conversations take place directly with the communities and education providers in the LSA and RSA. Many of the rural communities and rural education providers in the areas affected by the Project feel it is stronger to have these conversations directly, including the regional campuses. Recent challenges in college funding policies implemented by the province are causing college providers to centralize services in cities and away from the rural communities as a way to reduce expenses. This issue is complex and not necessarily indicative of the desires or fiscal abilities held by rural campuses. Providing increased courses in Prince George is not always an accessible way to increase education for citizens and First Nations in the rural areas along your pipeline route.</p>	<p>Coastal GasLink understands the value of education and training and is committed to providing local opportunities. As a result, Coastal GasLink has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. Coastal GasLink expects to have further information about partnerships for local education and training initiatives in mid-2014.</p>		
1373	Application Section 12	pg 12-64		15-May-14	Emily Colombo	District of Fort St. James		<p>"Short term workforce readiness training directly related to the proposed Project will focus on assessing and identifying gaps, determining proper skills development, and developing processes to help local residents obtain construction-related employment." If possible, please share any of this information with the communities and education providers from which it is obtained. Small communities lack capacity to be developing an awareness of all the cumulative impacts which accelerated resource development will have, and so being able to share information from companies is an asset in regards to preparation for cumulative labour impacts and annual education-provider training plans.</p>	<p>Coastal GasLink has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information for the purpose of developing meaningful partnerships for both the Project and the community.</p>		
1374	Application Section 12	pg 12-65		15-May-14	Emily Colombo	District of Fort St. James		<p>"As the proposed Project proceeds, Coastal GasLink will communicate with economic development organizations to confirm existing employment conditions in communities and the broader region before executing the employment strategy." Thank you!</p>	<p>Coastal GasLink appreciates the comment.</p>		
1375	Application Section 12	pg 12-66		15-May-14	Emily Colombo	District of Fort St. James		<p>Thank you. Many of the rural campuses are challenged by gaining and limited facilities. Are there any thoughts on how Coastal may work with rural campuses to increase their capacity to deliver relevant labour skills training? Some time ago the province developed some mobile trailing trailers – perhaps a similar model a possibility if the company isn't interested to support capital infrastructure in specific communities for specialized short-term training opportunities.</p>	<p>Thank you for your positive feedback. Coastal GasLink has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information for the purpose of developing meaningful partnerships both the Project and the community.</p>		

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1376	Application Section 12	pg 12-67, line 10		15-May-14	Emily Colombo	District of Fort St. James		Again I would like to reiterate the importance of this training program being focused on providing training the communities which are geographically along the pipeline route. Providing more classes in Prince George does little for learners who have barriers to travel for education (i.e.. Have young families, do not feel safe in Prince George, are not in a financial position to pay for extra accommodations outside of their current residence, have unique and deeply rooted ties to the land for subsistence or health reasons, or who do not have access to public transportation).How will the effectiveness of this training program be measured?	Coastal GasLink has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. These discussions include the sharing of information for the purpose of developing meaningful partnerships both the Project and the community. Objectives and measurable outcomes will be developed alongside the training/education partner and will be part of the final partnership plans.		
1377	Application Section 12	pg 12-70		15-May-14	Emily Colombo	District of Fort St. James		"Additional Mitigation: Monitor Coastal GasLink training program/ Communicate with Economic Development organizations to confirm employment conditions" Neither of these mitigation efforts will mitigate labour challenges, they will simply identify if such conditions exist.	Mitigation to address the potential effect "skilled labour shortage" is outlined in Table 12-9 on page 12-62. These measures include: <ul style="list-style-type: none"> - Implement the Coastal GasLink training program to enable unemployed or underemployed individuals to develop Project-specific employment skills and seek Project employment. - Provide the Project schedule to economic development organizations and post-secondary institutions to inform them of peak workforce demands. - Ensure alternative sources of skilled workers are in place to avoid disruption of the local employment market. - Communicate with economic development organizations to confirm existing employment conditions in communities and the broader region before executing the employment strategy. Coastal GasLink anticipates that these measures will be effective in addressing the potential skilled labour shortage, and with the implementation of these mitigation measures, skilled labour shortage is assessed to be not significant. The monitoring and follow-up mitigations are recommendations to confirm employment conditions in communities and the broader region.		
1378	Application Section 12	pg 12-71, line 7-15		14-Apr-14	Emily Colombo	District of Fort St. James		Why is the PRGT not included as a potentially overlapping project?	Coastal GasLink provides the Cumulative Effects Assessment Inclusion List in Appendix 3-A of the Application. The Prince Rupert Gas Transmission Project is included on the list, and was considered in the assessment of Employment and Economy, Land and Resource Use, Community Utilities and Services, Transportation Infrastructure and Services and Community Quality of Life.		

Coastal GasLink Project: Working Group Comment Tracking Table

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1379	N/A	N/A		14-Apr-14	Emily Colombo	District of Fort St. James		<p>Wildlife Concerns- Address concerns on how Bill C-38 amendments to the Fisheries Act impact the collection of data that tracks impacts on habitat. For example Amendment 35 (2) states: (2) For the purposes of this Act, serious harm to fish is the death of fish or any permanent alteration to, or destruction of, fish habitat. One can make the following observations respecting the second set of amendments: 1. Section 35 will prohibit works, undertakings or activities that result in "serious harm to fish". 2. The fish that are the subject of section 35 prohibition must be part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. 3. The term "serious harm to fish" will include the death of fish or the permanent alteration to, or destruction of, fish habitat. 4. The term "serious harm to fish" does not prohibit the "disruption" (i.e., temporary alteration) of fish habitat which is set out in the current version of subsection 35(1). 5. As a result, it appears possible that many situations prohibited under the current legislation will no longer be covered by the definition of "serious harm". Given the changes to the act, without the research or presentation of trend-over-time data, how can one know the long-term or permanent impact of the disturbance on wildlife? It makes quoting their adherence to the act an empty statement.</p>	<p>Bill C-38 amendments to the <i>Fisheries Act</i> will not affect the collection of data for assessment and monitoring of fish and fish habitat. Data on fish and fish habitat has been collected according to established protocols designed to meet federal and provincial regulatory requirements and future data collection, and monitoring of fish and fish habitat will continue to follow these protocols.</p> <p>An additional concern is raised that situations formerly prohibited under the previous version of the <i>Fisheries Act</i> may no longer be prohibited due to the absence of 'disruption' from the definition of 'serious harm' in the Act. In its Fisheries Protection Policy Statement, Fisheries and Oceans Canada interprets serious harm to include 'permanent alteration to fish habitat of a spatial scale, duration or intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes.'</p> <p>The inclusion of 'duration' in the DFO interpretation allows for temporary alterations to be considered in evaluating the potential for serious harm to fish and fish habitat resulting from a project. Any watercourse crossings with impacts to fish and fish habitat regardless of duration, that are deemed by DFO to result in serious harm will follow normal procedures for authorization with appropriate offsetting measures and follow-up monitoring, as required by DFO.</p>		
1380	N/A	N/A		14-Apr-14	Emily Colombo	District of Fort St. James		<p>Agricultural Concerns The following situation with SPECTRA energy in Dawson Creek: A pipeline was laid across agricultural land and buried at 3 ft. The farms did not receive compensation for the ROW. A farmer then damaged the pipeline with his equipment and was held liable. The farmers formed a land owners association and sued. In the end they were awarded compensation but were not able to convince Spectra to bury the pipe deeper. Details of the case are now unavailable because of the settlement agreement no one is allowed to speak of it. The company also misinformed the public about their use of flare stacks instead of the previously planned use of incinerators. Q: Can we ask for legal information as to where the liabilities lay?</p>	<p>Coastal GasLink cannot comment on the details of the situation outlined, as the details of this alleged incident are not available. Coastal GasLink confirms that the pipeline will have a minimum depth-of-cover of 0.8 m which exceeds the regulatory requirement of 0.6 m. In terms of liability, each landowner is indemnified within the Statutory Right-of-Way agreement between the company and the landowner from any damages or losses resulting from the presence or operations of the pipeline where the landowner has used the right-of-way in accordance with the terms of the agreement. This agreement allows for ordinary farming practices.</p>		
1381	Application Section 14	N/A		14-Apr-14	Emily Colombo	District of Fort St. James		<p>Land and Resource Use Section 14- Land and resource use in the application for the EAO: Under Fort St James the information notes an annual population decline in the last 15 yrs without noting the rapid growth in the last 4 yrs. This is misleading and implies that Fort St. James does not have, and will not have an adequate workforce to draw upon.</p>	<p>Coastal GasLink notes that the demographic information provided on page 14-14 is the most recent information available through Statistics Canada. The Statistics Canada survey counts only residents living in the community at the time of the survey. Temporary workers would not have been included in the survey.</p> <p>Coastal GasLink notes that the potential adverse effect "skilled labour shortage" was assessed in Section 12 of the Application.</p>		

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1382	N/A	N/A		14-Apr-14	Emily Colombo	District of Fort St. James		<p>Commitment to consultation What processes are in place to ensure that communication with the proponent remains accessible after the EAO is approved? Can a commitment to on-going consultation be written in the EAO?</p>	<p>As part of the regulatory process, Coastal GasLink prepared a Public Consultation Plan. This was accepted by the EAO and posted in May, 2013 on the EAO website. Section 5.5 of the Public Consultation Plan summarizes the Project's public consultation objectives and proposed key activities in the phase of the Project that would come after regulatory review and approval. The objectives and activities are:</p> <ul style="list-style-type: none"> • notify all stakeholders of the approval, next steps, and construction plan and schedule • offer meetings or briefings to local governments, emergency services providers and other key stakeholders • continue to encourage local contracting and hiring through the construction phase • continue ongoing engagement activities during construction • provide timely, detailed notification of construction activities, in accordance with regulatory requirements, to landowners, rights holders and the directly affected public • maintain regular contact with local governments to inform them of ongoing construction progress • design a public awareness program, in collaboration with stakeholders in the region, to promote pipeline safety awareness 		
1383	N/A	N/A		14-Apr-14	Emily Colombo	District of Fort St. James		<p>Application of Information Can TransCanada share the model they use to translate the information that they learn from the WG into their processes so that members of the WG can clearly see how their information has been applied?</p>	<p>Coastal GasLink will comply with legislated requirements under the BC <i>Environmental Assessment Act</i>, and follow the regulatory direction offered by the BC Environmental Assessment Office. Consistent with this, Coastal GasLink is responding to information requests raised by the Working Group in issues tracking tables and associated technical memos.</p>		
1384	Application Section 11	N/A		14-Apr-14	Emily Colombo	District of Fort St. James		<p>Economic Effects Assessment Section 11 notes that it is difficult to predict when or how the proposed project will be decommissioned and abandoned or to predict the social or economic conditions at that time. I find this difficult to digest, as it is essential to long term community economic planning. I do not believe a financial investor would commit without this information. It would be more comforting if there was a commitment to performing an economic evaluation before the projected date of decommissioning, so that it does not present negative economic impacts concurrently with the de-commissioning of other industry (LNG) projects.</p>	<p>Coastal GasLink notes that the majority of the employment generated by the Project will be during the short-term construction phase. The operations phase will provide few long-term employment opportunities and, as a result, decommissioning is not predicted to affect economic stability within communities.</p>		
1385	Application Section Aquatic Environment 7.0/ 7.2.1 Federal Acts and Regulations	-		15-May-14	Olivia McMahan	District of Fort St. James		<p>Bill C-38 amendments to the Fisheries Act impacts the collection of data that track impact on habitat. One can make the following observations respecting the second set of amendments:</p> <ol style="list-style-type: none"> 1. Section 35 will prohibit works, undertakings or activities that result in "serious harm to fish". 2. The fish that are the subject of section 35 prohibition must be part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. 3. The term "serious harm to fish" will include the death of fish or the permanent alteration to, or destruction of, fish habitat. 4. The term "serious harm to fish" does not prohibit the "disruption" (i.e., temporary alteration) of fish habitat which is set out in the current version of subsection 35(1). 5. As a result, it appears possible that many situations prohibited under the current legislation will no longer be covered by the definition of serious harm. <p>Given the changes to the act, without the research or presentation of trend-over-time one cannot know the long-term or "permanent" impact of the disturbance on aquatic life and wildlife, adherence to the act does not necessarily meet the requirement for protection and mitigation.</p>	<p>Bill C-38 amendments to the <i>Fisheries Act</i> will not affect the collection of data for assessment and monitoring of fish and fish habitat. Data on fish and fish habitat has been collected according to established protocols designed to meet federal and provincial regulatory requirements and future data collection and monitoring of fish and fish habitat will continue to follow these protocols. An additional concern is raised that situations formerly prohibited under the previous version of the <i>Fisheries Act</i> may no longer be prohibited due to the absence of 'disruption' from the definition of 'serious harm' in the Act. In its Fisheries Protection Policy Statement, Fisheries and Oceans Canada interprets serious harm to include 'permanent alteration to fish habitat of a spatial scale, duration or intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor,</p>		

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									or any other area in order to carry out one or more of their life processes. The inclusion of 'duration' in the DFO interpretation allows for temporary alterations to be considered in evaluating the potential for serious harm to fish and fish habitat resulting from a project. Any watercourse crossings with impacts to fish and fish habitat regardless of duration, that are deemed by DFO to result in serious harm will follow normal procedures for authorization with appropriate offsetting measures and follow-up monitoring, as required by DFO.		
1386	Application Section 11.0 Economic Effects Assessment	-		15-May-14	Olivia McMahon	District of Fort St. James		It is difficult to predict when or how the proposed project will be decommissioned and abandoned or to predict the social or economic conditions at that time	Coastal GasLink will comply with applicable legislative requirements concerning decommissioning and abandonment at that stage of the Project. Coastal GasLink will also continue engagement in accordance with the Public and the Aboriginal Consultation Plans approved by the EAO through the operations phase of the Project to share information and collect feedback about current and planned activities. This ongoing communication will provide notice to communities for all relevant aspects of the Project including decommissioning and abandonment		
1387	Application Section 11.0 Economic Effects Assessment	-		15-May-14	Olivia McMahon	District of Fort St. James		It is difficult to predict when or how the proposed project will be decommissioned and abandoned or to predict the social or economic conditions at that time	Coastal GasLink will comply with applicable legislative requirements concerning decommissioning and abandonment at that stage of the Project. Coastal GasLink will also continue engagement in accordance with the Public and the Aboriginal Consultation Plans approved by the EAO through the operations phase of the Project to share information and collect feedback about current and planned activities. This ongoing communication will provide notice to communities for all relevant aspects of the Project including decommissioning and abandonment.		
1388	Application Section 12.1 Selection of valued components and key indicators	-		15-May-14	Olivia McMahon	District of Fort St. James		KI community economic resilience do not understand by what method is community economic resilience measured? What is the definition? And is it different for each community?	Section 12 of the application explains that the proposed Project will require a large skilled workforce for a short period of time during the construction phase. This may alter the existing community economic patterns if workers shift their current employment (e.g., forestry) to work on the proposed Project. However, given the short-term nature of the construction phase, it is unlikely that people with permanent employment will leave their existing positions for temporary work. Some unemployed or underemployed workers may seek Project-related employment. Table 12-8 of the Application describes two potential adverse effects of the proposed Project on the KI Community Economic Resilience, including: (a) alteration of existing community economic patterns and disruption of guide outfitting, hunting, trapping, and (b) agricultural activities in the proposed Project area. With the implementation of mitigation, no residual adverse effect were identified.		

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1389	Application Section 12.2 Regulatory and Policy Setting	-		15-May-14	Olivia McMahon	District of Fort St. James		Project guidance is determined through Land and Resource Management Plans and Official Community Plans. Many communities have yet to fully develop these plans, or lack the resources to update them so that they do not adequately reflect the desired direction of the community. Perhaps supplemental documents on community planning are requested from communities?	Coastal GasLink gathered information for the Application from available published sources and through discussions with representatives from municipal, regional district and the provincial government; economic development agencies; and Aboriginal groups. Discussions with representatives from the District of Fort St. James were undertaken as part of baseline information gathering efforts and to inform the Social and Economic Assessment with respect to the District of Fort St. James. Coastal GasLink will continue to engage with community representatives through the detailed execution planning, construction and operations phases to address ongoing concerns.		
1390	Application Table 12-2 Spatial Boundaries for Economy	-		15-May-14	Olivia McMahon	District of Fort St. James		RSA: Some economic analysis will also be conducted at the provincial and national levels. During what point in the project timeline does this take place? Are communities aware when this is taking place?	Coastal GasLink completed its economic analyses for the purposes of the Application in 2013. Appendix A of the Economic Technical Report (Appendix 2-N) presents the Economic Effects Analysis. A summary of the results of the Statistics Canada Input-Output Model are presented at the provincial and federal levels.		
1391	Application Section 12.6.3 Characterization of Potential Residual Adverse Effects/ Skilled Labour Shortage	-		15-May-14	Olivia McMahon	District of Fort St. James		States: "To avoid disruption of the local employment market, alternative sources of skilled workers will be in place." Does this refer to work camps that employ workers from outside the region or the contracting of temporary foreign workers?	Coastal GasLink confirms that this statement refers to seeking workers for the project from outside the region should local workers not be available. Coastal GasLink is committed to providing opportunities for local business and individuals, and to employing a local and regional workforce, to the extent practical. Coastal GasLink's training program will focus on developing Project-specific employment and increasing the local skills capacity. Short-term workforce readiness training directly related to the proposed Project focuses on the following three steps: assessing and identifying gaps; determining proper skills development; and developing processes to help local residents obtain construction-related employment that is transferrable to other future projects and developments. Should workers or skilled tradespeople not be available from the local and regional workforce, Coastal GasLink will seek workers from other regions of BC, Canada, and if necessary, outside of Canada. The origin of workers will be determined once the prime construction contractor has been selected.		
1392	Application Section 12.6.6 potential Cumulative Effects, Mitigation and Environmental Management Strategies	-		15-May-14	Olivia McMahon	District of Fort St. James		Line 32 states: "The communities considered in this assessment have previously experienced industrial projects and short-term changes in employment." The line sounds like there is an expectation that because of past experiences the communities involved are more resilient to adverse economic effects when it is possible that these short term changes in employment may make communities less capable of adapting as workers are less attracted to stay in communities with changeable employment conditions.	The referenced statement is intended to frame the discussion of potential adverse effects related to community economic resilience. Fort St. James and many of the other communities in the RSA have experience with temporary work forces whether for forestry, mineral exploration or other industrial activities. For the purposes of the assessment, Coastal GasLink conducted technical discussions with representatives from municipal, regional district and provincial governments, economic development agencies and Aboriginal groups to understand employment conditions and key issues. Representatives from the District of Fort St. James provided their perspectives regarding the project which informed the assessment. Coastal GasLink will continue engagement with the		

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									District of Fort St. James in accordance with the Public Consultation Plan approved by the EAO.		
1393	Application Section 14 Land and Resource Use/ 14.4.1 Municipality Background and Demographics/ Fort St. James	-		15-May-14	Olivia McMahon	District of Fort St. James		Under Fort St. James demographic information notes an annual population decline in the last 15 years without noting the rapid growth in the last 4 years. Without noting the demographic adjustment, the statistics are a misrepresentation. It does not mention the growth occurring and implies that Fort St. James does not have, and will not have a skilled work force to draw upon.	The demographic information provided on page 14-14 is the most recent information available through Statistics Canada. The Statistics Canada survey counts only residents living in the community at the time of the survey. Temporary workers would not have been included in the survey. The potential adverse effect "skilled labour shortage" was assessed in Section 12 of the Application. Coastal GasLink is committed to providing opportunities for local business and individuals, and to employing a local and regional workforce, to the extent practical. Coastal GasLink's training program will focus on developing Project-specific employment and increasing the local skills capacity. Short-term workforce readiness training directly related to the proposed Project focuses on the following three steps: assessing and identifying gaps; determining proper skills development; and developing processes to help local residents obtain construction-related employment that is transferrable to other future projects and developments. Should workers or skilled tradespeople not be available from the local and regional workforce, Coastal GasLink will seek workers from other regions of BC, Canada, and if necessary, outside of Canada. The origin of workers will be determined once the prime construction contractor has been selected.		
1394	Note on Procurement opportunities	-		15-May-14	Olivia McMahon	District of Fort St. James		I appreciate that the project is supporting local companies and is aware that breaking up contracts allows these opportunities to be accessed by small companies	Coastal GasLink is committed to providing opportunities for local business and individuals, and to employing a local and regional workforce, to the extent practical. Coastal GasLink's training program will focus on developing Project-specific employment and increasing the local skills capacity. Short-term workforce readiness training directly related to the proposed Project focuses on the following three steps: assessing and identifying gaps; determining proper skills development; and developing processes to help local residents obtain construction-related employment that is transferrable to other future projects and developments. Should workers or skilled tradespeople not be available from the local and regional workforce, Coastal GasLink will seek workers from other regions of BC, Canada, and if necessary, outside of Canada. The origin of workers will be determined once the prime construction contractor has been selected.		

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1395	Application Section 7.4.2	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		Point of Clarification Table 7-3: Confirmed and Potential Fish Species Presence in Watercourses within the Aquatic Environment RSA lists oolichan (eulachon – thaleichthys pacificus), a significant cultural resource to the Haisla First Nation, as a historical presence within the Kitimat River. The Haisla Nation Council Fisheries department actively samples the Kitimat River on a yearly basis and for 2014 there was presence of oolichan in the system.	Coastal GasLink acknowledges that eulachon are present in the Kitimat River. Table 7-3 of the Application indicates that presence was confirmed using existing data.	Oolichan fish are very important to the Haisla Nation. The crossing on the Kitimat River needs to be carefully planned and managed. The Haisla know what is best for oolichan in terms of protection of the species and request Coastal GasLink work closely with the Resource Management staff to plan and manage this crossing to eliminate any impacts to this culturally important fish species.	Coastal GasLink acknowledges the importance of oolichan fish and the Kitimat River to Haisla Nation. Coastal GasLink is confident in the mitigation being developed to avoid or reduce adverse effects of watercourse crossings, as similar mitigation has been successfully implemented on many other projects with similar sensitivities and concerns. Coastal GasLink will continue to implement its Aboriginal Consultation Plan and information provided by Haisla Nation will continue to inform the construction planning and detailed engineering design of the Project, including site specific mitigation.
1396	Application Appendix 2G; Section 4.4.9	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		Point of Clarification/Issue The statement that oolichan are unlikely to occur in the Kitimat River is not true and every effort to protect the species is of the utmost concern for the Haisla First Nation; therefore protection of the species and the spawning habitat needs to be a priority.	Coastal GasLink acknowledges that eulachon are present in the Kitimat River. Table 7-3 of the Application indicates that presence was confirmed using existing data.		
1397	Application Section 5.6	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		Although the terrain integrity effects assessment resulted in no potential residual adverse effects, the pipeline route through the Kitimat Valley and along the Kitimat River is still a concern because of the disruption of the steep slopes during construction, the need for temporary workspace for construction and the possibility of a rupture during operation. Despite the mitigation measures that will be implemented there is always the possibility of an accident due to unforeseen circumstances.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO in May 2013. Required information about temporary ancillary facilities, including access roads, will be provided to the OGC during permitting, and will adhere to the requirements of the <i>Oil and Gas Activities Act</i> and regulations, as well as the <i>Environmental Protection and Management Regulation</i> . As construction planning and detailed engineering design advances, Coastal GasLink will continue to apply the mitigation hierarchy. Coastal GasLink assesses the potential adverse effects of the project on terrain in Section 5 of the Application. Section 22 of the Application includes a risk assessment of effects of the environment on the Project, and includes an assessment of slope stability and mass wasting events.	The pipeline route will traverse through challenging terrain. The Haisla wish to be involved in understanding and providing their input to the pipeline route to minimize potential landslides in their Territory that could impact fish and wildlife.	Coastal GasLink will continue to implement its Aboriginal Consultation Plan and information provided by Haisla Nation will continue to inform the construction planning and detailed engineering design of the Project, including site specific mitigation.
1398	Application Terrain Technical Data Report Section 5.2	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		The technical data report states that field assessments were not conducted to confirm the desktop study. Have these field assessments been started and will Haisla Nation Council be informed when they will occur?	Coastal GasLink is continuing field programs to inform construction planning and detailed engineering design. Coastal GasLink will continue engagement with Haisla Nation Council in accordance with the Aboriginal Consultation Plan.		
1399	Application Terrain Technical Data Report Section 5.3	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		In a letter from the EAO addressed to Gillian Bakker dated February 27, 2014 it stated more information would be provided from the BC OGC on how waste rock sites would be assessed during permitting. This information has not been received yet and I would like to be copied on this information when it becomes available.	No response from Coastal GasLink required.		
1400	Application Section 3.8.5	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		Rio Tinto Alcan is currently modernizing their smelter in Kitimat and this major project is not listed within the activities. Being a major project it has already impacted the community on many levels and this project should have been included in all aspects of this application.	Coastal GasLink notes that the facility upgrade at the existing Rio Tinto Alcan smelter is included in the baseline conditions for the assessment. Any issues about activities at this site that were raised during discussions with communities were captured and considered in the assessment.		
1401	N/A	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		The current Environmental Assessment process does not have a comprehensive method of accounting for the ecosystem services that are impacted or lost due to the project footprint within our traditional territory.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. An assessment of ecosystem services was not included in the AIR.		

Coastal GasLink Project: Working Group Comment Tracking Table

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1402	N/A	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		Another aspect of the services lost within the project footprint is the carbon sink (vegetation) removal. How will this particular loss be accounted for?	The removal of a carbon sink (forested area) was not quantified in the assessment since the cleared area will be returned to its pre-construction state after decommissioning of the pipeline; see Section 7.4.2 for more details. Additionally, Coastal GasLink will carry out post-construction reclamation to re-establish the vegetative cover on disturbed areas. Approximately 10m of the permanent right-of-way over the active pipeline will be kept clear of large woody vegetation during operations for monitoring, maintenance and pipeline integrity programs. This assessment calculates the gross emission of GHGs from the Project; therefore, the net effect of removing then replenishing a carbon sink was not taken into account.	Coastal GasLink is proposing to remove vegetation from approximately 60 km long by 10 meter wide area with the Haisla Territory for the lifetime of the pipeline. This is an area of approximately 60 ha, roughly the size of regular cut block. Admittedly, there may be some net downs for non-productive areas. We do agree with the assertion that GHG were not assessed due to the fact that this area will be brought back to tree production after the pipeline is decommissioned. In the meantime, there will be no trees available for carbon sequestration within that area. Moreover, the life of the pipeline is unknown. We would like this issue addressed as to how Coastal GasLink will mitigate the increased emissions from the tree clearing and offset the lost carbon sink.	To address the details around mitigation of emissions from the project, Coastal GasLink will prepare a GHG Emissions Management Plan prior to construction of the Project.
1403	N/A	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		Depending on the stream crossing area, specific reclamation prescriptions may be required in consultation with the Haisla Nation Council Fisheries department. Detailed post-construction reclamation activities will ensure the protection of fish habitat using local knowledge that is specific to this area.	Coastal GasLink will develop a Reclamation Plan as well as a Post Construction Monitoring Plan prior to construction. These plans will be updated during construction to reflect on-site conditions. Coastal GasLink will continue its dialogue with Haisla Nation in accordance with the Aboriginal Consultation Plan approved by the EAO.	Stream crossings will impact fish and fish habitat, and it is therefore likely compensation will be required. The Haisla have priorities in terms of protecting, restoring or enhancing fish habitat within their territory and therefore request to be involved in the decision making process for aquatic impacts and compensation.	Coastal GasLink is committed to constructing the pipeline in accordance with the habitat protection provisions of the <i>Fisheries Act</i> , DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat (formerly DFO Operational Statements) and the BC OGC's Environmental Protection and Management Guide, which include avoidance of potential areas of groundwater upwelling or conducting works directly upstream of sensitive fish rearing or spawning areas and adhering to minimum setback distances for mineral lick. Coastal GasLink will continue dialogue with the appropriate regulatory authorities about alternative mitigation strategies, such as compensation or offsets. Site specific plans will be developed for locations as required by DFO under its Fisheries Act authority. Such plans may include habitat enhancement or creation and reclamation. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan and information provided by Haisla Nation will continue to inform the construction planning and detailed engineering design of the Project, including site specific mitigation.
1404	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		Traditional Ecological Knowledge was briefly discussed in this section and more information is requested regarding the area 34m north of KP 663 and 4m north of KP 620. These areas are not mentioned in Section 16 Traditional Land and Resource Use. Will these areas be protected once construction starts? Are there mitigation measures in place to protect these areas?	Coastal GasLink confirms that available Aboriginal Traditional Knowledge informed the assessment in accordance with Section 4.0 of the AIR and as described in Section 3.2.1 of the Application. Review of discussions of potential Project-related adverse effects and mitigation strategies were conducted directly with participating community members during the field surveys, and this information will continue to inform construction planning and detailed engineering design.		

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1405	N/A	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council		The whole assessment of the atmospheric environment is based on the areas surrounding the compressor stations when in fact the impact of constructing the pipeline and the right of way includes the whole project footprint. The amount of materials requiring transport to and from the project site can cumulatively add Criteria Air Contaminant's to our air shed therefore impacting various ecosystem services.	Coastal GasLink has completed a comprehensive assessment in accordance with the Application Information Requirements issued by the EAO in May 2013. Coastal GasLink confirms that the assessment of potential adverse effects described in Section 6 of the Application addressed both the construction of the Project as well as the emissions resulting from Project operations.		
1406	N/A	N/A		17-Apr-14	Jason Llewellyn	Regional District of Bulkley Nechako		The Application does not identify the potential locations of construction camps, stockpile sites, and other areas of activity associated with pipeline construction. The RDBN cannot provide meaningful comment on regulatory, socioeconomic and infrastructure impacts associated with construction camps and stockpile sites without knowing their location and scale. The applicant has suggested that the RDBN may have the ability to provide comment to the Oil and Gas Commission as part of their process to permit the construction camps and stockpile sites after the issuance of an Environmental Assessment Certificate. The RDBN has concerns that there may not be an adequate ability to address socioeconomic and infrastructure impacts at the permitting stage through the Oil and Gas Commission.	Construction of the proposed Project will require the use of temporary infrastructure including access roads, construction camps, staging and stockpile sites, rail sidings, contractor storage yards and office sites, laydown areas, borrow sites, and other temporary work areas. These temporary facilities are described in Section 1.2.2 of the Application. Locations for these temporary facilities will be selected during construction planning and detailed engineering design. Coastal GasLink includes an assessment of potential adverse effects on community infrastructure and services in Section 15 of the Application, and potential economic effects are assessed in Section 12 of the Application.		
1407	N/A	N/A		17-Apr-14	Jason Llewellyn	Regional District of Bulkley Nechako		The Application does not identify the method and location of solid and liquid waste disposal from construction camps and other construction activity. The applicant has suggested that the method of disposal of solid and liquid waste cannot be confirmed until the locations of the work camps are identified. There is no certainty that the RDBN may be able to accommodate solid waste from construction camps at our landfills, and our ability to accept liquid waste is very limited. There needs to be discussions relating to the capacity of our facilities, out operational limitations, and our long term costs well in advance of any request to utilize RDBN facilities. These issues should be resolved, discussions should occur as soon as possible.	Coastal GasLink plans to meet with Regional District of Bulkley Nechako in early June to advance dialogue about local services and potential capacity issues for services such as waste disposal.		
1408	N/A	N/A		17-Apr-14	Jason Llewellyn	Regional District of Bulkley Nechako		In 2013 the Northwest Invasive Plant Council (NWIPC) spent approximate \$699,815 on weed control in their region. The RBN contributed \$37,000 to this work. Invasive plants commonly spread along cleared areas such as road and utility right of ways. Therefore, in 2013 the Ministry of Transportation contributed \$277,000, and the Ministry of Natural Resource Operations contributed \$295,000 to the NWIPC in support of their weed control efforts. As the proposed Coastal GasLink Pipeline Project right of way can be expected to facilitate the spread of invasive plants it is appropriate that TransCanada develop and commit to implementing a weed control plan within the right of way, and commit to provide annual funding to the Northwest Invasive Plant Council to support their weed control efforts in the RDBN.	Coastal GasLink looks forward to dialogue with the Northwest Invasive Plant Council (NWIPC) about programs and opportunities for participation. Coastal GasLink will prepare an Invasive Plant Management Plan in advance of construction, and in accordance with the applicable legislation and in consultation with the appropriate regulatory authorities. The Invasive Plant Management Plan will be available on site, for reference by the construction management team. The Plan will recognize sensitive locations, such as riparian areas, and outline site specific measures.		
1409	N/A	N/A		17-Apr-14	Jason Llewellyn	Regional District of Bulkley Nechako		The RDBN has certain jurisdiction, and responsibility, for fire protection and emergency response in the rural area. The fire protection and emergency response needs associated with construction and operation of the proposed pipeline need to be discussed with the RDBN and an Emergency Response Plan needs to be developed in consultation with the RDBN.	TransCanada conducts business so it meets or exceeds all applicable laws and regulations and minimizes risk to employees, the public and the environment. Through careful and collaborative planning we accomplish this through various plans and initiatives including TransCanada's Health, Safety and Environment Commitment Statement (Appendix 2M), Construction Camp Plans (in development), Coastal GasLink Emergency Response Plan (in development), WorkSafe BC Safety Standards and through community partnerships with emergency service providers to support community capacity building.		

Coastal GasLink Project: Working Group Comment Tracking Table

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1410	N/A	N/A		17-Apr-14	Jason Llewellyn	Regional District of Bulkley Nechako		The cutting of trees and the long term loss of forested lands associated with the proposed pipeline represents a negative impact to the long term sustainability of the regions forest industries. To minimize this loss it is important that all useable logs cut from the pipeline right of way be utilized. It is expected that the logs that can be economically harvested and transported to an end user would be sold. However, the RDBN is concerned that in areas where the cost of harvesting and transportation are too high the logs will not be utilized in support of the forest product industries.	Coastal GasLink addresses potential adverse effects of the proposed Project on forestry in the assessment of the valued component Current Use of Land and Resources described in Section 14 of the Application. Coastal GasLink will develop a Timber Salvage Plan prior to construction in consultation with the appropriate regulatory authorities.		
1411	N/A	N/A		17-Apr-14	Jason Llewellyn	Regional District of Bulkley Nechako		It is recognized that TransCanada has identified general strategies to facilitate the training of workers in the region; however, there are limited specific commitments regarding the steps that will be taken to ensure local employment is maximized, and that apprenticeship positions for local employees are provided. The specific actions that TransCanada is committing to undertake to maximize local training and employment needs to be further discussed and confirmed.	Coastal GasLink understands the value of education and training and is committed to providing local opportunities. As a result, Coastal GasLink has been actively involved in discussions with local training organizations, post-secondary institutions and Aboriginal communities. Coastal GasLink expects to have further information about partnerships for local education and training initiatives in mid-2014.		
1412	N/A	N/A		17-Apr-14	Jason Llewellyn	Regional District of Bulkley Nechako		TransCanada is encouraged to do all that is possible to scale the size of contracts related to pipeline construction and operation in a manner which allows local business to take advantage of the opportunity offered by the pipeline. Early communication with local business regarding the opportunities that will be available is important to ensure these opportunities are taken advantage of local entrepreneurs. The specific actions that TransCanada is committing to undertake to maximize the involvement of local business in the pipeline construction, and maintenance, process needs to be further discussed and confirmed.	Coastal GasLink has met with local Chambers of Commerce and has presented information to members of the local business communities. Coastal GasLink maintains a database of contractors that includes both local Aboriginal and non-Aboriginal suppliers and will work with the prime contractors to help local businesses to pursue opportunities for work packages.		
1413	Application Appendix 2L	N/A	N/A	28-Apr-14	June Yoo Rifkin & David Leung	Environment Canada, Environmental Stewardship Branch				See Environment Canada letter dated June 23 2014 Attachment 1 - Vegetation Attachment 2 - Invasive Species	
1414	Application Appendix 2L	N/A	N/A	28-Apr-14	June Yoo Rifkin & David Leung	Blueberry River First Nations				See Blueberry River First Nations letter dated June 11 2014 providing comments in addition to those captured above in this tracking table: 1. information gaps - Project effects unique to BRFN not identified 2. methodological flaws - inadequate description of potential adverse effects to BRFN treaty rights and interests; improper gathering and consideration of BRFN TEK request for EAO explanation about how an EA for the Project can be completed and an EA Certificate issued, without a full assessment of all ancillary development associated with the pipeline 3. lack of engagement regarding the avoidance, mitigation and accommodation for Project impacts on BRFN constitutionally protected treaty rights 4. cumulative effects - for several VCs the total cumulative stresses are not meaningfully examined due to a failure to acknowledge that many of the VCs are fragile and vulnerable to further development 5. BRFN calls on the Crown to ensure that a full and proper assessment of the effects of the proposed Project on BRFN's rights and interests, that adequately	1. see response to issue tracking #1032, #1074, 2. see response to issue tracking #1027, #1054, #1074, #1140 3. see response to issue tracking #1074, #1140 4. see response to issue tracking #1034 5. see response to issue tracking #1034, #1058, #1140

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										assesses the Project cumulative effects on the ability of BRFN to continue to practice treaty rights in a meaningful way, is undertaken. 6. In any instances where the EAO does not require the Proponent to respond to BRFN's follow-up request, BRFN requests that the EAO provide written reasons as to why it has determined the Proponent need not respond.	
1415	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. Previous comments provided by Candice Wilson and Michael Gordon and Associates have not been included in the Tracking Table for the Project. Please ensure they are added, and these additional comments provided here are also added.	Responses to Haisla comments dated April 11 2014 are provided above in issue tracking # 1395 to 1405 inclusive.
1416	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. In general, due to the lack of information in the application of where exactly the pipeline and ancillary facilities including access roads will be, it is difficult for a reviewer of the EA Application to understand what the impacts will be, how much can be mitigated and how much compensation from loss will be required for all Valued Components.	Coastal GasLink completed a comprehensive assessment in accordance with the AIR issued by EAO in May 2013. Coastal GasLink will provide detailed information about temporary ancillary facilities and access roads to the OGC during the permitting phase, and will adhere to the requirements of the Oil and Gas Activities Act and the Environmental Protection and Management Regulation. Coastal GasLink will seek to use existing roads and trails to the extent practical, and minimize the construction of new roads. Potential adverse effects of ancillary facilities and roads have been addressed in a qualitative manner in the Application. Coastal GasLink will continue to implement the Aboriginal Consultation Plan, and looks forward to further opportunities to discuss site specific mitigation with Haisla Nation.
1417	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. The application corridor includes some Old Growth Management Areas (OGMAs) in the Kitimat Valley. The Haisla wish to be involved in understanding what these specific impacts will be, compensation that will be required and provide input to the decision making process for these areas.	Coastal GasLink will continue to implement its Aboriginal Consultation Plan and information provided by Haisla Nation will continue to inform the construction planning and detailed engineering design of the Project. Coastal GasLink submitted a technical memo to EAO June 24 2014 with additional information about estimated incursions into Old Growth Management Areas, and potential effects on the aspatial Provincial Biodiversity Orders. Coastal GasLink will continue discussions with OGC and FLNRO to clarify expectations and direction with respect to the appropriate plans for Coastal GasLink activities in OGMAs.

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1418	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. Blasting impacts to fish and wildlife, as well as potential for acid rock drainage and metal leaching along the pipeline route has not been well characterized. These need to be developed further in the application and in the Environmental Management Plan.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO on May 2013. Blasting is considered in the effects assessment of valued components associated with fish and fish habitat (Section 7 of the Application) as well as wildlife and wildlife habitat (Section 10 of the Application). Coastal GasLink also completed an effects assessment on the valued component Acid Rock Drainage in Section 5 of the Application. The risk assessment completed for potential accidents or malfunctions included a focus on acid or metal leaching and fly rock from blasting. The EMP discusses mitigation for blasting in Sections 6.3 and 7, and mitigation for acid rock drainage in Section 8. Coastal GasLink submitted a technical memo on Acid Rock Drainage (ARD) / Potential for Acid Generating (PAG) Materials to EAO on May 13, 2014. Coastal GasLink will also develop an Acid Rock Construction Response Plan (ARCRP) in consultation with the appropriate regulatory agencies prior to commencing construction.
1419	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. If the Project is to proceed beyond the EA approval phase without a specific footprint where impacts can be properly assessed and mitigation/compensation measures developed, it is imperative the Haisla be given the opportunity to provide input to the Table of Commitments and the Environmental Management Plan, as it is our understanding these two documents will be legally binding for Coastal GasLink as a result of the Canadian and BC Environmental Assessment Process.	Coastal GasLink will continue to develop its Environmental Management Plan in advance of construction, in consultation with the appropriate regulatory agencies. Coastal GasLink will continue to implement its Aboriginal Consultation Plan and information provided by Haisla Nation will continue to inform the construction planning and detailed engineering design of the Project. Coastal GasLink understands that the EAO has provided the draft Table of Conditions, draft Certified Project Description, and draft Environmental Assessment Report for review to Working Group members on June 30 2014.
1420	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. Beyond the EA process, the Haisla request to be involved in the BC Oil and Gas Commission permitting process, so that site specific impacts within Haisla Traditional Territory can be identified and addressed.	Question not directed to Coastal GasLink..
1421	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. Coastal GasLink is proposing to remove vegetation from approximately 60 km long by 10 meter wide area within the Haisla Traditional Territory for the lifetime of the pipeline. This is an area of approximately 60 ha, roughly the size of regular cut block. How will Coastal GasLink compensate for the loss of wildlife habitat within this	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by EAO on May 2013. Mitigation for effects on wildlife habitat is outlined in Section 10 of the Application. Coastal GasLink adopted an iterative approach to mitigating potential Project effects beginning with avoidance, minimization and on-site mitigation, prior to consideration of the

Coastal GasLink Project: Working Group Comment Tracking Table

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										area.	need for alternative mitigation strategies, such as compensation or offsets. This approach aligns with "The Procedures for Mitigating Impacts on Environmental Values" (BC MOE 2014).
1422	Application Section 8.4.1	N/A		11-Apr-14	Candice Wilson	Haisla Nation Council				See letter from Haisla Nation Council dated May 31 2014. Finally, the Haisla Nation Council believe, as stated during the meeting, it is imperative all companies commit to working together to address cumulative effects resulting from their projects. The process must be government led, and include all representatives of those who will be affected by the projects. Coastal GasLink agreed to make the effort to collaborate with other companies as the construction phase comes on-line, provided the process is government led.	Coastal GasLink understands the provincial government has developed and progressed several initiatives related to cumulative effects. Coastal GasLink will participate in these initiatives, as appropriate.
1423						Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation				See Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation letter dated June 6 2014: Status of EA - compliance with AIR - Application insufficient as a foundation for the application Review period and the EAOs required determination of effects significance and seriousness (in the case of "Aboriginal interests") - CSTC seek further clarification from BCEAO and the BC government as to the status of previous requests to suspend this environmental assessment and issue a deficiency statement, drawing input from Working Group members, identifying critical additional data and analysis required prior to the resumption of the already truncated Application Review period. The Nations request a formal response to the original request with a supporting rationale from the EAO on why it chose to continue the Application Review period in the face of a fundamentally flawed information base. - CSTC, Nak'azdli and Nadleh request that a written set of responses from the EAO to the clearly deficient proponent Application Review Comments responses be issued, identifying which responses are adequate and which are not, with reasons. - Given time constraints, the Nations have not had the opportunity to fully review all of the Proponent's responses to our Application Review comments. We reserve the right to issue and have fully considered additional comments in coming days.	Comment not directed to Coastal GasLink.

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1424						Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation				See Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation letter dated June 6 2014: High Level Concerns with Proponent's Application Review Comment Responses - Nak'azdli and Nadleh issues are listed from Comment #'s 769 to 1023. The proponent's responses are adequate in very few cases. For the most part they are vague, evasive, ignore our requests for important information, simply refer back to sections of the application that have already been reviewed by Nak'azdli and Nadleh and found to be inadequate or refer to future OGC or other permitting processes with little or no mandate for meaningful consideration of Nak'azdli and Nadleh concerns. - While key issues include the proponent's lack of meaningful response regarding our requests for more specific information regarding alternative routes, ancillary facilities, methods of stream crossings, use of chemical herbicides, cumulative effects, lack of consideration given to Nak'azdli and Nadleh use of lands and resources and other concerns, a central and re-occurring concern is the repeated statements regarding how our Nations chose not to provide TEK information. This is misleading. Our Nations chose not to provide TEK information within the haphazard, ad hoc and unacceptable methods used by the proponent and their contractors. We have repeatedly requested that our traditional knowledge be properly considered within proper contexts. The proponent has failed to provide for these contexts.	Coastal GasLink provides information about engagement including discussion about TEK and TLU with Nadleh Whut'en First Nation and Nak'azdli Band Council in Sections 23.8.2 and 23.9.2 of the Application, respectively. Coastal GasLink recognizes the sensitivity and confidentiality of TEK information and respects the decision of Aboriginal groups not to provide TEK during field programs. The Preliminary Use and Occupancy Study on June 17 2014, and looks forward to discussion about site-specific mitigation related to this Study as well as the previously provide Red Flags Report. Coastal GasLink is committed to considering additional information made available in ongoing construction planning and detailed engineering design. Additional information about Coastal GasLink's engagement with Nadleh Whut'en First Nation and Nak'azdli Band Council is provided in Aboriginal Consultation Report 3. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan and information provided by Aboriginal groups will continue to inform the construction planning and detailed engineering design of the Project, including site specific mitigation.
1425						Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation				See Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation letter dated June 6 2014: Concerns with Recent Working Group Meetings - comments were not either meaningfully integrated into the Working Group topic sessions nor were they subject to serious consideration during the meetings themselves - presentation and Q&A style of the meeting primarily allowed for the Proponent to control the agenda rather than the EAO or the Working Group - three hours for each session is insufficiently time to discuss VC issues -capacity constraints to participate within the timelines and format of these meetings - responses by the Proponent to direct questioning were largely	Comment not directed to Coastal GasLink.

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										evasive or non-committal. - Nak'azdli commented that as per Band policy, no information gathered by TERA and First Nation workers in the field on biophysical studies can be characterized as TEK. - single round of Working Group meeting, none of which focus specifically on pan-First Nations concerns raised in this process, is inadequate	
1426						Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation					
1427						Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation					
1428						Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation					
1429						Carrier Sekani Tribal Council, Nak'azdli Band Council and Nadleh Whut'en First Nation					
1430						West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively				Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: In many cases the proponent has responded to concerns raised by our communities or by others without actually addressing the content of the concern, but instead giving a statement that CGL will follow the direction of regulatory agencies/EAO. If that must be the case then we direct those comments to EAO, to consult with regulatory agencies and seek a meaningful response, and inclusion	Comment not directed to Coastal GasLink.

Coastal GasLink Project: Working Group Comment Tracking Table

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										of a resolution through the Table of Commitments or request for supplemental information	
1431						West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band and Doig River First Nation, respectively				Abbreviated comments from letter dated June 9 2014 from DRFN, MLIB, SFN and WMFN: So when we see things like surveys being shoe-horned into marginally relevant times or methods, or boilerplate mitigation suggested that ignores specific concerns about key VCs, or deference of the most contentious issues (caribou, habitat offsetting, OGMA compensation, access management restrictions that will be effective and realistic, etc) - these are reminders of the importance to address those issues before the project gains further momentum. We request EAO and the technical experts from regulatory agencies consider these issues at this time. It is simply our feeling that additional time is needed in this process and that there are in fact numerous mechanisms available to EAO or to the proponent to facilitate that additional time.	Coastal GasLink completed its Application to meet all requirements outlined in the AIR, and identify and assess the potential adverse effects of the construction, operations, and decommissioning and abandonment of the Project. Mitigation has been developed to avoid or reduce residual adverse effects, and is based on current industry-accepted standards, consultation and engagement with regulatory agencies, Aboriginal groups, interested groups, as well as the professional judgment of the assessment team, and TransCanada's collective experience in the design, construction and operation of major pipeline projects (as described in Section 3.2.1 of the Application. A comprehensive review of potential effects and recommended mitigation issues raised by each Aboriginal group was completed with each participating community during the field studies and during follow-up review (Section 23). Further information about Coastal GasLink's engagement activities with DRFN, MLIB, SFN and WMFN is included in Aboriginal Consultation Reports 1, 2 and 3 commencing with initial engagement upon announcement of the Project in June 2012. Aboriginal Consultation Report 3 summarizes participation in TEK and TLU programs to date. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan and information provided by Aboriginal groups will continue to inform the construction planning and detailed engineering design of the Project, including site-specific mitigation.
1432	Application Section 3.1.2	Page 3-4, Table 3-2		6-Jun-14		Burns Lake Band		LSA: the terrain integrity, ARD, and Land Use LSA includes a 2 km-wide band centered on the proposed route (i.e., extending 1 km on both sides of the proposed route). Why does the LSA only include the proposed route? Why does it not include ancillary sites (e.g., laydown areas, stockpile sites and construction camps) and access roads that might be farther than 1 km from the ROW?	Section 1.2.2 of the Application outlines the components and location of the proposed Project, including the site selection process implemented to select locations for temporary ancillary sites. Potential adverse effects of these sites are included in a qualitative manner for each valued component. As part of the permitting process for the proposed Project, Coastal GasLink will provide detailed information about the temporary sites and access roads to meet the OGC's requirements, pursuant to the <i>Oil and Gas Activities Act</i> and the OGC		

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									Environmental Protection and Management Guide.		
1433	Application Section 3.2.2	Page 3-17		6-Jun-14		Burns Lake Band		<p>TERA facilitated TLU studies with Haisla Nation and Burns Lake Band. It should be noted that the Burns Lake Band has not reviewed or verified the TLU information collected from the 3 interviews that Terra conducted. The methods and approach that Terra used are considered unethical and the data should not have been incorporated into the Application without consent from the Band. Detailed correspondence regarding this issue has been sent to both Coastal GasLink and the EAO (May 14, 2014). The information provided in the Application regarding the approach used by Terra is not consistent with the approach that they took with the Burns Lake Band for the TLU Study. For example, no field reconnaissance was conducted. The TEK was also collected unethically and has not been verified by the TEK participants or reviewed/approved by the band members and should also not have been included in the Application.</p>	<p>Coastal GasLink met with Burns Lake Band in late 2012 and in early 2013 to discuss on the Band's preferred approach to a TLU Study. Chief and Council asked to have Coastal GasLink's contractor, TERA facilitate the TLU Study on behalf of Burns Lake Band. A work agreement was signed on April 23, 2013, followed by discussions confirming how the information would be used to inform the Application. As the TLU Study progressed to the interview stage, TLU information collected was verified with the Elders interviewed. Coastal GasLink looks forward to further opportunities with Burns Lake Band representatives to progress the TLU study. TLU study data was forwarded to Burns Lake Band on Oct. 11, 2013 and on February 21, 2014. Coastal GasLink looks forward to receiving feedback about the TLU study data that was provided. In accordance with the agreement between TERA and Burns Lake Band, the details of land use from the TLU study interviews were generalized in the Application, and no map or personal information was included. TERA sent a TEK Results memo to Burns Lake Band on December 3, 2013, which included a table of 2013 field studies Burns Lake Band participation, and Coastal GasLink looks forward to a response to verify and validate the information. Coastal GasLink is also committed to considering this and additional ATK information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate, as well as for the purpose of refining identified mitigation measures in the context of site-specific implementation. Such information can also be provided by Aboriginal groups in the context of the EAO process.</p>		

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1434	Application Section 5.4.3	Page 5-23 and Page 5--24		6-Jun-14		Burns Lake Band		<p>Why were no samples collected to verify the desk based assumptions of ARD potential?</p> <p>Why is there no TK information presented in the environmental setting (i.e. locations of potential ARD in exposed areas along the ROW, access roads and ancillary sites)?</p> <p>What percentage of the route will require blasting? Has the ARD potential been considered in these areas specifically?</p> <p>Why is there no mention of the ancillary sites? What is the ARD potential at these locations?</p> <p>Please confirm that the Burns Lake Band will be provided the results of the additional ARD studies (if they occur in the traditional territory).</p> <p>Has the pH or metals in the water bodies adjacent to the areas of high ARD potential been sampled?</p> <p>Where are the 62 km that require additional study?</p> <p>Why is there no discussion of the uncertainty in the desk based predictions?</p> <p>With no empirical baseline data to support the predictions it appears that this is a technical boundary, as per the methods presented in Chapter 3 (i.e. "potential limitation on the ability to predict and characterize potential adverse effects"). Please clarify.</p> <p>Also, with no understanding of the ARD potential for 62 km, this also seems to be a technical boundary. Please clarify.</p>	<p>Coastal GasLink carried out a preliminary evaluation of ML/ARD potential along the proposed route using available geological information and surficial geology mapping. To verify this preliminary evaluation and reduce uncertainty, Coastal GasLink sampled 50 sites for ML/ARD potential in 2013, and a further 40 sites are planned for sampling during 2014, generally located between approximately KP 75 and KP 150, and generally west of KP 550.</p> <p>In Section 3.2.1 of the Application, Coastal GasLink describes how available Aboriginal Traditional Knowledge will inform the assessment.</p> <p>Coastal GasLink is advancing construction planning and detailed engineering design, and will identify locations along the right of way that requires blasting. Coastal GasLink is considering the potential for ARD/ML for all elements of footprint as part of its ongoing construction planning and detailed engineering design. Further information about Coastal GasLink's ARD/ML program is provided in the ARD/ML Technical Memo provided to EAO. Coastal GasLink will provide the results of ARD/ML sampling to the EAO.</p> <p>The Hydrology Technical Data Report includes data from surface water quality sampling at 66 proposed stream crossings. Selection of sampling sites did not specifically consider proximity to areas of high ARD potential.</p> <p>Coastal GasLink confirms that the available ARD/ML information was sufficient for the purpose of completing an environmental assessment. More detailed data is being collected to continue informing the construction planning and detailed engineering design, and therefore no technical boundary for the environmental assessment is necessary.</p>		

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1435	Application Section 5.5.3	Page 5-35 to Page 5-41		6-Jun-14		Burns Lake Band		<p>All of the potential effects on Agricultural Capability and Reclamation Suitability were given a low magnitude ranking (Potential residual adverse effects are expected to be well within environmental variability and resilience, after mitigation). However, the baseline study and effects assessment does not seem to mention what the environmental variability is for each of the soil types. Additional information is requested regarding what the typical environmental variability is at specific sensitive locations with respect to soil loss due to wind and water erosion, soil compaction and rutting and altered landscape contours and drainage patterns.</p> <p>What are some examples in the project footprint where these effects are currently being observed (i.e. naturally occurring)?</p>	<p>The baseline soil survey documented a wide range of soil associations occurring along the proposed pipeline right-of-way. Soil orders encountered included Luvisolic, Brunisolic, Podzolic, Gleysolic, Regosolic and Organic. Parent geologic materials encountered included till, glaciofluvial, glaciolacustrine, fluvial, eolian, colluvium, bedrock and organic. The interaction of a particular soil development process (Soil Order) with a geologic medium (Material) is described by the soil association. The wide range of natural soil associations is therefore an indicator of the range of environmental variables in the natural landscape. Ratings for reclamation suitability, wind and water erosion potential and compaction/rutting risk were predicted for this wide range of combinations of soil profile types and parent geologic materials. The wide range in soil properties contributed to the environmental variability for these parameters in the study area. Natural vegetation is commonly a key mitigator of soil degradation processes. Forest fires, landslides and outbreaks of plant disease are naturally occurring events which reduce vegetation cover on the soil surface and elevate risk. The loss of vegetative cover has direct implications for wind and water erosion, and indirect implications for compaction and rutting potential through the reduction in evapotranspiration and the resulting increase in soil wetness. Naturally occurring water erosion could be expected on soil surfaces where the existing vegetation cover has been reduced or removed and there are long, uninterrupted slopes. The extent of erosion would increase with the steepness of the slopes, smoothness of the soil surface and where infiltration rates have been reduced (e.g., due to compaction). Increased water erosion rates would also be observed in areas where rainfall and snowmelt events are of greater magnitude or intensity, such as at higher elevations or on windward sides of mountain ranges. The TDR for soils provides detailed information on the range and magnitude of risks of soil water erosion. Similarly, any naturally occurring reduction or removal of existing vegetation cover would expose soil profiles to wind erosion. Bare soils with large amounts of silt and fine sands would be more vulnerable to wind erosion due to the breakdown of soil structure induced by aggregate movement. Landform and aspect also influence wind erosion rates depending on the direction and velocity of prevailing winds and microclimates. For example, west-facing slopes are more vulnerable to wind erosion in areas subject to westerly winds. Hill top slope positions are also more vulnerable to wind erosion. The TDR for soils provides detailed information on the range and magnitude of risks of soil wind erosion. Rutting and compaction are influenced by soil moisture, clay content, clay mineralogy and the load applied to the soil. Greater</p>		

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									amounts of rutting and compaction can be expected on moist soils with high clay contents, especially where clay mineralogy favor those types with greater swelling properties. The degree of compaction also increases with the rate of ground pressure applied to the soil surface. Compacted soils are often encountered at lower landscape positions where soil moisture levels are higher due to surface drainage and groundwater flow. In areas of higher precipitation, soils are more vulnerable to compaction and rutting because moisture contents are higher than in areas with climatic moisture deficits. The degree of rutting depends on soil strength which is impacted by pore water content, clay mineralogy and aggregate stability. Soils with poor drainage regimes are nearly always vulnerable to rutting. An example of naturally occurring rutting and compaction on the proposed footprint could be found on frequently traveled wildlife trails on lower slopes of clay-rich soil parent materials. The TDR for soils provides detailed information on the range and magnitude of risks of compaction and rutting potential in the study area.		
1436	Application Section 5.5	Page 32, Table 5-5		6-Jun-14		Burns Lake Band		There is no mention of a soil handling and management plan that will be adhered to listed in the mitigation measures column for the table. Will a soil handling and management plan be developed? Will the plan identify areas of particular sensitivity where additional mitigation measures will be applied? What will the training commitment be to ensure that the crews are aware of the mitigation measures? What is the commitment to monitoring the construction works to verify the effect predictions and ensure that the mitigation measures are implemented and that the mitigation measures are effective?	Coastal GasLink seeks to maintain equivalent land capability on all lands disturbed by the construction of the Project, including agricultural and non-agricultural lands. Mitigation, such as topsoil conservation and soil handling are described in Section 8.3 – Surface Material Removal, Salvage and Grading of the Environmental Management Plan (Appendix 2-A of the Application). Soil handling for specific soil units will be identified on construction alignment sheets, which guide activities in the field. The Wet Soils Contingency Plan (Appendix C.4 of the Environmental Management Plan) as well as the Soil Erosion Contingency Plan (Appendix C.7) and the Soil Handling Contingency Plan (Appendix C.6) provide further guidance to construction personnel regarding the handling of soils. All contractor and inspection staff will		

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									complete safety and environment orientations and training prior to beginning work, where project specific mitigation is communicated. Section 25.2 of the Application further explains environmental monitoring during construction.		
1437	Application Section 6.5.2	Page 6-16		6-Jun-14		Burns Lake Band		<p>What are the predicted noise levels at the ancillary sites (i.e. camps, access roads and laydown areas)?</p> <p>What is the duration in months that this noise will last?</p> <p>Are there residences in the vicinity (i.e. less than the 1.5 km from the ancillary sites that may be impacted by the noise)?</p> <p>Were cumulative impacts considered for the construction noise at the ancillary sites?</p>	<p>The assessment of noise, including cumulative effects, for the construction phase of the project considered all construction activities, including those at temporary facilities. Construction noise emissions of the pipeline construction are representative of the noise emissions at temporary facilities. The expected duration for the development of the ancillary sites is approximately 3 weeks to one month, depending on the size of the site. If the site requires clearing at a different time (e.g., to avoid the migratory bird breeding window) the activities could extend to six months. After site development at construction camp locations, it is expected that the installation of the camp modules will approximately four months. The operation of these ancillary facilities is included in the construction schedule presented in Table 1-13 of the Application.</p> <p>Coastal GasLink is advancing construction planning and detailed engineering design. Should there be potential for proposed ancillary facilities to be located near residences, Coastal GasLink will ensure communication with potentially affected land owners, and will meet permitting requirements.</p>		
1438	Application Section 6.5.2	Page 6-16, Table 6-10		6-Jun-14		Burns Lake Band		By how many dB is the mitigation anticipated to reduce the noise by?	<p>The noise emissions for assessment of construction activities assumed that the equipment is properly maintained and in good working condition reflective of standard industry practice for pipeline construction, and therefore the assessment concludes that the noise associated with these activities will be below the thresholds identified in Section 6.5.2 of the Application.</p>		
1439	Application Section 6.5.2	Page 6-17, Table 6-11		6-Jun-14		Burns Lake Band		<p>The text indicates "A summary of recommended mitigation during pipeline construction activities is provided in Table 6-11. These were principally developed in accordance with TransCanada standards, accepted best practices, and provincial regulatory guidelines including those contained in the BC OGC Noise Control Best Practices Guideline. Through the implementation of these measures, the proposed Project meets the noise control objectives during pipeline construction". Despite the text there are only two mitigation measures listed "limit working hours to between 7 and 10 and use exhaust mufflers". Are these really the only measures applicable based on "TransCanada standards, accepted best practices, and provincial regulatory guidelines including those contained in the BC OGC Noise Control Best Practices Guideline"? Is there a plan for CGL to develop a noise management plan for construction that will include additional mitigation?</p>	<p>The noise emissions for assessment of construction activities assumed that the equipment is properly maintained and in good working condition reflective of standard industry practice for pipeline construction, and therefore the assessment concludes that the noise associated with these activities will be below the thresholds identified in Section 6.5.2 of the Application. Coastal GasLink has included mitigation in the Application to avoid reduce the identified potential adverse effects. Coastal GasLink will implement mitigation outlined in the Application subject to continuing regulatory review and permitting processes.</p>		

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1440	Application Section 6.5.7	Page 6-32		6-Jun-14		Burns Lake Band		Why was the Wilde Lake station the only location where cumulative impacts were considered? There is no rationale provided in the text that describes why the ancillary sites or other compressor stations were not considered, despite a number of overlapping projects being listed in Table 3-A. Presumably noise from increased road traffic (on existing access roads) would result in a cumulative impact. Please provide an explanation as to why this was not considered.	The list of potential projects and activities outlined in Appendix 3-A of Volume 3 of the Application were reviewed to determine which projects and activities are located within the acoustic environment LSA to assess if there is overlap with potential residual environmental effects. Wilde Lake was the only compressor station where there is a potential to interact with other facilities or projects within the LSA. The assessment of construction noise examined the maximum expected construction intensity, resulting in a conservative assessment. Coastal GasLink acknowledges the potential for increased road traffic on existing roads, and is implementing mitigation to address its potential contribution to road noise through the Traffic Control Management Plan.		
1441	Application Section 6.6	Page 6-36, Table 6-21		6-Jun-14		Burns Lake Band		Why were the camps not included in the assessment? What will the emissions be from the camps?	Section 1.2.2 of the Application outlines the components and location of the proposed Project, including the site selection process implemented to select locations for temporary ancillary sites. Potential adverse effects of these sites are included in a qualitative manner for each valued component. As part of the permitting process for the proposed Project, Coastal GasLink will provide detailed information about the temporary sites and access roads to meet the OGC's requirements, pursuant to the <i>Oil and Gas Activities Act</i> and the OGC Environmental Protection and Management Guide.		
1442	Application Section 6.6.3	Page 6-38, Elevated Concentrations of CACs (Operations)		6-Jun-14		Burns Lake Band		What are the ranges of CAC concentrations that are predicted within 500 m from the Segundo Lake compressor station? How is the "fence line" defined with respect to distance from the source?	The fence line for the Segundo Lake Compressor Station is illustrated in Appendix E, Figure E-6 of the Air Quality TDR. Figure E-6 shows that the nearest source to the fence line is approximately 100 m from the fence line. For the purposes of the dispersion assessment the fence lines were established consistent with Section 6.3 of the Guidelines for Air Quality Dispersion Modelling in British Columbia (BC MOE, 2008).		
1443	Application Section 8.5.1	Page 8-33 Introduction or Spread of Forest Pests		6-Jun-14		Burns Lake Band		Will the MSMA impacted trees be harvested? If so what is the proposed management strategy for the harvest? The Burns Lake Band requests the strategy to be provided for review.	Section 8.5.1 of the Application notes that the proposed route may cross areas with MSMA-treated trees. Based on existing databases, the treated trees may occur near KP 370, KP 486, KP 554, KP 579-580. Coastal GasLink will consult the appropriate regulatory authorities regarding the handling and management of these trees, if warranted, and will meet all regulatory requirements.		
1444	Application Section 8.5.1	Page 8-33 Introduction or Spread of Forest Pests		6-Jun-14		Burns Lake Band		Is there a commitment by the proponent to follow the mitigation measures presented on page 33 of 116? The Burns Lake Band requests that the mitigation proposed to decrease the spread of forest pests be a condition of the EA Certificate.	Coastal GasLink has included mitigation in the Application to avoid reduce the identified potential adverse effects. Coastal GasLink will implement mitigation outlined in the Application subject to continuing regulatory review and permitting processes.		

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1445	Application Section 8.5.5	Page 8-35, Table 8-7 Old Forests		6-Jun-14		Burns Lake Band		<p>Mitigation should not include referencing an emergency response plan or contingency plan. Mitigation needs to be applied prior to the impact occurring.</p> <p>The Burns Lake Band requests the site specific mitigation plan for protecting old forests.</p> <p>We also request that the extent of old forest loss due to the project construction be described in the post construction environmental report (i.e. extent of loss in hectares).</p> <p>We also request that the extent of old forests that were not impacted due to the site specific mitigation measures be recorded in order to verify the impact predictions and show stakeholders that the mitigation was:</p> <ol style="list-style-type: none"> 1. implemented 2. recorded 3. effective in reducing the extent and magnitude of impact as described in the Application 	<p>Coastal GasLink notes that Section 8.5.1 of the Application outlines potential adverse effects, mitigation, and environmental management strategies in accordance with the AIR issued by EAO in March 2013. Mitigation for potential adverse effects on old forest is outlined in Table 8-7 of the Application.</p> <p>The intention of the Ecological Communities and Species of Concern Contingency Plan is to provide guidance about mitigation to avoid or reduce potential adverse effects, should a plant or ecological community of concern be discovered in the field that had not been previously described in the assessment.</p> <p>A description of post-construction monitoring is provided in Section 25.3 of the Application with a description of post-construction monitoring reports in Section 25.3.1. Coastal GasLink will meet all regulatory requirements when carrying out the post-construction monitoring program and preparing the required reports.</p>		
1446	Application Section 8.5.3	Page 48, Potential Combined Adverse Effects on Native Vegetation Communities Resulting from Clearing, Invasive Plants and Forest Pests		6-Jun-14		Burns Lake Band		What is the accepted regulatory standard for clearing of native vegetation?	<p>The regulatory and policy setting for vegetation is outlined in Section 8.2 of the Application. Depending on the type of native vegetation, different federal or provincial legislation or policies may apply. Vegetation clearing also considers the regional planning initiatives outlined in Section 8.2.4 of the Application.</p>		
1447	Application Section 8.5.4	Page 47, Potential Combined Adverse Effects on Native Vegetation Communities Resulting from Clearing, Invasive Plants and Forest Pests		6-Jun-14		Burns Lake Band		How are invasives and forest pests considered in the impact predictions on Native Vegetation communities?	<p>Invasive species and forest pests are two of the three primary pathways discussed as having potential to directly and indirectly affect vegetation along the proposed route. Discussions of how native vegetation communities are affected by these pathways are included in Section 8.5.1 (see page 8-30 and 8-32).</p>		

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1448	Application Section 8.5.5	Page 47, Potential Combined Adverse Effects on Native Vegetation Communities Resulting from Clearing, Invasive Plants and Forest Pests		6-Jun-14		Burns Lake Band		The mitigation presented indicates that there will be reduction of loss due to using work space on adjacent ROWs; however, in the alternatives assessment it indicates that the engineers re-routed the ROW to avoid other projects. Please provide an explanation for the contradictory statements.	Where sharing of right of way is feasible with an adjacent linear corridor, Coastal Gas link is seeking this opportunity. Depending on the timing of construction of the other projects, and other factors defining route selection outlined in Section 1.4.4 (route evaluation criteria) of the Application, sharing of right of way is not always feasible.		
1449	Application Section 8.5.6	Page 47, Potential Combined Adverse Effects on Native Vegetation Communities Resulting from Clearing, Invasive Plants and Forest Pests		6-Jun-14		Burns Lake Band		What is the overall anticipated reduction in footprint (in hectares) due to sharing workspace with other ROWs (i.e. to what extent has the magnitude of the predicted impacts been reduced due to this proposed mitigation)? The Burns Lake Band is keen on understanding if the mitigation is actually effective in reducing the footprint.	Based on Coastal GasLink's current understanding of the location of other rights of way, it is expected that approximately 59 ha of other right of way space could be used. Coastal GasLink will continue to seek opportunities to share other rights of way.		
1450	Application Section 8.5.7	Pg 56, Potential Combined Adverse Effects on Grasslands Resulting from Clearing and Invasive Plants		6-Jun-14		Burns Lake Band		As part of the post construction environmental report please provide a description of the ecological communities at risk that were avoided due to "to route realignment, alteration of travel side and spoil side, change in construction technique, such as bore or extend bore under the feature, and narrowing the work area to avoid the feature". This description should include the type of community and extent that was protected due to avoidance.	Ecological communities of concern was a Valued Component identified in the AIR and was assessed in the Application. A description of post-construction monitoring is provided in Section 25.3 of the Application with a description of post-construction monitoring reports in Section 25.3.1. Coastal GasLink will meet all regulatory requirements when carrying out the post-construction monitoring program and preparing the required reports.		
1451	Application Section 8.5.8	Pg 58, Potential Combined Adverse Effects on Ecological Communities at Risk Resulting from Clearing, Invasive Plants and Forest Pests		6-Jun-14		Burns Lake Band		Given the variability of resiliency of the various ecological communities at risk, how does "Context" facilitate the determination of significance? Based on the text it would appear that context doesn't play a role given that "with mitigation impacts will be reduced" (regardless of context).	Coastal GasLink applied the assessment methodology outlined in the AIR issued by EAO in May 2013. Coastal GasLink considers context when characterizing residual adverse effects and residual adverse cumulative effects, as described in Section 3.5 of the Application. For assessing residual adverse effects of the proposed Project on ecological communities of concern, context was characterized in Section 8.5.3. Residual cumulative adverse effects were characterized in Section 8.5.6, and context was described for each effect characterized.		

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1452	Application Section 8.5.4	Page 59		6-Jun-14		Burns Lake Band		What is the regulatory tolerance that may be approached due to clearing of red listed communities? Is a permit required for such clearing?	The regulatory tolerance refers to the guidance in the Land and Resource Management Plans (LRMPs) regarding the goal of protecting Red-listed elements (referred to in some LRMPs as 'rare' or 'of management concern') as detailed in Section 8.2.4 of the Application. It is Coastal GasLink's understanding that a permit is not required to clear red-listed ecological communities of concern, however Coastal GasLink will meet the requirements of the <i>Oil and Gas Activities Act</i> .		
1453	N/A	N/A		6-Jun-14		Burns Lake Band		Will a registered professional biologist conduct a preconstruction survey of all project areas required for clearing (i.e. camps, access roads, ROWs, laydown areas etc.) for species at risk? The Burns Lake Band would like the results of the pre-construction surveys (prior to clearing), if they are conducted.	Coastal GasLink will conduct pre-construction surveys with qualified personnel in consultation with the appropriate regulatory authorities. Coastal GasLink will continue to implement its Aboriginal Consultation Plan and share information with Aboriginal groups during the construction phase.		
1454	Application Section 8.6.1	Page 87, Table 8-14		6-Jun-14		Burns Lake Band		The mitigation indicates that "If necessary, sensitive areas will be identified and flagged or fenced before clearing". Who will determine if it's necessary? Please confirm that a member of the Burns Lake Band (who is familiar with the important traditional plants in the area) will be present during the clearing of the Band's traditional territory. Such that they can identify where areas need to be flagged and avoided.	Coastal GasLink is currently developing an Environmental Monitor Program that engages Aboriginal groups along the project route. The environmental monitoring role may include the identification of traditional plants and sensitive areas to inform decision making by the construction management team. Coastal Gas Link will continue discussions with Aboriginal groups about environmental monitoring roles and opportunities.		
1455	Application Section 12.4.3	Page 12-47, Table 12-3		6-Jun-14		Burns Lake Band		The text indicates that the duration of the construction would be listed in the table but it is not. What is the expected duration of the following: 1. Development 2. Preconstruction 3. Construction 4. Post Construction Monitoring	The construction schedule for the proposed Project is discussed on page 1-32 in Section 1.2 (Project Description) of the Application. The section includes Table 1-13 which outlines the activities and timeframe for each construction section. Pipeline and facility construction will begin concurrently. At this time, construction of the proposed Project (including clearing, soil handling, grading, trenching, testing and cleanup) and facilities (including clearing, soil handling, grading, testing and cleanup) will last approximately three to four years, as outlined in Table 1-13. The main pipeline construction work will be divided into eight pipeline construction sections. Currently, three of the eight sections are proposed to be constructed during winter months and five during summer months. The approximate duration of major construction activities for each construction section is 5 to 19 months. The duration of each major activity is estimated as follows: • pre-construction clearing: four to six weeks • surveying: continuous for eight months • clearing: two to six weeks • salvaging topsoil: four to eight weeks • grading: two to six weeks • stringing and welding: two to six weeks The estimated duration across sections is three to four months for the following activities: • trenching • lowering-in • backfilling • testing • cleanup and reclamation Construction of compressor stations and meter stations is expected to be concurrent		

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									with pipeline construction and to take approximately 12 months for compressor stations and five months for meter stations, depending on, among other variables, scope, land use and construction techniques for each facility. Once construction is complete, the proposed Project will be commissioned and the operations phase begins. The life of the proposed Project is estimated to be in excess of 30 years. Post-construction monitoring is described in Section 25.3 of the Application and is expected to commence following post-construction reclamation and continue for 5 years.		
1456	Application Section 12.5.2	Page 57		6-Jun-14		Burns Lake Band		Although no residual impacts are predicted there should be a discussion regarding the cumulative impacts from the multiple construction projects that could occur at the same time. There could be limited participation if the other projects are already underway and taking up the labour force. How does the proponent plan to mitigate for this adverse impact? Has the proponent considered staggering their project to not overlap with the other proposed projects?	Mitigation to address the potential effect "skilled labor shortage" is outlined in Table 12-9 on page 12-62. These measures include: <ul style="list-style-type: none"> • Implement the Coastal GasLink training program to enable unemployed or underemployed individuals to develop Project-specific employment skills and seek Project employment. • Provide the Project schedule to economic development organizations and post-secondary institutions to inform them of peak workforce demands. • Ensure alternative sources of skilled workers are in place to avoid disruption of the local employment market. • Communicate with economic development organizations to confirm existing employment conditions in communities and the broader region before executing the employment strategy. Coastal GasLink anticipates that these measures will be effective in addressing the potential skilled labor shortage. The monitoring and follow-up mitigation includes recommendations to confirm employment conditions.		
1457	Application Section 12.6.6	Page 70, Residual Cumulative Skilled Labor Shortage		6-Jun-14		Burns Lake Band		Why is the proposed PRGT project not specifically referenced?	Coastal GasLink provide the Cumulative Effects Assessment Inclusion List in Appendix 3-A of the Application. The Prince Rupert Gas Transmission Project is included on the list, and was considered in the assessment of Employment and Economy, Land and Resource Use, Community Utilities and Services, Transportation Infrastructure and Services and Community Quality of Life.		

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1458	Application Section 12.6.6	Page 70, Residual Cumulative Skilled Labor Shortage		6-Jun-14		Burns Lake Band		What is the anticipated % of contracts that will be awarded to local communities? How is this calculated given the number of other projects that could be going on simultaneously?	Coastal GasLink is currently progressing its process to select pipeline contractors. Coastal GasLink has designated camps and catering services, right of way clearing and hauling, medical services and security services as activities for qualified Aboriginal businesses. The final number of work packages required for these activities has not been established yet. Coastal GasLink asks that bids submitted by competing pipeline contractors describe plans to engage local qualified contractors. The number and type of these potential local opportunities are not yet known as the pipeline construction contracts have not been awarded.		
1459	Application Section 12.6.6	Page 70, Residual Cumulative Skilled Labor Shortage		6-Jun-14		Burns Lake Band		What is the proposed mitigation measure if all the skilled laborers are working on the other proposed projects? How would this scenario alter the impact predictions?	Mitigation to address the potential effect "skilled labor shortage" is outlined in Table 12-9 on page 12-62. These measures include: <ul style="list-style-type: none"> • Implement the Coastal GasLink training program to enable unemployed or underemployed individuals to develop Project-specific employment skills and seek Project employment. • Provide the Project schedule to economic development organizations and post-secondary institutions to inform them of peak workforce demands. • Ensure alternative sources of skilled workers are in place to avoid disruption of the local employment market. • Communicate with economic development organizations to confirm existing employment conditions in communities and the broader region before executing the employment strategy. Coastal GasLink anticipates that these measures will be effective in addressing the potential skilled labor shortage. The monitoring and follow-up mitigation includes recommendations to confirm employment conditions.		
1460	Application Section 16.6.3	Page 16-21 and 16-22, Disruption and Alteration of Subsistence Resources		6-Jun-14		Burns Lake Band		How is magnitude defined for impacts on subsistence activities? For context what kind of alteration would result in a high magnitude impact on subsistence harvesting? Will moose populations be monitored post-construction to ensure there are no impacts or indirect impacts on subsistence harvesting? If populations of species that are harvested decline as a result of the project then there will be long term impacts to First Nations abilities to harvest for subsistence. What are the post construction monitoring commitments regarding following-up with the Burns Lake Band to see how the project actually impacts their ability to harvest in the territory?	Coastal GasLink applied the assessment methodology outlined in the Application Information Requirements issued for the Project by the Environmental Assessment Office in March 2013. The definition of magnitude can be found in Table 3-5 of the Application. A residual adverse effect found to be of medium magnitude involves a change in the valued component that is detectable and results in moderate modification in the social, economic, heritage or health environment. A high magnitude is defined as a change in the valued component that is large enough to result in a severe modification in the social, economic, heritage or health environment. Section 16.6.3 of the Application includes narratives for each residual adverse effect assessed, and provides further information about the determination of magnitude specific to the effect being assessed. Coastal GasLink will develop a post-construction monitoring program to meet all regulatory requirements, as outlined in Section 25.3 of the Application. Coastal		

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									GasLink will continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project. Though moose are not considered a species at risk or a species requiring conservation by regulatory authorities, Coastal GasLink acknowledges that moose are an important species in for subsistence and in cultural practices of many Aboriginal groups. Potential adverse effects of the project on moose and associated mitigation are assessed in Section 10 of the Application.		
1461	Application Section 16.6.3	Page 16-23 Disruption of Trail, Travelway and Habitation Site Use		6-Jun-14		Burns Lake Band		Please note that the Burns Lake Band is currently conducting a Traditional Knowledge Study that will contribute to the impact assessment for disruption of Trail, Travelway and Habitation Use. Recommended site specific mitigation measures (i.e. avoidance) will be included in the Study. Note - Reversibility would be long-term if a habitation site was destroyed as part of the construction of the project. Likewise the magnitude would be high if there was an irreversible impact to a habitation site. Such scenarios are not identified in the generic impact assessment but should be considered once the detailed design is complete. Please confirm that re-assessment of site specific impacts to habitation sites will be conducted prior to construction and that these impacts will be shared with aboriginal groups. It is recommended that this be a condition as part of the EA certificate.	Coastal GasLink is committed to considering additional ATK information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate, as well as for the purpose of refining identified mitigation measures in the context of site-specific implementation. Such information can also be provided by Aboriginal groups in the context of the EAO process. In situations where additional sites are identified, Coastal GasLink will engage with Aboriginal groups to discuss approaches to avoid or reduce potential adverse effects.		
1462	Application Section 16.6.4	Page 16-25		6-Jun-14		Burns Lake Band		The text indicates that the determination of significance and confidence considered feedback from potentially affected Aboriginal groups, yet the feedback is not included in the impact assessment. This feedback is also not included in Chapter 23 (unfortunately chapter 23 only cross references the other impact assessments). Please clarify what the feedback was and how that contributed to the assessment of significance.	Coastal GasLink considered ATK in the assessment as directed by Section 1.6, 3.4, of the AIR issued by the EAO, and as described in Sections 3.2.1 and 3.2.2 of the Application. Concerns and requests identified throughout consultation with potentially affected Aboriginal communities were considered in the determination of significance and confidence of each potential adverse effect. Concerns identified by Burns Lake Band and associated Coastal GasLink responses are available in Table 23-17 of Section 23.		
1463	Application Section 16.6.7	Page 16, Table 16-8		6-Jun-14		Burns Lake Band		The additional mitigation indicates that CGL will continue to consult with Aboriginal groups regarding the known reasonably foreseeable future developments and activities (Appendix 3-A) to address any cumulative concerns related to the subsistence resources within the Traditional Land. How has CGL communicated this to the Burns Lake Band to date? Chapter 16 and 23 don't describe the known reasonably foreseeable future developments and activities that are expected to occur in the traditional territory. Please provide a list of these and describe how the project could act cumulatively with the other projects and activities to impact the aboriginal interests of the Burns Lake Band.	Section 3.11.1 of the AIR provides direction for the identification of past, present or reasonably foreseeable Project or Activities. The Application provides a description of the methodology for cumulative effects assessment, including the identification of reasonably foreseeable future activities in Section 3.8. The list of reasonably foreseeable project included in the assessment is presented in Table 3-A.1 and in Figures 3-A.1 to 3-A.7 in Volume 3 of the Application. Coastal GasLink is committed to considering additional ATK information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate, as well as for the purpose of refining identified mitigation measures in the context of site-specific implementation. Such information can also be provided by Aboriginal groups in the context of the EAO process.		

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1464	Application Section 16.6.7	Page 16-16, Table 16-8		6-Jun-14		Burns Lake Band		How does CGL plan to coordinate the reclamation activities with other projects? Is this commitment included in the reclamation plan?	Coastal GasLink will develop a Reclamation Plan in advance of construction of the proposed Project. The development of the Reclamation Plan will include discussions with landowners, Aboriginal groups and the appropriate regulatory authorities. The Reclamation Plan will be informed by site-specific data collected prior to construction and will be updated during construction to reflect the current conditions. As construction continues, there may be updates to the reclamation plan to reflect site specific conditions encountered during construction. All areas disturbed by Project construction activities will be reclaimed.		
1465	Application Section 9.3.2	Page 9-12		6-Jun-14		Burns Lake Band		Why were the compressor stations and meter locations not located away from wetlands?	Section 1.4.14 of the Application provides a description of the evaluation criteria used in the evaluation of facility sites. During construction planning and detailed engineering design, Coastal GasLink will continue to seek opportunities to avoid or reduce footprint in wetlands.		
1466	Application Section 9	N/A		6-Jun-14		Burns Lake Band		How many hectares of wetlands are anticipated to be impacted? How many hectares are anticipated to be avoided following detailed design and avoidance mitigation? The follow-up monitoring should describe in detail the extent that avoidance was used as a mitigation measure, given that it is presented so many times throughout the wetland impact assessment.	Section 9.5.2 of the Application states that the area of wetlands anticipated to be temporarily disturbed during pipeline construction (i.e., wetlands within the proposed construction footprint) is approximately 234 ha; the area of wetlands estimated to be disturbed at permanent compressor station locations is estimated at approximately 15 ha. During construction planning and detailed engineering design, Coastal GasLink will continue to seek opportunities to avoid or reduce footprint in wetlands. Coastal GasLink will implement a Post-Construction Monitoring (PCM) Program. This program will be developed in consultation with the appropriate regulatory authorities to monitor the effectiveness of mitigation.		
1467	Application Section 9	N/A		6-Jun-14		Burns Lake Band		Given that the actual disturbance area is currently not known (because detailed design is not complete) there should be a more detailed description around the uncertainty of the impact predictions particularly the uncertainty of the magnitude of the impacts assessed.	The discussion of potential effects in Section 9.5 presents a review of literature that identifies the expected effects of temporary disturbance on wetland function. Temporary disturbance as a result of pipeline construction and operations is not expected to result in a loss of wetland function. Although by their nature there is uncertainty around impact predictions the uncertainty of the assessment can be addressed by using a conservative approach and identifying a suite of effective mitigation. This inherent uncertainty is reduced by applying knowledge gained from similar projects in similar environments, as well as through the implementation of post-construction monitoring and adaptive management. Section 9.5.3 of the Application and Section 9.0 of the Environmental Management Plan (Appendix 2 A) describe monitoring and follow-up programs to address uncertainty in the effects assessment conclusions and effectiveness of mitigation. Monitoring programs will be developed in consultation with the appropriate regulatory authorities prior to construction.		

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1468	Application Section 9.5.3	Page 52		6-Jun-14		Burns Lake Band		<p>The text indicates that significance determination incorporates experience gained during previous projects with similar conditions and potential adverse effects, the information gained through initial feedback from regulators, Aboriginal peoples and stakeholders, and the professional judgment of the study team.</p> <p>What were the previous projects that were considered? Please provide examples.</p> <p>How was the information from Aboriginal peoples specifically considered during the determination of significant impacts to wetlands? Without specific examples being included in the text it is difficult to tell if their input was actually used or if it was completed based on professional judgment.</p>	<p>In addition to TransCanada's long history and extensive experience with successfully constructing and operating pipelines across Canada in a safe and environmentally responsible manner, the assessment team also looked at the Kinder Morgan Canada Inc. (Kinder Morgan) TMX Anchor Loop Project (Critchley and Foote 2009, TERA Environmental Consultants 2011a,b,c,d 2012a, 2013a,b,c). This project was considered in the assessment of potential adverse effects, is located within similar terrain as portions of the proposed Project and includes consideration of post-construction monitoring results. In addition, knowledge gained from wetland post-construction monitoring for other previous projects assisted in the assessment of potential effects and will assist in the program design (e.g., Enbridge Pipelines Inc. (Enbridge) [TERA Environmental Consultants 2012b] and NOVA Gas Transmission Ltd. (NOVA Gas) [TERA Environmental Consultants 2011e, 2012c]). Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The AIR defined the VCs and KIs for the assessment. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink gathered information from available sources to inform the assessment presented in Section 14, including available community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives. Community-specific issues identified from available sources, such as community reports developed by Aboriginal groups and information gathered through discussions with Aboriginal group representatives, are included in the effects assessment. Consideration of the effectiveness of the mitigation measures that address specific issues raised during field surveys with Aboriginal participants informs the assessment of potential adverse effects.</p>		

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1469									<p>References</p> <p>Critchley, D. and A.L. Foote. 2009. Wetland Follow-Up Monitoring Program Second Year Activities Summary for the TMX – Anchor Loop Project. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2011a. 2010 Wetland Follow-up Post-construction Monitoring Report for the Kinder Morgan Canada Inc. TMX – Anchor Loop Project. Third Year. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2011b. 2010 Supplemental Wetland Function Study Report for the Kinder Morgan Canada Inc. TMX – Anchor Loop Project. Second Year. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2011c. 2011 Wetland Follow-up Study Post-construction Monitoring Report for the Kinder Morgan Canada Inc. TMX – Anchor Loop Project. Fourth Year. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2011d. 2011 Supplemental Wetland Function Study Monitoring Report for the Trans Mountain Pipeline L.P. TMX – Anchor Loop Project. Third Year. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2011e. Wetlands Post-Construction Monitoring Plan for the Proposed NOVA Gas Transmission Ltd. Groundbirch Mainline Project. Prepared for NOVA Gas Transmission Ltd.</p> <p>TERA Environmental Consultants. 2012a. 2012 Supplemental Wetland Function Study Post-construction Monitoring Report for the Kinder Morgan Canada Inc. TMX – Anchor Loop Project. Fourth Year. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2012b. Wetland Function Post-Construction Monitoring Report for the Enbridge Pipelines Inc. Southern Lights Project – Second Year. Prepared for Enbridge Pipelines Inc.</p> <p>TERA Environmental Consultants. 2012c. 2012 Wetland Function Post-Construction Monitoring Report for the NOVA Gas Transmission Ltd. Tanghe Creek lateral Loop No. 2 (Sloat Creek Section). Prepared for NOVA Gas Transmission Ltd.</p> <p>TERA Environmental Consultants. 2013a. 2012 Wetland Follow-up Monitoring Program Report for the Trans Mountain Pipeline L.P. TMX – Anchor Loop Project. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2013b. 2013 Supplemental Wetland Function Study Monitoring Program Report for the Trans Mountain Pipeline L.P. TMX – Anchor Loop Project. Prepared for Kinder Morgan Canada Inc.</p> <p>TERA Environmental Consultants. 2013c. 2012 Wetland Follow up Monitoring Program Report for the Trans Mountain Pipeline L.P. TMX – Anchor Loop Project. Prepared for Kinder Morgan Canada Inc.</p>		

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1470	Application Section 7.4.5	Page 46, Central Coastal Mountains		6-Jun-14		Burns Lake Band		Given the lack of baseline sampling for the project, is pre-construction, during construction and post construction sampling proposed? Given that the turbidity guideline is based on increases from baseline levels, pre-construction turbidity monitoring at every crossing should be implemented. Has the proponent committed to this level of monitoring? What is the rationale for the limited water quality sampling as part of the baseline program?	The quantity and locations of water sampling sites were selected to acquire a representative distribution of water chemistry along the proposed route. Only streams with existing geographic names and a minimum wetted width of 9 m were selected. Coastal GasLink will carry out monitoring during pipeline installation activities at fish-bearing streams in accordance with regulatory requirements. A post-construction monitoring plan will be developed to meet regulatory requirements and in discussion with appropriate regulatory authorities and Aboriginal groups. Coastal GasLink will continue to implement its Aboriginal Consultation Plan through construction and operation of the Project.		
1471	Application Section 7.4.6	Page 50		6-Jun-14		Burns Lake Band		What is the depth to water in the wells in the Savory area (i.e. KP400)? Why weren't the wells in the vicinity of the project sampled as part of the baseline study (particularly given the lack of groundwater data in the LSA)? Will the wells be sampled if requested by the owner (pre and post construction)?	The eleven (11) registered water supply wells in the Savory area situated within 1,000 m of the Project are described in Section 4.1.8 of the Hydrogeology TDR. Well details are tabulated in Appendix D of the Hydrogeology TDR. Reported water depths range from 40 to 70 feet below ground in five (5) deeply drilled wells and from 1 to 22 feet below ground in six (6) wells constructed as shallow excavations. Section 7.1.3 of the EMP notes that Coastal GasLink will provide shallow domestic well owners within 200 m of the proposed Project the option to participate in a water well monitoring program prior to construction to determine pre-construction quality and quantity conditions.		
1472	Application Section 7.4.7	Page 53		6-Jun-14		Burns Lake Band		How will the baseline data outside of the LSA be used during construction monitoring given the highly variable concentrations in the data set? Will the closest data point to the construction activities be used for comparison? How will the proponent take into account that some of the groundwater in the data set is already impacted? Will this be considered in the cumulative impact assessment?	Coastal GasLink will carry out monitoring during pipeline installation activities at fish-bearing streams in accordance with regulatory requirements. Available information about existing conditions for Valued Components was included in the baseline description in Section 7.4 of the Application. For groundwater that information included data about the Kitimat Landfill and the Brule, Endako and Equity mines. Section 3 of the Application describes the assessment methodology including the cumulative effects assessment methodology.		
1473	Application Section 7.5.1	Page 54		6-Jun-14		Burns Lake Band		How were the concerns raised by Aboriginal groups incorporated into the determination of context/sensitivity or magnitude?	In Section 3.2.1 of the Application, Coastal GasLink describes how available Aboriginal Traditional Knowledge informed the assessment. Coastal GasLink acknowledges the participation of local Aboriginal representatives in the field data collection program to share Traditional Ecological Knowledge to inform the assessment. Coastal GasLink will continue dialogue with Aboriginal groups about site specific issues and mitigation to inform construction planning and detailed engineering design.		
1474	Application Section 7.5.1	Page 7-56, Table 7-8		6-Jun-14		Burns Lake Band		The table indicates that additional mitigation is presented in Appendix F of 2A – I don't see appendix F. Is there a title for this Appendix?	The reference to Appendix F of Appendix 2-A of the Application is a typographical error, and should actually reference to Appendix D of Appendix 2-A of the Application.		
1475	Application Section 7.5.1	Page 7-56, Table 7-8		6-Jun-14		Burns Lake Band		How will increased access and related fisheries impacts be monitored during operations?	A description of post-construction monitoring is provided in Section 25.3 of the Application with a description of post-construction monitoring reports in Section 25.3.1. Coastal GasLink will meet the applicable regulatory		

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									requirements when carrying out the post-construction monitoring program and preparing the required reports.		
1476	Application Section 7.5.3	Page 7-76, Alteration or Loss of Riparian Habitat Function during Construction Activities		6-Jun-14		Burns Lake Band		The text indicates that the residual impacts of pipeline construction on alteration of riparian vegetation are considered to be well within the environmental and regulatory standards. Please describe the environmental and regulatory standards that are used for the assessment? What loss of riparian habitat is considered acceptable?	Coastal GasLink is guided by the BC Riparian Management Areas Guidebook (BC MOE and BC MOF 1995) which sets out criteria for designing and constructing temporary and permanent stream crossings through riparian areas adjacent to watercourses in BC. These standards and the industry accepted best practices outlined in CAPP et al. (2005) are the recommended mitigation to address potential adverse effects of the proposed Project on aquatic and riparian habitat.		
1477	Application Section 7.5.3	Page 7-83 and 7-84, Increased Fish Mortality or Injury during Construction Activities		6-Jun-14		Burns Lake Band		The text indicates that the mitigation will prevent mortality and injury to fish. What monitoring is proposed to ensure that this statement is true? The text seems to contradict the magnitude description – which indicates authorizations will be required – are fish collection permits anticipated to be required? When will the proponent know if fish habitat compensation is required?	Coastal GasLink will develop Water Quality Monitoring Plans prior to construction, in consultation with the appropriate regulatory authorities to ensure that suspended solids remain within levels that will not result in injury or mortality to fish. In addition, fish salvages will take place prior to the installation of trenched watercourse crossings. Fish collection permits will be obtained prior to conducting any activities that may require sampling or removal of fish from construction areas. The assessment was conducted using unauthorized serious harm to fish as a threshold to identify a significant adverse effect. The definition of serious harm to fish as defined in the Act as "the death of fish or any permanent alteration to, or destruction of, fish habitat" was considered in establishing this threshold. Unauthorized serious harm would be considered a high magnitude effect. Serious harm that is authorized along with appropriate offsetting measures, is considered to be of medium magnitude, since offsetting measures would be implemented to maintain the productivity of the commercial, recreational and Aboriginal fisheries. Coastal GasLink will meet Fisheries Act requirements regarding offsetting measures (compensation) in situations where DFO has determined that serious harm is caused by construction activities of the proposed Project. DFO will determine the need for authorizations and offsetting measures during permitting.		
1478	Application Section 7.5.3	Page 7-87, Temporary Blockage of Fish Movements during Construction of Isolated Watercourse Crossings		6-Jun-14		Burns Lake Band		What is the typical duration of a blockage? The text indicates less than two days but in some cases more than two days but less than a year. What stream crossing locations are anticipated to be blocked for more than two days? What is the additional mitigation that will be applied in these circumstances?	The duration refers to the length of time to install the watercourse crossing, which will vary with the method of installation and the site specific characteristics of the watercourse. Typically, trenched crossings, such as isolations or open cut, are completed within a few days. Mitigation that will be applied at isolated or open cut crossings is described in Section 8.4 of the EMP and includes adherence to timing windows to the extent practical, maintenance of downstream flows, relocation of fish from the crossing location and monitoring.		

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1479	Application Section 7.5.6	Page 7-96, Table 7-12		6-Jun-14		Burns Lake Band		What are the projects (commercial/industrial facilities/features or oils and gas facilities) that are expected to contribute to 2,577 ha of riparian disturbance? This was difficult to figure out based on the limited information provided in Appendix 3-A.	Proposed commercial /industrial facilities/features or oil and gas facilities included in the cumulative effects assessment are listed in Table 3-A-1 of Appendix 3-A, along with the VC-specific LSA or RSA that the feature is located within. These features are displayed on Figure3-A.2 (sheets 1 – 16). Only those listed in Table 3-A-1 and having a footprint that crosses a riparian area, contribute to riparian disturbance. Section 3.8.7 of the Application provides a description of the larger projects.		
1480	Application Section 7.5.6	Page 7-96, Table 7-12		6-Jun-14		Burns Lake Band		What are the other oil and gas pipelines that are expected to contribute 1,239 ha of riparian disturbance?	Proposed pipelines included in the cumulative effects assessment are listed in Table 3-A-1 of Appendix 3-A, along with the VC-specific LSA or RSA that the feature is located within. These pipelines are displayed on Figure3-A.7 (sheets 1 – 7). Only those listed in Table 3-A-1 and having a footprint that crosses a riparian area, contribute to riparian disturbance. Section 3.8.7 of the Application provides a description of the larger pipeline projects.		
1481	Application Section 7.5.6	Page 7-96, Table 7-12		6-Jun-14		Burns Lake Band		How was the 407.32 ha of expected riparian disturbance calculated for the proposed project?	Calculation of riparian disturbance is a GIS-based exercise that utilizes best available data. The process is described in Section 7.5.6 of the Application. A stream network is developed using the BC Freshwater Atlas river, lake and single line stream network datasets. Project-specific watercourse crossing data were used to calculate an average channel width which was applied to the single line network dataset. A riparian buffer was then applied to these features, i.e., rivers, lakes and streams, based on the riparian Management zones outlined in the BC MOF and BC MOE (1995) guidebook. Land use features, including the Project, whose rights-of-way overlapped on the riparian buffer would contribute to riparian disturbance. Section 3.8.9 of the Application provides information on the land use feature footprint assumptions Reference: British Columbia Ministry of Forests and British Columbia Ministry of Environment. 1995. Riparian Management Area Guidebook. Forest Practices Code of British Columbia Guidebook. Website: http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/riparian/rip-toc.htm		
1482	Application Section 7.5.6	Page 7-96, Table 7-12		6-Jun-14		Burns Lake Band		Can the proponent please calculate the expected riparian disturbances and instream disturbances for the Burns Lake Band Traditional Territory (for existing, project and future)? Both chapter 7 and chapter 23 do not adequately address what the specific impacts will be to aquatic resources in the territory.	Coastal GasLink has completed the cumulative effects assessment in accordance with the Application Information Requirements issued by the EAO in May 2013. Coastal GasLink has not calculated expected riparian disturbances specific to individual traditional territories, as the scope of the assessment is the entire project area. Coastal GasLink will continue dialogue with Burns Lake Band to identify further information needs.		
1483	Application Section 7	N/A		6-Jun-14		Burns Lake Band		The impact assessment indicates that "with the proposed mitigation the concerns raised by First Nations have been addressed". We respectfully disagree with any such statements that appear in the Application. It is inappropriate for the proponent to assume that they have addressed the concerns of the Burns Lake Band.	Coastal GasLink will continue engagement with Burns Lake Band to address concerns.		

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1484	Application Section 25.2	Page 25-5		6-Jun-14		Burns Lake Band		What are the credential requirements for the environmental inspectors?	<p>The role and qualifications of the Environmental Inspector is explained in Section 4.0, Environmental Compliance, of the Environmental Management Plan (Appendix 2-A).</p> <p>The Environmental Inspector(s) hired for the proposed Project is required to have experience in environmental inspection or planning. The Environmental Inspector(s) will have an understanding of pipeline construction techniques and the associated environmental considerations.</p>		
1485	Application Section 25.2	Page 25-5		6-Jun-14		Burns Lake Band		How will the Burns Lake Band be involved in the environmental monitoring? Several members have recently completed environmental monitoring courses and are keen to work on the construction project.	Coastal GasLink is currently developing an Environmental Monitor Program that will provide an opportunities for Aboriginal participants in an environmental monitoring role. Coastal GasLink will provide further information about the environmental monitoring program as it becomes available.		
1486	Application Section 25.2	Page 25-5		6-Jun-14		Burns Lake Band		How often will the regulatory agencies monitor the construction sites to ensure environmental compliance? What was the typical frequency of compliance inspection on TransCanada's other construction projects (by regulatory agencies)?	<p>The frequency of compliance verification activities performed by a regulatory agency is at the discretion of the agency.</p> <p>TransCanada's experience has shown that the frequency of compliance inspection by a regulatory agency varies depending on the agency mandate and the scope of the project.</p>		
1487	Application Section 25.2	Page 25-5		6-Jun-14		Burns Lake Band		How will the environmental documents be organized and managed at the site? If the baselines, EMPs, environmental sheets, EA Application etc. are all required to be on-site, this seems like an overwhelming amount of information for the inspectors and monitors. How will this information be distributed to the environmental team? How will CGL ensure that the team is fully trained and aware of the commitments outlined in each of the documents?	<p>Section 4.0, Environmental Compliance, of the Environmental Management Plan (Appendix 2-A) detail how environmental information will be stored and disseminated at the field level.</p> <p>All construction sections will be managed from a construction field office that will house construction management staff including the Environmental Inspector(s). All information that is required to be available to construction staff will be located at the construction office and will remain available to all construction inspection staff as a resource.</p> <p>Pertinent information and requirements, such as sensitive sites, construction procedures, mitigation and regulatory requirements will be documented in the Environmental Management Plan and the Environmental Worksheets.</p> <p>Coastal GasLink will implement Project training and orientation as described in Section 4.0 of the EMP.</p>		
1488	Application Section 25			6-Jun-14		Burns Lake Band		Please describe CGL's environmental training program that will be undertaken to ensure the contractors and environmental staff are aware of the environmental requirements for the project.	As explained in Section 4.0, Environmental Compliance, of the EMP (Appendix 2-A), Coastal GasLink will develop and implement an environmental orientation program to ensure that all personnel working on the construction of the proposed Project are informed of the environmental requirements and sensitivities.		
1489	Application Section 25			6-Jun-14		Burns Lake Band		Why are the specific pre-construction surveys not listed in this section of the Application? Please provide a list of the anticipated pre-construction surveys.	Coastal GasLink will identify the necessary pre-construction surveys to meet regulatory requirements. It is expect that these pre-construction surveys will include wildlife and wildlife habitat, rare plants, rare plant communities, and identified cultural sites.		

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1490	Application Section 25			6-Jun-14		Burns Lake Band		Will the contactors be required to have their own environmental monitoring staff?	While Coastal GasLink does not specify individual contractor staff positions, compliance with all regulatory requirements and contract requirements, including the EMP is the responsibility of the contractor. The contractor will determine the appropriate staffing to meet the requirements of the contract. Section 25 of the Application notes that the EMP and Project-specific plans will be incorporated into contracts, where appropriate, in which compliance will be a requirement for Contractors		
1491	Application Section 25			6-Jun-14		Burns Lake Band		The Burns Lake Band requests copies of the monthly environmental inspection reports for the construction activities taking place in the traditional territory.	Coastal GasLink will continue to implement its Aboriginal Consultation Plan, which includes continuing to share information about the project during construction.		
1492	Application Section 25.3	Page 25-10		6-Jun-14		Burns Lake Band		Please confirm that the post construction monitoring will include inspecting the locations where species at risk were transplanted (if such mitigation is applied during construction).	Post-Construction Monitoring is described in Section 9.0 of the EMP (Appendix 2-A). The program may entail specifically designed evaluation criteria depending on the concerns and issues that were highlighted through the Application or encountered during the construction process, including measures to mitigate effects to species at risk.		
1493	Application Section 25			6-Jun-14		Burns Lake Band		What is the communication strategy to ensure that issues/concerns brought up by First Nations are addressed in a timely manner?	Coastal GasLink will continue to implement its Aboriginal Consultation Plan, which includes continuing to share information and address concerns about the project during construction.		
1494	Application Section 25.3			6-Jun-14		Burns Lake Band		Will the post-construction monitoring report include all environmental incidents and concerns that were raised and outline how they were addressed? Will this report also include the social and human health impacts of the project and how they were addressed (i.e. impacts to local services such as waste and water facilities, impacts to the regional health facilities etc.)?	Coastal GasLink will develop the Post-Construction Monitoring Plan in discussion with regulatory agencies and Aboriginal groups prior to construction. Coastal GasLink expects that a key objective of the post-construction monitoring will be to assess the effectiveness of mitigation identified in the Application.		
1495	Application Section 25			6-Jun-14		Burns Lake Band		Burns Lake Band requests that the mitigation measures proposed in the Application be included as commitments in the Table of Conditions.	EAO to respond		
1496	Application Section 20.4.1	Page 20-16		6-Jun-14		Burns Lake Band		Note that the information presented in this section does not reflect the existing health of the members of the Burns Lake Band.	This section presents general baseline health information available from Public Health Authority for Northern British Columbia. For the purposes of the assessment, the available information is assumed to be relevant to the study area.		
1497	Application Section 20.4.3	Page 20-23		6-Jun-14		Burns Lake Band		Note that the data presented in this section does not appear to correspond to the data presented in the baseline section for water quality in the Aquatics impact assessment. Based on the summary in this section, please confirm that only manganese and selenium exceeded the health based guidelines and that all other metals were below the health based guidelines. Why is there no discussion of turbidity levels in this section? Given that this is the parameter that is most likely to increase as a result of project construction. Why is there no discussion of nitrates and nitrites, given that this parameter could also increase in water as a result of blasting during construction?	The Human and Ecological Health Section of the Application (Section 20) refers to baseline water quality samples collected for the project, and not the EMS data also referred to in Aquatics section. The effect of turbidity is discussed as a physical effect in the water quality section. The exposure to turbidity is short term and not associated with accumulation of chemicals that would be expected to lead to potential human health risks. Nitrates and nitrites were also discussed in the water quality section and are presented as baseline data in Hydrology TDR (Table H-1 and H-2). Based on best management practices, no material increases in nitrates or nitrites are predicted from project activity, therefore the potential for health risks associated with aquatic exposure to these compounds is considered negligible.		

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1498	Application Section 20.5.1	Page 20-31		6-Jun-14		Burns Lake Band		The text references the mitigation for ML/ARD listed in Section 5.7. Note that the monitoring proposed in Section 5.7 is only for pH and sulphate at run-off locations and not metals which could ultimately increase in the water as a result of low pH. How can human health effects be determined or how can human health be protected if there is no monitoring of the parameters that could cause health effects?	Coastal GasLink has completed an assessment of potential for acid rock drainage and metal leaching, and in locations where such potential exists, appropriate mitigation will be implemented. Please refer to the Coastal GasLink technical memo titled "Acid Rock Drainage (ARD)/ Potential for Acid Generating (PAG) Materials" for more information about mitigation, adaptive management, and monitoring.		
1499	Application Section 20.5.1	Page 20-32		6-Jun-14		Burns Lake Band		Please describe how the following statement is consistent with the toxicological principals of dose response relationships "An exposure to a stressor must be of substantial magnitude and duration in order to elicit a biological effect with a reasonable level of confidence". This gives the reader the impression that only high magnitude long term exposures can cause effects when we know this is not true. What about short term exposures to high doses (such as during an accident or malfunction)? Or long term exposures to small doses? Please clarify.	The statement is intended to indicate that both magnitude and duration are factors in determining potential health risks. There are many combinations of magnitude and duration that could potentially result in increased health risks.		
1500	Application Section 20.5.1	Page 20-37		6-Jun-14		Burns Lake Band		The text regarding the MSMA treated trees does not match the text provided in the Vegetation section and does not match the answers to the questions raised at the working group meeting regarding the trees. The vegetation section states that the trees are within the study area and that the regulatory agencies would be contacted regarding the management of the trees prior to construction. The answer at the working group was that the proponent did not know yet know if the trees would be required to be removed. Then the human health section states that the timber assessment indicates that there is no overlap. Please confirm which of the 3 scenarios are true.	Section 8.5.1 of the Application notes that that the proposed route may cross areas with MSMA-treated trees. Based on existing databases, the treated trees may occur near KP 370, KP 486, KP 554, KP 579-580. Coastal GasLink will consult the appropriate regulatory authorities regarding the handling and management of these trees, if warranted.		
1501	Application Section 20.5.1	Page 20-41		6-Jun-14		Burns Lake Band		The text states that blasting activity of this scale of use does not typically exert changes in water chemistry that would be detected above background variation. Have the baseline levels of nitrates and nitrites been monitored? If not, how will the proponent know if the water chemistry is changing from background during the construction activities? If the background levels are all below detect then there could be residual impacts if the project results in increased concentrations. Please confirm that nitrates and nitrites will be monitored upstream and downstream of any areas where blasting is required. If blasting is required in the Burns Lake Band traditional territory, we require notification of when and where the blasting will be required so that we can inform our members who may be out on the land during this time.	A total of 50 stream sites were sampled for baseline water quality including nitrates and nitrites (Table H-1 of Hydrology TDR; tables shown for each of the five major basins along the corridor). All detection limits for nitrogenous compounds were well below the BC water quality guidelines for protection of freshwater aquatic life. During construction, Coastal GasLink will implement the measures outlined in the EMP included in Appendix 2-A of the Application. Section 8.4.3 of the EMP includes specific measures for blasting in or near watercourse crossings, including avoidance of use of ammonium-nitrate containing explosives for blasting in or near watercourses, drainages or wetlands. Section 5 of the EMP outlines the notification procedures for construction related activities to ensure that interested parties, including Aboriginal groups, guides and outfitters, and trappers are aware of the scheduled activities. Coastal GasLink will continue to implement its Aboriginal Consultation Plan, which includes continuing to share information and address concerns about the project during construction.		
1502	Application Section 20	Appendix B Table B-4		6-Jun-14		Burns Lake Band		What are the predicted concentrations at the houses/receptor locations that are closest to the compressor stations? This should be relatively easy to pull from the model.	Table 20-B3 of Human Health EA chapter shows that none of the maximum predicted concentrations of CACs exceeded the BC ambient air quality objectives or Canada wide standards.		

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1503	Application Section 20.5.3	Page 20-46		6-Jun-14		Burns Lake Band		Will the people at the residences/receptor locations (approximately 3 km away from the Segundo Lake compressor station) be able to hear the construction noise? How long will the construction noise last at this location (i.e. 6 months)?	Coastal GasLink does not expect any audibility of construction noise from the Segundo Lake compressor station at a distance of 3 km. The typical ambient sound levels during the daytime hours are expected to be between 35 and 40 dBA. At a distance of 3 km from the compressor station, the construction noise is expected to be below 32 dBA, which is considerably below the ambient sound levels. Construction of a compressor station typically lasts approximately 18 to 24 months.		
1504	Application Section 20.5.3	Page 20-46		6-Jun-14		Burns Lake Band		The Burns Lake Band requests that the permit for emission discharges from the Segundo Lake compressor station includes monitoring of ambient air concentrations of the CACs.	Coastal GasLink will comply with requirements of the Waste Discharge Permit, as well as any specific air quality monitoring requirements to meet applicable regulatory requirements.		
1505	Application Section 21.1.4	Page 21-7, Table 21-3		6-Jun-14		Burns Lake Band		Why were vehicle accidents not considered to interact with wildlife?	Section 21.7 of the Application outlines the scope of the assessment of accidents or malfunctions associated with motor vehicle accidents, including the scoping of motor vehicle accidents involving wildlife. The effect of motor vehicle accidents involving wildlife are discussed in the context of potential adverse effects on wildlife populations in the assessment of the valued component wildlife and wildlife habitat (Section 10 of the Application).		
1506	Application Section 21.2.2	Page 21-11, Table 21-4		6-Jun-14		Burns Lake Band		Why are there no residual impacts identified for human health?	Section 21.2.2 of the Application speaks to effects resulting from a spill of hazardous materials. Human Health was considered in the assessment of the potential and residual adverse effect on water and air quality (page 21-12), wetland function (page 21-13), vegetation (page 21-13), and soil contamination (page 21-14).		
1507	Application Section 21.2.2	Page 21-16, Scenario 1		6-Jun-14		Burns Lake Band		The text indicates that the scenario is unlikely to occur (i.e. not under normal circumstances, only one time in the life of the project). Has such a spill occurred in TransCanada's 60 years of operating pipelines? If so how was the spill responded to and what were the environmental impacts? Providing a real examples rather than a scenario and predicted effects would give credibility to the assessment.	The scenario described in Section 21.2.2 is based on an actual incident that occurred near Victoria, BC in September 2012. The incident did not occur on a TransCanada project.		
1508	Application Section 21.2.2	Page 21-16, Scenario 1		6-Jun-14		Burns Lake Band		Based on TransCanada's 60 years of operating what is the frequency that such a spill occurs during construction? One would think that this information is readily available from TransCanada's the Incident and Issue Tracking Tool or the final construction report from their most recent pipeline construction.	Based on a review of TransCanada's Incident and Issue Tracking Tool, there are no records of an event such as the one described in Scenario 1 of the discussion about a spill of hazardous material that could adversely affect instream habitat of spills on TransCanada's projects.		
1509	Application Section 21.2.2	Page 21-25		6-Jun-14		Burns Lake Band		The confidence in the impact assessment for all potential accidents and malfunctions should come in part from the 60 years of previous experience. Additional details are requested regarding the confidence of each impact assessment based on this previous experience. (i.e. based on the past experience what is the frequency of each accident occurring (i.e. times per year) and related impacts to each VC?	Section 21.1.3 of the Application describes the determination of confidence associated with risk assessment. Coastal GasLink's confidence in the assessment of risk of adverse effects resulting from an accident or malfunction is outlined for each risk characterized in Section 21 of the Application, and takes into account TransCanada's 60 year history of constructing and operating pipelines.		
1510	Application Section 21.3	Page 21-30		6-Jun-14		Burns Lake Band		The text indicates that there were 0.274 failures or incidents per 1000 km from the 2012 statistics. What were the impacts related to the incidents? This will give the reviewer an idea of the magnitude and consequence of typical failures.	Section 21 describes the potential adverse effects associated with accidents or malfunctions. These effects were determined based on historical information about incidents resulting from the construction and operations. The rates cited in the CEPA (2012) report represent all failure incidents, including leaks and ruptures with the majority being minor leaks. The details of each of the incidents are not included in the CEPA (2012) report.		

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1511	Application Section 21.3	Page 21-30		6-Jun-14		Burns Lake Band		How is a "significant" failure defined? What is the definition of a major release? What were the 4 failures that occurred in the past 4 years? What were their consequences?	<p>The Canadian Energy Pipelines Association (CEPA) defines a failure incident as "any unplanned release of product due to a failure of a pipe". A significant failure incident is one that meets one or more of the following criteria:</p> <ol style="list-style-type: none"> 1. Causes a serious injury or fatality 2. Causes a liquid release of greater than 8 cubic meters (50 US barrels) 3. Produces an unintentional ignition or fire 4. Occurs as a rupture <p>Information source: http://www.cepa.com/about-pipelines/maintaining-safe-pipelines/pipeline-integrity/cepa-member-pipeline-integrity-performance</p> <p>Coastal GasLink defined three different scenarios for pipeline leak or failure in Section 21.3.1, and defined the outcome of a major rupture or release. The four failures referenced in Section 21 that occurred in 2012 are described as follows:</p> <ul style="list-style-type: none"> • Natural gas leak in Gold Creek Lateral Pipeline resulting from microbially induced corrosion (MIC), where natural gas was released to the atmosphere. • Natural gas leak in TransCanada pipeline 100-1 at Mainline Valve 78-79 that was discovered during an operations and maintenance dig program after sandblasting the pipe. • Natural gas leak in Countess West Lateral Pipeline resulting from MIC. • Natural gas leak in TransCanada pipeline 100-1 at Mainline Valve 46-47 that was discovered during operations and maintenance programs. 		
1512	Application Section 21.3	Page 21-30		6-Jun-14		Burns Lake Band		Will each compressor station be staffed in order to address accidents and malfunctions and provide quick response times?	Compressor stations are designed to operate unmanned, and the local control systems at the station will respond to accident or malfunctions without human intervention. If necessary, the facilities can be remotely operated from TransCanada's Gas Control Centre. The compressor stations along Coastal GasLink will be staffed to a level which will provide adequate resources during times of accidents or malfunctions. The staff will be responsible for long and short term maintenance as well as operation of the facilities. The Coastal GasLink operations staff will be on-call to respond to alarms initiated by the compressor station control system. These alarms will correspond with station equipment, operations or environmental concerns that may arise at any time.		
1513	Application Section 21.3	Page 21-30		6-Jun-14		Burns Lake Band		How long does it take once a leak is detected for a valve to be shut off? If this duration varies, please provide the typical duration.	In the event of a major pipeline leak along the Coastal GasLink pipeline, the mainline gas pressure will drop. This reduction in pressure below the pre-determined set pressure will cause the mainline valves to close automatically. The Mainline valves will close in approximately 1 minute. The typical time between detecting the pipeline leak and valve closure depends on the location and size of the leak. In all cases the on-call staff from Coastal GasLink will respond to the location where the leak has been detected and will take appropriate measures for repair		

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									or pipeline isolation.		
1514	Application Section 21.3	Page 21-30		6-Jun-14		Burns Lake Band		What is the anticipated response time to respond to a failure in the Burns Lake Band traditional territory?	Coastal GasLink operations staff will be on-call to respond to failures that may occur along the pipeline. Response time for technicians will vary depending on the distance of the location of the failure and staff, however the pipeline system design is based upon 4 hour response time.		
1515	Application Section 21.4.2	Page 21-49, Table 21-9		6-Jun-14		Burns Lake Band		When will the emergency response plan be developed? Please provide a draft of plan to the Burns Lake Band. Power outages during the winter months are a concern for the health and wellbeing of the band members and we want to ensure that the ERP adequately addresses such an accident or malfunction. Although unlikely, such a scenario could have severe consequences. The ERP should be specific to each community that could be effected. Please confirm that the ERP will not be a generic plan such as the EMPs provided in the Application.	Coastal GasLink will implement TransCanada's corporate emergency management program that is used by all TransCanada entities and operating regions, and will incorporate any specific requirements associated with the Coastal GasLink project. These plans include a listing of communities which could be affected during an Emergency Response activity so that appropriate notifications and coordination can be undertaken.		
1516	Application Section 21.6.3	Page 21-64		6-Jun-14		Burns Lake Band		Please clarify the statement "adverse effects to human health is considered to be moderate because, depending on the volume of debris, the point of impact and the damage it causes, residual adverse effect can potentially be reversed in less than or equal to one year". One would think that if a person was killed from the accident, the impact would not be moderate and reversible it would be severe and irreversible.	Coastal GasLink acknowledges that without the implementation of mitigation, the potential adverse effects of fly rock resulting from blasting on human health can be severe. Coastal GasLink will implement comprehensive mitigation to ensure that human life is not endangered during blasting. A blast does not proceed unless the area near the blast has been evacuated of people, to ensure there are no injuries. As a result, adverse effects are reduced from an unmitigated consequence of severe to a mitigated consequence of moderate.		
1517	AIR			6-Jun-14		Wet'suwet'en First Nation		AIR Section 3.9 requires the Application to: "clearly state the quantitative or qualitative threshold, if practicable, of significance for each VC a transparent and credible basis for the determination of whether a potential residual effect to a VC is expected to be significant. Should quantitative or qualitative threshold not be provided, then the Application must describe the rationale for why this is the case." For the Surface Water Quantity and Quality VC, Section 7.7.2 of the Applications states: "A qualitative assessment of surface water VC quality and quantity was determined to be the most appropriate approach to evaluate the significance of potential residual environmental effects. These potential residual effects were evaluated in consideration of CCME (2002, 2007) guidelines and provincial guidelines, where applicable. Otherwise, the characterization of each of the potential residual effects relied on the professional judgment of Ecological targets of BC Instream Flow Thresholds for Fish and Fish Habitat 13 Guidelines [2004] are referred to later in Section 7.7.3 as appropriate thresholds for determining significance. The Application goes on to state, for the Surface Water Quantity VC that "The potential residual effect is considered to be not significant because it is of low to medium magnitude and, therefore, does not exceed the established threshold for the surface water quantity key indicator. Confidence is high based on TransCanada's extensive experience, data pertinent to the Project area and the experience of the assessment team." It is not clear if a quantitative or qualitative assessment (or combination) of significance for Surface Water Quantity was conducted and whether it was conducted at an appropriate scale (i.e. for each watercourse or watershed) and using what thresholds. The statement that professional judgment was used does not meet the AIR requirement for transparency of the method of determination for the Surface Water Quantity and Quality VC. More explanation of the approach to determining significance using qualitative criteria is warranted.	Coastal GasLink has completed a comprehensive assessment in accordance with the Application Information Requirements (AIR) issued by the BC Environmental Assessment Office (BC EAO) in May 2013. The methodology used to characterize residual effects and determine significance is described in Section 3.7 and 3.9 of the AIR. The thresholds for significance for surface water quality and surface water quantity were described according to this methodology in Section 7.7.3 (page 158 to 159). Potential effects of the Project on surface water quantity were assessed by qualitative means, since specific changes to stream flows and natural drainage patterns cannot be conclusively quantified prior to construction. Assessments were not conducted for specific watercourses; rather, the assessment looked at those potential effects that could occur across the range of watercourses present on the Project Footprint, the mitigation that would be effective in addressing those effects, and the significance of predicted residual effects following application of the recommended mitigation. The thresholds for significance were developed based on applicable standards for surface water quantity, including the BC Instream Flow Thresholds for Fish and Fish Habitat Guidelines (2004) and the DFO Operational Statement for Ice Bridges and Snowfills. The		

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									thresholds for significance also take into account the temporal aspects of the residual adverse effect.		
1518	AIR			6-Jun-14		Wet'suwet'en First Nation		AIR Section 4.3.1 requires the Application to identify mitigation and environmental management actions to protect recreationally, commercially and/or culturally important Fish and Fish Habitat. While Section 7.5.1 of the Application describes mitigation measures at watercourse crossings during and after construction, it does not address 'offsetting/ compensation' for those incidences where the project will cause permanent alteration to instream or riparian habitats (part of the definition of serious harm per the Fisheries Act) . Offsetting plans for instream or riparian habitat that is permanently altered should be included in the Application. Without these plans, the project will not have completely mitigated or offset harm to fish and fish habitat as required by the Environmental Assessment and DFO's Fisheries Protection Policy.	The assessment was conducted using unauthorized serious harm to fish as a threshold to identify a significant adverse effect. The definition of serious harm to fish in the <i>Fisheries Act</i> as "the death of fish or any permanent alteration to, or destruction of, fish habitat" was considered in establishing this threshold. Unauthorized serious harm would be considered a high magnitude effect. Serious harm that is authorized along with appropriate offsetting measures—is considered to be of medium magnitude, since offsetting measures would be implemented to maintain the productivity of the commercial, recreational and Aboriginal fisheries. Coastal GasLink will meet <i>Fisheries Act</i> requirements regarding offsetting measures (compensation) in situations where DFO has determined that serious harm is caused by construction activities of the proposed Project. DFO will determine the need for authorizations and offsetting measures during permitting.		
1519	Application Section 7.5.5	Tables 7 - 12		6-Jun-14		Wet'suwet'en First Nation		The Cumulative Effects Assessment (Section 7.5.5 of the Application) includes a series of tables (Tables 7 - 12 through Table 7 - 18 for Fish and Fish Habitat and Table 7 - 24 through Table 7 - 27 for Surface Water Quality and Quantity). The source of these data and the methods for compiling the data could not be found in the Application which makes it impossible to assess the validity of the analysis and the conclusions reached. Until the data sources and citations along with the methods are presented, W FN is not able to review and evaluate the conclusions of no significant cumulative effects on Fish and Fish Habitat, water quality, or water quantity in WFN territory. WFN would Page 3 of 9 also request that CGPP provide the same summary tables but for the WFN territory alone (KP 429 – KP 612) and ideally on a sub - watershed scale.	Coastal GasLink has completed the cumulative effects assessment in accordance with the Application Information Requirements issued by the EAO in May 2013. Summary tables of cumulative effects were not developed for specific areas or sub-watersheds. Cumulative adverse effects were assessed at the spatial scale defined by the Regional Study Area, as defined in the AIR issued by EAO in May 2013. Coastal GasLink will continue dialogue with Wet'suwet'en First Nation to identify further information needs. Please see attached list of references for		

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									data sources used for the cumulative effects assessment (List of References Used for Aquatics Cumulative Effects Assessment - Issue Tracking #1519).		
1520	Application Section 7.5.6			6-Jun-14		Wet'suwet'en First Nation		Section 7.5.6 of the Application (Cumulative Effects on Access) refers to development of an "Access Control Management Plan and the proposed route will follow existing linear disturbances where practical and, consequently, will create minimal new access for recreational fisherman and harvesters in the Aquatic Environment RSA." The Access Control Management Plan presented in Appendix 2A does not describe the goals and objectives or measures to mitigate impacts to fisheries, fish or fish habitat or WFN fishing.	Section D.3.2 of the Access Control Management Plan presented in Appendix 2A of the Application outlines the objectives of the plan. The Access Control Management Plan provides guidelines for controlling access to previously inaccessible portions of the right-of-way (ROW) following construction and during the operations of the proposed Project. The Access Control Management Plan would be implemented in order to limit access that may be created by pipeline construction, particularly in sensitive wildlife areas, riparian areas and in areas of potential high erosion hazard. By managing access to these sensitive areas, potential adverse effects on fish and fish habitat are also reduced. The Access Control Management Plan outlines measures to address these goals, including approaches for roads with existing access, and areas where new access would be developed as a result of the Project. Coastal GasLink confirms that the Access Control Management Plan will be developed in advance of construction of the Project. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project.		
1521	Application Section 13			6-Jun-14		Wet'suwet'en First Nation		Section 13 of the AIR requires that Coastal GasLink provide the following in the Application: <ul style="list-style-type: none"> • a list of Environmental Management Plans for all phases of the proposed • Project that would be needed for construction, operations and maintenance, • and, where relevant, decommissioning a comprehensive description of the contents of each environmental management plan, including any mitigation measures (and compensation plans, if applicable) described in previous sections. Section 25 (EMPs) only describes the Environmental Management Plan and the Emergency Response Plan. Appendix A - 2 has additional Environmental Management Plans but the list appears incomplete. All EMPs, including those referred to in some of the Effects Chapters as mitigation measures (e.g. Erosion and Sediment Control Plan, Water Quality Management and Monitoring Plan, Blasting Management Plan, Waste and Hazardous Materials Management Plan) should be described in sufficient detail such that WFN has confidence in their ability to mitigate project effects.	The Environmental Management Plan (EMP) in Appendix 2-A of the Application discusses the contingency and management plans to be developed for the Project in Appendices C and D. Coastal GasLink will develop environmental management plans in consultation with the appropriate regulatory authorities to meet regulatory requirements, as outlined in Section 25.3 of the Application. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project.		

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1522	Application Section 7	Page 7 - 101		6-Jun-14		Wet'suwet'en First Nation		Sections 7.5.3 and 7.6.3 of the Application refer to the DFO 'no - net-loss policy' (DFO 1986) as it may pertain to effects on fish species of concern and their habitats: "Nevertheless, a Section 35(2) authorization from DFO will be applied for, where warranted, and a fish habitat compensation plan will be developed to ensure compliance with DFO's 'no net loss' policy (DFO 1986) " AND "mitigation and compensation requirements will be confirmed during the permitting stage through discussions with appropriate regulatory agencies, as well as during stakeholder consultations, to ensure that no net loss of fish habitat occurs ." It is the position of the WFN that offsetting/compensation for the permanent alteration of riparian habitats must be included and that a plan for this must be advanced to a sufficient state prior to issuance of an EA Certificate for the project. We note that such a compensation plan is recommended in Table 7- 29 (cumulative effects on species of concern) but there is little discussion. Furthermore, on Page 7 - 101, the Application states: " No additional mitigation beyond the Project - specific mitigation already presented in Section 7.5.1 are deemed warrant ed." Section 7.5.1 lists proposed mitigation measures and offsetting/ compensation is not one of them. It is not clear in the Application whether offsetting/compensation will occur as a mitigation measure to avoid permanent alteration to fish habitat, including riparian habitat. As stated earlier, the Application is incomplete without inclusion of such plans.	The assessment was conducted using unauthorized serious harm to fish as a threshold to identify a significant adverse effect. The definition of serious harm to fish in the <i>Fisheries Act</i> as "the death of fish or any permanent alteration to, or destruction of, fish habitat" was considered in establishing this threshold. Unauthorized serious harm would be considered a high magnitude effect. Serious harm that is authorized along with appropriate offsetting measures, is considered to be of medium magnitude, since offsetting measures would be implemented to maintain the productivity of the commercial, recreational and Aboriginal fisheries. Coastal GasLink will meet Fisheries Act requirements regarding offsetting measures (compensation) in situations where DFO has determined that serious harm is caused by construction activities of the proposed Project. DFO will determine the need for authorizations and offsetting measures during permitting.		
1523	N/A	N/A		6-Jun-14		Wet'suwet'en First Nation		In several instances the Application refers to "there being no situations where there is a permanent or long - term residual effect or residual cumulative adverse effect of high magnitude on fish species of conservation concern that cannot be technically or economically mitigated. " What is meant by economically mitigated? Further discussion is required.	"Economically mitigated" is not in reference to financial compensation. Coastal GasLink uses the term "technically or economically mitigated" to refer to the constructability and practicality of the mitigation. Coastal GasLink continues to apply the philosophy of the mitigation hierarchy, including avoidance, minimization of residual adverse effects, restoring on site and offsetting. Coastal GasLink acknowledges the importance of avoidance in addressing adverse effects of the proposed Project.		
1524	Application Appendix 2G			6-Jun-14		Wet'suwet'en First Nation		WFN may have additional concerns beyond those listed in Table 4 - 8 through 4 - 10 of the Fish and Fish Habitat Technical Data Report (TDR). Coastal Gaslink should acknowledge that this is not a comprehensive list of concerns from WFN.	Acknowledged. Coastal GasLink will continue to implement its Aboriginal Consultation Plan, which includes continuing to share information and address concerns about the project during construction. Coastal GasLink is also committed to considering additional information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate, as well as for the purpose of refining identified mitigation measures in the context of site-specific implementation. Such information can also be provided by Aboriginal groups in the context of the EAO process.		
1525	Application Appendix 2G			6-Jun-14		Wet'suwet'en First Nation		The Fish and Fish Habitat TDR states: "Project EMPs will be designed to protect and maintain the ecosystem function of riparian areas and reclaim all crossings to ensure that the productive capacity of the habitat is maintained." WFN understands that currently forested riparian areas will not be reclaimed to their original state within the Right of Way (ROW). Permanently removing forested riparian area and replacing it with shrubs will not maintain the current ecosystem function of those riparian areas and offsetting/ compensation will be required.	Coastal GasLink will meet <i>Fisheries Act</i> requirements regarding offsetting measures (compensation) in situations where DFO has determined that serious harm is caused by construction activities of the proposed Project. DFO will determine the need for authorizations and offsetting measures during permitting. For reclamation activities at a fisheries-sensitive watercourse crossing or inside Riparian Reserve Zones, Coastal Gaslink will submit a site mitigation strategy to demonstrate how fisheries and watershed values will be protected in the short-term and meet long term objectives to maintain ecosystem function. Reclamation will focus		

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									<ul style="list-style-type: none"> on: • Maintaining equivalent land capability; • Stabilizing any cut and fill slopes, and re-contouring if required to return pre-disturbance stream bank conditions to minimize erosion potential; and • Establishing healthy, self-sustaining, and ecologically appropriate vegetation. 		
1526	Application Appendix 2G			6-Jun-14		Wet'suwet'en First Nation		The Fish and Fish Habitat TDR lists a number of Environmental Management Plans. Recognizing the need for site specific plans (and that such plans will be developed at permitting), WFN requests that CGL prepare, as part of the EA Application, an 'umbrella' Riparian Remediation, Management, and Compensation Plan in consultation and for review by WFN. This is important so that WFN can have confidence that CGPP objectives for protecting riparian areas will be achieved.	Coastal GasLink will develop environmental management plans in consultation with the appropriate regulatory authorities, as outlined in Section 25.3 of the Application. Coastal GasLink will continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project. Coastal GasLink is also committed to considering additional information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate, as well as for the purpose of refining identified mitigation measures in the context of site-specific implementation. Such information can also be provided by Aboriginal groups in the context of the EAO process. Coastal GasLink will meet <i>Fisheries Act</i> requirements regarding offsetting measures (compensation) in situations where DFO has determined that serious harm is caused by construction activities of the proposed Project. DFO will determine the need for authorizations and offsetting measures during permitting.		
1527	Application Section 7.1.3			6-Jun-14		Wet'suwet'en First Nation		The proposed mitigation measures listed in Section 7.1.3 of the Environmental Management Plans Chapter will not mitigate effects on fishing activities or mitigate an increase or decrease in access to fishing areas. Recording and mapping of fishing locations is not a mitigation measure unto itself, nor is just adherence to regulations. Additional mitigation measures will be required to control access.	The EMP is structured for effective implementation of mitigation during construction, rather than addressing individual valued components. For example, although Section 7.1.3 of the EMP includes mitigation for fish and fish habitat, these measures are implemented in combination with other measures outlined in the remainder of the EMP. Section D.3.2 of the Access Control Management Plan presented in Appendix D of the EMP outlines the objectives of the plan. The Access Control Management Plan provides guidelines for controlling access to previously inaccessible portions of the ROW following construction and during the operations of the proposed Project. The Access Control Management Plan would be implemented in order to reduce disturbance resulting from pipeline construction on these lands and particularly in sensitive wildlife areas, riparian areas and in areas of potential high erosion hazard. By managing access to these sensitive areas, potential adverse effects on fish and fish habitat are also reduced. The Access Control Management Plan outlines measures to address these goals, including approaches for roads with existing access, and areas where new access would be developed as a result of the Project.		

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1528	N/A	N/A		6-Jun-14		Wet'suwet'en First Nation		The use of biodegradable hydraulic fuel near waterways should be a requirement under any permits issued.	Coastal GasLink confirms that biodegradable hydraulic oil will be used in excavators working within the wetted area of watercourse crossings.		
1529	Application Appendix 2A			6-Jun-14		Wet'suwet'en First Nation		Section 8.4.2 of the EMP Chapter speaks to the prohibition of clearing of extra temporary workspace within 10 m of a watercourse to protect riparian areas. The Riparian Management Zone should be the exclusion zone or 10m, whichever is greater except for within the ROW.	The mitigation recommended in section 8.4.2 regarding riparian zones serves to maintain the ecosystem function and protect riparian areas in proximity to watercourse crossings. Clearing activities at watercourse crossings will be limited to the removal of trees and shrubs along ditchline and the worksite of the right of way. The construction footprint will be narrowed through riparian areas whenever practical.		
1530	Application Section 9			6-Jun-14		Wet'suwet'en First Nation		Section 9.0 (Post Construction Monitoring) should include monitoring of stream crossing construction activities at all high valued watercourses for at least 5 years.	Coastal GasLink will develop its Post Construction Monitoring Plan in consultation with the appropriate regulatory authorities and to meet regulatory requirements, as outlined in Section 25.3 of the Application. Post construction monitoring will be conducted during the first five years after final cleanup and reclamation. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project.		
1531	Application Section 1.2.2	page 1-13		6-Jun-14		Wet'suwet'en First Nation		On page 1-13 of the Application, the Proponent indicates that electricity will be supplied to six of the eight compressor stations by BC Hydro. The Section 10 Order posted on the EAO website indicates that the project will entail "up to six compressor stations". WFN seeks clarification as to whether the increase (2) in compressor stations proposed in the Application is consistent with the Section 10 Order. The Application also mentions that the Proponent may be in a position to sell electricity to BC Hydro if waste - heat recovery is used to generate power. This poses a couple concerns at least. First, additional infrastructure to provide electricity to a compressor station could/ will require a transmission line and associated right - of- way. Depending on how close a compressor station is to the existing BC Hydro system, this could entail considerable habitat disturbance, alteration, and fragmentation. It is not clear that these matters have been factored into the present assessment and WFN requests clarification as to why the electricity needs of all compressor stations will not be met through the generation of electricity (including cogeneration) at each station. Second, the option to sell power to BC Hydro would seem to change the nature of the project from a gas transmission project to one that also included the electricity production through co generation. WFN requests clarification as to whether the current Section 10 Order provides for any generation and/or sale of electricity.	Coastal GasLink refers WFN to the Coastal GasLink Pipeline Project Update letter dated September 13, 2013 from Coastal GasLink to the Environmental Assessment Office (EAO) available here: http://a100.gov.bc.ca/appsdata/epic/html/dep/loy/epic_document_392_36113.html In this letter, Coastal GasLink states "To date, Coastal GasLink has described the Project as including the construction of one compressor station with provisions for up to an additional five compressor station sites to allow for future expansion. Based on the progression of commercial engineering design activities, the proposed Project will have an initial capacity of 2.1 bcf/d with the potential for expansion to 5.0 bcf/d with the addition of up to seven compressor stations." The Coastal GasLink Project does not include the construction of new electrical power transmission line. Coastal GasLink describes the potential project benefits of waste heat recovery opportunities in Section 1.5 of the Application. This potential future opportunity is not included in the scope of assessment for the Project since there are no specific plans in place nor details available at this time. Section 1.5.3 of the Application states that while the opportunity may technically exist, and it is expected to be economically feasible, it is not possible at this time for Coastal GasLink to determine the willingness of third parties to engage in the development of waste heat recovery facilities, or to determine the market acceptable of the power generated from them.		

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1532	Application Section 1.4	page 1-44		6-Jun-14		Wet'suwet'en First Nation		<p>Coastal GasLink describes, very briefly, how the "conceptual corridor" was identified (p. 1 - 44): Coastal GasLink conducted a preliminary route assessment through a desktop review to identify a conceptual corridor. The conceptual corridor was defined by the primary routing control points and the routing considerations. The identification of the conceptual corridor supported initial engagement with Aboriginal groups, land owners, stakeholders and regulatory agencies.</p> <p>We understand that there are two "primary routing control points": the beginning (origin) and end (terminus) of the pipeline. According to the Application: Coastal GasLink considered a number of factors when evaluating pipeline routing options. Specific routing was based on factors such as:</p> <ul style="list-style-type: none"> • Identifying previously cleared areas that are the result of forest harvesting or other linear developments e.g., powerlines, ROWs, roads and highways. <p>The route alternatives depicted in Appendix Figure 3 - B.1 indicate that a very narrow range of route alternatives were considered (particularly as pertaining to the WFN traditional territory). The primary concern here is that no consideration was given to an option that avoids developing access and a pipeline right - of - way in the pristine Page 6 of 9 wilderness area of the upper Clore River watershed. Note that the Clore River watershed is not mentioned at all in the wildlife section of the EAC Application; nor does the term 'wilderness' factor into considerations for pipeline development. Pipeline development through the Clore River watershed conflicts with the intentions of the Morice LRMP for that area (e.g., No timber harvesting/high biodiversity emphasis/access regulated areas of the Burnie and Gosnell Landscape Units). Based on the existing Alta gas pipeline that reaches Kitimat via a route that runs just south of Telkwa, we know that alternatives do exist. The Clore River watershed is the largest remaining unprotected wilderness area in WFN traditional territory and forms a crucial connection between two protected areas. Accordingly, WFN requests that CGL give serious consideration to a conceptual corridor that avoids entirely the wilderness areas in and near the Clore River watershed and that is situated in areas where industrial development and other human - caused changes to the landscape have occurred and are presently occurring (this would be more consistent with Coastal GasLink's approach on p 1 - 5 of section 1 of the Application and more in line with the interests of WFN) . Optional corridors to the north include the Telkwa and Zymoetz (Copper) river valleys – both of which have considerable existing industrial developments. These latter two corridors would also address concerns regarding impacts to subalpine and alpine habitats [e.g., material on page 8- 54 of Section 8, Vegetation, including the statement: "Context: all of the alpine/subalpine areas along the proposed route (approximately 41 ha) are more sensitive to disturbance and difficult to reclaim than other ecological communities."]</p>	<p>The process of selecting the proposed route is outlined in Section 1.4 of the Application. Selecting the route involved collaboration with experts from various disciplines, including land, environmental, engineering and construction, and considering input from potentially affected Aboriginal groups, provincial and federal regulators, municipalities, landowners and the public. Section 1.4 describes the process to advance pipeline routing from the conceptual corridor (Rev A) to the proposed route (Rev D), including the consideration of alternative routes. The route evaluation criteria described in Section 1.4.4 of the Application considers:</p> <ul style="list-style-type: none"> • Environmental factors • Geotechnical factors • Socially and culturally important areas • Watercourse crossings • Road and pipeline crossings • Current land use • Constructability and cost • Regulatory requirements • Aboriginal and stakeholder input <p>Sections 1.4.6 to 1.4.11 of the Application describes Coastal GasLink's considerations in developing the conceptual corridor, followed by the study corridor. Based on the studies completed and feedback received about the study corridor, Coastal GasLink developed the proposed route.</p> <p>The Morice LRMP provides strategic land use guidance for resource management activities and provides direction on how the land base should be managed. None of the zones crossed by the Proposed Route in the Morice LRMP area prohibit the construction and operation of the Project. Coastal GasLink has committed to implementing the Environmental Management Plan and Access Control Management Plan to reduce the potential adverse effects of the Project. Coastal GasLink will also continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project. Coastal GasLink will continue dialogue with WFN to understand issues and concerns and to develop site specific mitigation, as construction planning and detailed engineering design advances.</p>		
1533	Application Section 1.4	page 1 - 71		6-Jun-14		Wet'suwet'en First Nation		<p>The Table of Concordance refers to section 1.4.17 on page 1 - 71 as the location in the Application where this is addressed. Unfortunately, that section simply states: <i>Alternative mitigation for the proposed Project has been addressed within Sections to 22, where appropriate.</i></p> <p>A search of sections 5 to 22 did not reveal a clear presentation of that information and some of those sections do not even contain the word s "Alternative Mitigation". In addition, section 1.4.17 should also present more cross - referenced information and clearly describe what is meant by 'Alternative Mitigation' and how , in a strategic sense, that information will or will not be applied to the project. In the case where it is not applied, it needs to be clear why this is the case.</p>	<p>Coastal GasLink will implement mitigation that is based on industry accepted best practice, meets or exceeds regulatory requirements, and is in accordance with TransCanada standards for constructing and operating a pipeline. As a result, mitigation is developed in the context of the assessment of potential adverse effects on each valued component.</p> <p>Alternative mitigation is presented in Section 1.4.16 as the installation of the pipeline at watercourses may have mitigation that is specific to the installation method. For example, trenched crossings involve disturbance to the streambed for pipeline</p>		

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									installation, whereas trenchless pipeline installation methods involve reduced or no disturbance to the channel, banks and riparian areas. Consideration of the pipeline installation method points to specific mitigation to address the site specific concerns at the crossing location.		
1534	Application Section 1	page 1-38		6-Jun-14		Wet'suwet'en First Nation		<p>The Application needs to also include, as mitigation, a statement on (a) the process for addressing the reclamation of temporary workspaces, and (b) the process by which vegetation management in the pipeline right-of-way will proceed during the operational phases. In both of these instances, there are opportunities to restore/enhance/manage vegetation for specific targets and objectives (e.g., wildlife habitat, plant communities). This is also relevant to the material in Table 1-14 of Section 1 (p. 1-38):</p> <p><i>Coastal GasLink will implement TransCanada's existing vegetation management procedures during operations to effectively control the growth of vegetation on the permanent ROW, using the most environmentally appropriate and economical vegetation management methods. The pipeline ROW and any other areas not needed for ongoing operation and maintenance will be specifically managed to revert to a natural vegetative state, where practical or in accordance with land owners agreements. Vegetation control (including weeds) will be conducted in accordance with requirements from the appropriate regulatory authority on an as needed basis and will comply with the BC Weed Control Act.</i></p> <p>WFN needs to be involved in setting those prescriptions and in monitoring the success of the outcomes in the WFN traditional territory and the Application needs to capture this.</p>	<p>Coastal GasLink will develop the Reclamation Plan in consultation with the appropriate regulatory authorities to meet regulatory requirements, as outlined in Section 25.3 of the Application. The objective of the Reclamation Plan is to maintain equivalent land capability, ensuring the ability of the land to support various land uses similar to the uses that existed before construction, recognizing the operational needs of the pipeline system. The Reclamation Plan will be implemented for all areas of land disturbance resulting from the Project, including temporary workspaces. The Post-construction Monitoring Plan described in Section 25.3 of the Application includes an assessment of reclamation success.</p> <p>Coastal GasLink will also continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project. Coastal GasLink is also committed to considering additional information provided by Aboriginal groups to inform ongoing construction planning and detailed engineering design as appropriate, as well as for the purpose of refining identified mitigation measures in the context of site-specific implementation. Such information can also be provided by Aboriginal groups in the context of the EAO process.</p>		
1535	N/A	N/A		6-Jun-14		Wet'suwet'en First Nation		<p>Wetlands are among the most vulnerable ecosystems to climate change (e.g., less water input due to changing precipitation patterns; increased evapo-transpiration losses due to higher temperatures). The Application needs to include a discussion of how climate change over the life of the project might interact with the project. Further to this, the Federal Policy on Wetland Conservation notes the importance of "enhancement and rehabilitation of wetlands in areas where the continuing loss or degradation of wetlands have reached a critical level". In the interests of wetland conservation (and reducing the risks of proceeding to the point of a critical level of wetland loss or degradation), WFN requests that CGL present information on ways in which impacts to wetlands will not only be avoided and mitigated, but also where there are opportunities to (i) restore, (ii) enhance, (iii) buffer, and (iv) protect wetland structure and function as a result of construction. The presence of machinery and people in proximity to wetlands during construction may mean that there are economical ways in which wetland habitats (including structure and function) can be conserved as a result of pipeline construction. 'Buffering' refers to actions taken to conserve wetland habitat in the face of climate change. For example, this might include improvements to water retention by deepening key areas that would serve to maintain hydrological functioning during periods of drought. 'Protection' includes actions taken to preserve the integrity of wetland habitats and include the post construction layout of access roads and their associated drainage structures (e.g., culverts) and the replacement of livestock</p>	<p>Coastal GasLink has completed a comprehensive assessment in accordance with the AIR issued by the EAO in May 2013. This request is outside of the scope of the AIR. Coastal GasLink acknowledges the potential effects of climate change on water resources. Section 9 of the Application considers the effects of the proposed Project on wetland function, and the effects of future climate scenarios is considered to be an effect of the environment on the project, and is addressed in Section 22 of the Application. Topics that are associated with climate change that are discussed in Section 22 of the Application include extreme weather events, fire, slope stability and mass wasting events, future climate scenarios, and forest pests and pathogens. Coastal GasLink will continue to implement its Aboriginal Consultation Plan, which includes sharing of information with Aboriginal groups through construction and operation of the Project. Coastal GasLink will continue dialogue with WFN to understand issues and concerns about wetlands and to develop site specific</p>		

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								fencing that will be disrupted during construction (this is relevant to matters contained within Section 14 of the Application). WFN requests that it be consulted on matters pertaining to wetland conservation in the WFN traditional territory.	mitigation, as construction planning and detailed engineering design advances.		
1536	Application Appendix 2L		Wildlife	6-Jun-14		Wet'suwet'en First Nation		<p>Considerable effort was expended by the Proponent to obtain wildlife data from remote cameras. Those data were analysed, including probability - of- use models selected using Akaike Information Criterion (AIC) methods as described in the Wildlife Technical Data Report (Appendix 2L). Only data from the most common species in the study area were analyzed. Data on rare or uncommon animals were not analysed due to concerns about sample size (which, incidentally, can be more important than information about common species with well - known patterns of geographic distribution and habitat selection). Page 8 of 9 It is unclear just how camera data and the chosen models were used to inform the assessment of impacts on the selected VCs (or KIs). We could only find two very brief and uninformative mentions of the camera data in Section 10 (Table 10-8):</p> <p>Probability of use models based on the remote camera field surveys for the proposed Project suggest that the probability of use by grizzly bear was positively related to disturbed habitat (i.e., linear features or cut blocks; Wildlife and Wildlife Habitat TDR in Appendix 2-L of the Application). Probability of use models based on the remote camera field surveys for the proposed Project suggest that the probability of use by moose in the winter was positively related to disturbed habitat (i.e., linear features or cut blocks) but there was no effect of disturbed habitation probability of use in the summer (Wildlife and Wildlife Habitat TDR in Appendix 2-L of the Application).</p> <p>WFN requests a more in- depth discussion of how the camera data were used to inform the EA, including an objective evaluation of the utility of data collected from only 20 cameras during a period of less than one year across a linear corridor spanning hundreds of kilometers and a multitude of ecological site conditions. If the author s concluded that the data were unsuitable for the purposes of providing a meaningful interpretation of the ecological conditions of the project area and the potential impacts of project development, then this needs to be stated clearly.</p>	<p>Remote cameras are being used with increasing frequency due to their ability to remain in selected locations and potentially collect photo data over lengthy timeframes (several months at a time). Coastal GasLink recognizes that this survey method is not exhaustive or necessarily specific to a given species, however the technique can reveal unique information that would otherwise be rarely obtained (e.g., wolverine photographs), and further supports individual species information known to the area as collected through desktop literature reviews and the development of individual species accounts and habitat models. Cameras were deployed following a stratified random sampling approach providing data to assess the potential effects of the pipeline as a whole on wildlife. Strata included disturbed and undisturbed habitats because the focus was to test how existing disturbance might influence wildlife use within the Project area, which provides some inferences about how future disturbance might influence those species. Random sampling was employed to provide a sample that was representative of the entire route. There is variability in wildlife distribution and abundance along the route, and the camera data provides some inference about how frequent wildlife use is across the route, on average.</p> <p>Remote camera data is intended to aid in the baseline characterization of wildlife and wildlife habitat, and is used along with other information to prepare detailed species accounts for the Project. Because of the duration that remote cameras are in operation (i.e., 24 hours a day for as many days as they are deployed) , remote camera data improves confidence in detection (i.e., reduce false negatives) and occupancy (i.e., how often the site is used) estimates, and achieving this level of confidence would otherwise be much more challenging with conventional winter track surveys. Furthermore, the likelihood that a species</p>		

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									occupies a site can be related to habitat types and surrounding features and differences in detection probability can be attributed to these factors.		
1537	AIR			6-Jun-14		Wet'suwet'en First Nation		<p>According to Section 3.7 of the AIR: "For each VC considered, a separate RSA boundary will be established in consideration of the proposed Project regional effects on the individual VC." With some exceptions, the current EAC Application treats the RSA for each VC as a single entity along the entire length of the pipeline corridor. For example, see Table 10 - 20: "Existing and Future Areal Disturbance in the Wildlife RSA" in Section 10 of the EAC Application. Section 10.9.1 (Change in Habitat for Mammal Key Indicators) presents summary figures showing predicted changes in effective habitat for key indicators Land and Resource Management Planning unit. There are also some regional breakdowns for grizzly bear and caribou (but not moose). Yet, the interpretation and classification of the project's direct and cumulative effects are not partitioned by any regional breakdown (including grizzly bear and caribou) that would be meaningful to WFN. Moreover, some of those figures do not appear to be mentioned or discussed at all in the text (e.g., Figure 10- 5, 10- 6, 10- 7). Instead, the project's impacts to wildlife VCs are integrated across the entire length of the corridor. This approach has the potential to mask serious impacts that may occur at a spatial scale that is 'sub regional' according to the current definition of the Regional Study Area. This has been an issue of concern in the assessments of other pipeline projects (e.g., Westcoast Connector Gas Transmission Project) and as a result, the proponent has committed to examining impacts at a 'sub - regional' scale that corresponds with boundaries (e.g., First Nation traditional territories, provincial 'region') along the pipeline corridor. WFN would like to see a similar treatment of this matter in the CGL Application.</p>	<p>Coastal GasLink has completed the effects assessment in accordance with the Application Information Requirements issued by the EAO in May 2013. Wildlife and Wildlife Habitat was assessed as the Valued Component (VC). Several regional study area boundaries were identified to assess Wildlife and Wildlife Habitat, as required by Section 3.7 of the AIR, and detailed in Section 4.6.1 and Figure 4-6 of the AIR. Sub-regional information was considered in the assessment and is presented in Section 10 of the Application. Coastal GasLink clarifies that the figures noted (e.g., Figures 10-5, 10- 6, 10-7) were included to supplement the information provided in the related tables (e.g., Tables 10-12, 10-15), and provide a visual representation of the results that were used to inform the assessment. The spatial boundaries used for the assessment of each Key Indicator (KI) considered biologically relevant spatial boundaries specific to each KI's known distribution and habitat availability, and the potential for interaction with the Project (please refer to Section 10.3.1, Table 10-5, of the Application). For example, Figure 10-5 depicts the estimated change in coastal tailed frog habitat in the Kalum LRMP area only, since the known distribution of coastal tailed frog in the LSA does not extend east of that area. Where the criteria ratings of effects (particularly magnitude) were found to vary along the route, a precautionary approach was taken when the residual adverse effects were characterized. For example, if the residual adverse effect was considered to have medium magnitude for only a portion of the assessed area and a low magnitude for the remainder of the area, the assessor used a precautionary approach, and applied the medium magnitude to characterize the effect.</p>		

Coastal GasLink Project: Working Group Comment Tracking Table

EAO has reviewed and considered these comments and responses in preparing the referral package for the Minister's response.

Issue Tracking #	EAC Application Reference	EAC Application Page Number	VC	Date Received	Contact	Agency represented	WG Comment	WG Comment Summary	Proponent Response May 13 2014	WG Response	Proponent Response 2
1538	Application Section 10.6	p 10-34		6-Jun-14		Wet'suwet'en First Nation		In Section 10.6 of the Wildlife section, the following paragraph is presented (p 10-34): More specific mitigation for avoiding or reducing potential adverse effects from the proposed Project on wildlife is presented in Table 10-6. The mitigation provided in Table 10-6 was developed in accordance with Coastal GasLink. Coastal GasLink will adopt TransCanada standards and industry and regulatory guidelines in addition to: This is an essential paragraph, but as presently written, does not make sense. In addition, as the EMP is based on "commitments" made in the Application, WFN must have clarity on the content of Table 10 - 6 in section 10. The content of Table 10-6 is presently worded more as recommendations by discipline experts to the proponent rather than commitments that the proponent has agreed to. If the EMP is to rely on the content of Table 10-6 (as it should) then all language in this regard must be certain. Perhaps this is somewhat assuaged by the footnote to Table 10-6: "a) A complete list of mitigation is outlined in Sections 7.1 and 8 of the Environmental Management Plan (Appendix 1A of this Application)." That EMP does provide a detailed listing of what read s as commitments made by the proponent. As mentioned above, the role and details of "alternative mitigation" needs to be clarified	The paragraph on page 10-34 of the Application at lines 29 to 32 should read: "More specific mitigation for avoiding or reducing potential adverse effects from the proposed Project on wildlife is presented in Table 10-6. The mitigation provided in Table 10-6 was developed in accordance with TransCanada standards and industry and regulatory guidelines in addition to:" Coastal GasLink will implement the mitigation identified in the Application to avoid or reduce the potential adverse effects resulting from the proposed Project. Coastal GasLink recognizes that in addition to the EAC, specific direction about mitigation may also be provided in permits and authorizations. Coastal GasLink will meet all regulatory requirements for the proposed Project.		

Coastal GasLink Public Comment Tracking Table
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Issue Tracking #	EAC Application Reference	EAC Application Page Number	Date Received	Contact	Agency represented	Issue Summary	Coastal GasLink Response
1	N/A	N/A	21-Mar-14	Anonymous	Public	<p>Although it has been stated that the OGC is an 'Independent Commission', and their mission statement is: Respecting those affected by oil and gas activities, and one of its objectives is to fairly represent public concerns. I can't believe that is possible with the politics, and limitations of its employees. Another role of the Commission is "consulting with First Nations". May I suggest the rest of the residents along the pipeline route are equally entitled to consultation, accommodation and representation. Currently residents are not being represented fairly. If the Oil and Gas Commission is incapable of representing all interest groups, then I believe we need a separate Land and Resource Management 'Group' (LRMG) or something similar to the LRMP process in Forestry to represent all stakeholders and residents. This process would reduce the politics of a complicated and expedited process. The commission should hold regular Public / 1st Nations / LRMG meetings to negotiate the following;</p> <ul style="list-style-type: none"> -financial involvement and returns, -pipeline location, -private access fees, -standards of construction -safety issues, -environmental protection, -maintenance, and -other issues that may arise during and after construction <p>The Keystone XL pipeline proposal (Trans Canada) south from Alberta to Texas was stalled in its 'planning' tracks when Nebraska landowners held up the whole process and demanded a new process. They joined forces and gained considerably more financially. I believe we, as local residents along the pipeline route, can also change the process to something much better representing our interests. Let the residents most affected by development be the prime beneficiary and primary decision makers. Industry and Governments would be a lot more accommodating. I believe that would be fair and responsible.</p>	<p>Consistent with the Oil and Gas Commission (OGC) Consultation and Notification Manual, Coastal GasLink is required to engage and consult with local and regional governments, landowners, tenure holders, stakeholders and Aboriginal groups in the Project area.</p> <p>Since the summer of 2012, Coastal GasLink has pursued an ongoing program of contact with potentially affected landowners and Crown tenure holders through letters, telephone conversations and face-to-face meetings. Coastal GasLink has met face to face with elected local government officials to communicate details of the proposed Project to local residents and community media, and met with hundreds of potentially affected landowners. As well, a telephone survey of more than 2,800 randomly selected northern BC residents was conducted in 2012, and again in September 2013, to help the Project team learn about community priorities, and more than 100 community leaders were surveyed as part of the same process.</p> <p>In 2013, meetings with business and economic development officials and interactions with local community members at BC Environmental Assessment Office (BC EAO) open houses captured further issues and concerns. Fifty stakeholder interviews (local governments, economic development organizations, emergency services and community groups) were also conducted to support both the Coastal GasLink environmental assessment to be presented in the Application, as well as to inform community engagement planning.</p>

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	Date Received	Contact	Agency represented	Issue Summary	Coastal GasLink Response
2	N/A	N/A	21-Mar-14	Anonymous	Public	<p>Pacific Trails Pipeline and BC Oil and Gas Commission I have concerns about your R/W through vast areas of our region. 1. The spread of noxious weeds is a real issue. When vehicles, ATV's and snowmobiles follow the right of ways, they bring weed seeds and they spread rapidly along the exposed soils, then onto private property and Municipalities. Productivity on agricultural land can be drastically reduced and sometimes completely destroyed. 2. Exposed soils are prone to soil erosion, loss of productivity, and damage to water quality. 3. Grazing cattle on open range follow these R/W's in search of greener pastures, often right onto private property. Most private property is not fenced and it costs a lot to install and maintain fences. I suggest you should be required to plant good quality grasses on all exposed R/W's. It has been proven that a good layer of grass will benefit; 4. by preventing weed species from getting established and spreading. 5. Good quality grasses will keep range cattle on the R/W's instead of wandering off. 6. Wildlife can benefit from good feed, bees and insects will benefit ranchers. 7. Erosion will be reduced, resulting in less impact on water courses, 8. Visual quality will be improved. Photos of previous pipelines going through Parks, gives the pleasant appearance of open meadows. 9. Less costs to proponents in R/W maintenance, brushing etc. Thank you for respecting the environment that is so important to us.</p>	<p>Coastal GasLink notes that the comment is directed to the Pacific Trail Pipeline Project and the BC OGC. Coastal GasLink provides the following information about the Coastal GasLink Pipeline Project. TransCanada's Health, Safety, and Environment Commitment Statement commits the company to being an industry leader in health, safety and environmental practices, to maintaining a safe and healthy workplace and to protecting environmental quality. TransCanada commits to respecting the diverse environments in which we operate. 1 and 4. In its Application, Coastal GasLink outlines potential adverse effects associated with noxious weeds. The assessment of potential adverse effects on vegetation is presented in Section 8 of the Application. Mitigation to avoid or reduce the potential for introduction and spread of invasive plant species is addressed in Section 8 (see page 8-30 onward and Table 8-7). Mitigation is also outlined in the Environmental Management Plan (Appendix 2-A of the Application; refer to page 88 onward). 2. Coastal GasLink's proposed mitigation involves maintaining equivalent land capability and implementing effective soil erosion measures both during construction and operation of the proposed Project. The Environmental Management Plan (Appendix 2-A of the Application) contains a series of measures to control erosion during construction. The detailed Reclamation Plan will include measures to address the potential for erosion during operation. 3. Coastal GasLink works with landowners and range tenure holders on livestock management. Pending discussions with each landowner or range tenure holder, measures such as drift fencing will be installed to prevent cattle from moving down the right-of-way, and natural barriers such as major rivers or wetlands are also used to discourage movement of cattle. 5. Coastal GasLink will consider input from landowners and tenure holders alongside the appropriate regulatory authorities to gather input when developing the site specific seed mixes. 6 to 9. Coastal GasLink agrees and, as stated above, will work with the appropriate parties to develop a site specific reclamation plan.</p>
3	N/A	N/A	22-Mar-14	Anonymous	Public	<p>A primary concern is that every pipeline proposes a different route, in effect, hacking up the whole country. There is already one gas pipeline running through the region, why can't they all follow the same route? We've heard all their excuses for independence, competition, maintenance, and management issues, but that is not acceptable. They simply must be forced to work together and use the same route wherever possible. Individual routes are not an option. Surely engineers and economists can figure this out, they could save millions. If they can't, then I believe our Governments need to direct the planning and facilitate if necessary. One Right of way is much narrower overall, easier and cheaper to construct and maintain. The loss of productive forestland base would be considerably reduced. If necessary, an independent third party should establish the safest and most desirable location of the route, then the proponent, land owners and concerned citizens have something real to work with. This will save a lot of time, effort, and costs for everyone. It seems that no one is advocating for this. Big Industry should act more responsibly. Governments should not have to legislate common sense.</p>	<p>The Application (Section 1.4) includes a description of the route evaluation criteria, which among various factors considered, includes utilization of existing disturbances. Section 1.4 also describes Coastal GasLink's routing activities that progressed the Project from a conceptual corridor, to a study corridor and to the proposed route during which Coastal GasLink implemented the criteria listed in Section 1.4.4 of the Application.</p> <p>Coastal GasLink understands that BC government has been looking at corridor level issues to identify values and to understand appropriate practical measures to respond to the proposed developments. Coastal GasLink will cooperate with government initiatives as the proposed Project advances.</p> <p>The Application does not address consideration of a common pipeline corridor as the concept was outside the scope of the environmental assessment as defined by the Application Information Requirements (AIR) issued by the EAO in May 2013.</p>

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4	N/A	N/A	23-Mar-14	Anonymous	Public	<p>The 3.3 km "impact" area around a compressor station, suggests serious issues. Even with good regulations, accidents do occur, equipment fails, reaction time is slow. There are 2 residents within 1km of the proposed compressor station at km 101.7, it could easily be located further up the valley where there are no residents. The fallout from normal venting and maintenance will land directly into Tchesinkut Creek (where we get our pristine drinking water), onto our homes, our gardens, and the crops that feed livestock that we eat and sell. What do you suppose pollutants and contamination would do to our property values and livelihood. There are numerous other health issues, noise, and disturbance to wildlife. One residence has a Bed and Breakfast business and a young family. Her honey bees travel several kilometers. Another neighbor has commercial organic gardens. I wonder what fallout would do to their certification. Is Trans Canada prepared to buy us all out. My Grandfather homesteaded here almost 100 years ago, we are not going to accept your whimsical plans that could destroy our lifestyle and possibly our lives. My research on compressor stations spells out much higher risks and impacts than you are suggesting may be an issue. In my opinion, that is very irresponsible, and absolutely unacceptable. Please, take the time to consider our lives as important as yours, and you will find a way to move the station 10 km up the valley where there are no residents.</p>	<p>The natural gas being transported in the pipeline and used in the operation of the compressor is sweet natural gas that has been processed at a gas plant and is comparable to that consumed in homes and businesses. The content of emissions will be the same as that from homes and businesses. Coastal GasLink notes that the most stringent Ambient Air Quality Objectives (AAQO) will not be exceeded through the operation of the Project. Air Quality and greenhouse gas (GHG) emissions are identified as valued components and discussed in Section 6.0 of the EAC Application. The Air Quality Technical Data Report (TDR; Appendix E) and the GHG TDR (Appendix F) describe in further detail the assessment that was performed in support of the findings of the EAC Application. Potential adverse effect of the Project on human and ecological health are assessed in Section 20 of the Application. Regarding potential concerns about land value, Coastal GasLink refers to Volume 56, 2012, of the Canadian Property Valuation - Official Publication of the Appraisal Institute of Canada, which recently examined the effect of easements on agricultural land values. The document concluded that farmland subject to this type of easement does not suffer a change in market value.</p>
5	N/A	N/A	24-Mar-14	Frank James	Public	<p>The answer from the "First nations" is no. It cannot pass through our traditional lands.</p>	<p>As part of its Aboriginal consultation program, Coastal GasLink has engaged with Aboriginal groups along the project corridor as described in the Aboriginal Consultation Plan, since the project was announced in 2012 in order to gain an understanding of the potential adverse effects of the project. Section 16 of the Application outlines potential adverse effects on Traditional Land and Resource Use, and Section 23 described potential adverse effects of the project on each of the Aboriginal groups whose traditional territories are crossed by the proposed Project. Coastal GasLink greatly values the relationships it has built with Aboriginal groups along the project corridor, and looks forward to continued dialogue to receive feedback concerning the Project.</p>

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6	N/A	N/A	6-Apr-14	Anonymous	University of Saskatchewan	<p>We are a group of second year law students at the University of Saskatchewan. This submission is being made as part of a class project, aimed at exploring the nature of Environmental Assessment Processes in Canada. We have reviewed sections of your Application for an Environmental Assessment Certificate, and would like to submit comments in regards to species at risk within the Ground Birth and Dawson Creek region – the site of your proposed pipeline. We would like to comments on Section 9 (Wetlands) of the Coastal GasLink Pipeline Project Application. We have elected to focus on matters pertaining to the species at risk in the Wetland habitat in the LSA (the 1km of area surrounding the proposed pipeline), including the great blue heron, the olive-sided flycatcher, the rusty blackbird and the yellow rail. These species are protected under the Federal Species at Risk Act (SARA), which, protected specific species inhabiting federal lands that considered to be extirpated, endangered, threatened and of special concern. SARA's protections also extend to other lands where provincial protection is deemed inadequate by the Minister of the Environment. Table 9-8 outlines potential effects, mitigation and residual environmental effects of the proposed project on wetland function. We would like to comment on the following mitigation strategy contained in table 9-8: for Species at Risk listed under Schedule 1 of SARA, acquire a permit pursuant to Section 73 of SARA before conducting any activity that could result in harm to a species. Section 73(1) of SARA states that the competent minister may enter into an agreement with a person, or issue a permit to a person, authorizing the individual to engage in an activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals. It is clear that the proposed project has taken adequate measures to identify threatened species and their respective habitats. Our concerns stems from the difficulty that is faced in identifying a critical habitat. There have been many instances where at risk species are improperly protected because of a failure to identify such a habitat. Identifying a critical habitat requires appropriate scientific evidence for the minister to establish it as such. It is our hope that the observation and research directed towards the bird species listed above takes this in account, and attempts to provide the birds with as much protection as necessary to keep their habitat sustainable. Having read through the Sections 9 and 10 of the application for environmental assessment, it is clear that the proposal has been very thorough in its research and identification up to this point. In assessing the submission, we have concluded that it appropriately considers the variety of provincial and federal legislation applicable to the species within the impact area of the pipeline project. In addition to SARA requirement, the proposal also notes in regard to the great blue heron: "The BC Wildlife Act requires year-round protection of great blue heron nests and nest trees. The following minimum avoidance buffers are recommended around heron nest sites: 300m in undeveloped areas; 200m in rural areas; and 60m in urban areas (BC MOE 2012a). Do not blast within 400m of heron nest sites (BC MOE 2012a), unless otherwise approved by the appropriate regulatory agency." It is our hope that the continuous evaluation process leading up to the obtaining of a permit under s.73 of SARA continues in this vein and attempts to maximize the amount of necessary scientific evidence to make informed and implementable decisions. As identified on page 28 of Section 9 of your application, the wetland habitat included in the LSA potentially serves as the home for four bird species, currently included on SARA's Species at Risk Public Registry. Each of these species possesses unique needs related to habitat and the conservation of their populations. These birds are currently included under either the "threatened species" and/or "special concern" categories of SARA's Species at Risk Public Registry. If any of these birds were to move into the "endangered" category, the Minister of the Environment would need to prepare a strategy for the recovery of the species. <i>Great Blue Heron</i> Two of the five known subspecies of Great Blue Herons in Canada reside primarily in British Columbia. Heron populations are threatened by human disturbance, including industrial development, as many of these creatures are sensitive to human presence and cannot tolerate activity near their nests. Once made fearful or disturbed, herons will leave their nests unguarded, leaving their eggs and chicks extremely vulnerable to predators. It should also be notes that the Great Blue Heron (as well as its eggs and nests) are also protected by the Migratory Birds Convention Act, 1994, as well as BC's provincial Wildlife Act. <i>Olive-Sided Flycatcher</i> The Sara registry states that the causes of the declines in Olive-sided Flycatcher populations are unclear, but they are most likely to habitat loss and alteration. In addition to SARA, the Olive-sided Flycatcher is protected under a variety of other statutes such as the Migratory Birds Convention Act, 1994, which prohibits the harming of birds and the disturbances or destruction of their nests and eggs. Olive-sided Flycatchers that breed in national parks are protected under the Canada National Parks Act. Those that in provincial parks enjoy some degree of protection. The mitigation goal of minimizing functional wetland loss and areas surrounding the pipeline is an important aspect in the continued conservation of this species. <i>Rusty Blackbird</i> In Canada, the Rusty Blackbird occurs in all the provinces and territories, which makes up 70% of the North American breeding range. The population has declines by approximately 85% since the 1960s. The conversion of wetlands and the creation of hydroelectric reservoir, could lead to further habitat destruction in the</p>	<p>Coastal GasLink would like to thank the University of Saskatchewan law students for their review of the Project in relation to the <i>Species at Risk Act</i> (SARA). It is Coastal GasLink's understanding that critical habitat is identified by a Recovery Team through a government-led initiative. Where information about critical habitat, established or draft, is available, Coastal GasLink takes the information into account in order to avoid or reduce adverse effects. Coastal GasLink will continue to follow guidance from regulatory agencies as well consider input from Aboriginal groups, stakeholders and the public in an effort to avoid or reduce potential adverse effects of the proposed Project.</p>

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						<p>species' breeding range. Although the rusty blackbird is protected under the federal Species at Risk Act (SARA), it is not protected under the Migratory Birds Convention Act, 1994 in Canada. <i>Yellow Rail</i>The Yellow Rail breeds primarily in Canada and the northern US. The loss and degradation of wetlands due to agricultural and human development is the greatest threat to this species throughout its breeding range. On wintering grounds, habitat loss has been so substantial that wintering ranges are becoming no longer contiguous. The Yellow Rail is protected under the federal Species at Risk Act and the federal Migratory Birds Convention Act. The proposal and surrounding research has identified the possible risk to the habitat of these bird species. As notes above, we stress the importance of properly identifying critical habitat for these at risk bird species in order to ensure their protection. With a continued adherence to the environmental assessment process and cooperation with regulatory bodies and environmental groups, we believe that the project can continue to strive to minimize impact on at risk species.</p>	

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7	N/A	N/A	9-Apr-14	Mike Langegger	Kitimat Rod and Gun Association member and BC Wildlife Federation Region 6- President	<p>Update Goat inventory for MU's 6-10, 6-11 portions of 6-9 Mountain Goat populations are sensitive to human development and resulting cumulative impacts. Considering the number of industrial projects proposed for the area we ask the Mountain goat populations around Kitimat, in particular Management Units 6-10, 6-11 and portions of 6-09 be updated. It is paramount that we have accurate up to date benchmark data before major project approach construction phase. Inventorying goat populations is straight forward primarily hinging on the cost of helicopter time, and qualified persons to plan and lead the survey. We would be more than willing to work with those selected to conduct the survey on a volunteer basis. Update and modernize Grizzly Bear Population estimates for GPUs that encompass MU's 6-10 and 6-11 Grizzly bear populations are also sensitive to human development, resulting cumulative impacts, and fragmentation of habitat. Advancements to more accurately determine Grizzly bear populations are now available. Currently our areas Grizzly bear estimates are based on old modeling techniques, and would greatly benefit from reassessment using modern hair snares and DNA testing techniques. We would be more than willing to work with those selected to aid efforts on a volunteer basis. Enhance moose browse by willow hinging in MU's 6-10 and 6-11 Area moose populations would benefit from the development and implementation of a willow hinging program. Willow hinging is where the willow plant is cut and pushed over, this creates many new chutes which is choice browse for ungulates. This would require identifying areas of existing willow browse, accessing the area, and properly hinging the willow plants. This has been done around Babine Lake and has shown to be successful habitat enhancement of ungulate browse. Pipeline right of way seeding Careful consideration needs to be taken to restore vegetation impacted by pipeline construction. Of paramount concern is bank stabilization particularly at water crossings or where the pipeline runs parallel to a stream, often salmon bearing. In other areas we suggest grasses and browse be selected that will provide the most benefit to native wildlife species. Public Access Many of the areas impacted by the pipeline encompass resource roads, back country access, and trails. There's a strong connection, social value and lifestyle spanning generations that relies on said access. It is paramount that public access be entrenched, and where possible expanded and maintained. There are incidences particularly in the Kitimat area where historic public access has been hindered, or outright denied due to private and industrial interests. We do not want to see this repeated as new and emerging proponents enter the area. Marten Nesting Boxes Engage active trappers in the Kitimat area and solicit their interest in installing marten nesting boxes. Marten nesting boxes provide a safe, dry, and warm place where female marten give birth and rear young and have been proven to be effective. Would require 20 nesting boxes per interested area trapper and telescoping ladders to install on trees. Aware of two local trappers willing to install marten nest boxes on a volunteer basis if boxes and telescoping ladder are provided. Plans for nest boxes can be provided and are relatively inexpensive to have made at any local wood working shop Community Nature Appreciation Trail Work with local government and Stakeholders to establish a nature appreciation trail in the community. A site to consider would be Duck Creek which is currently the focus of habitat restoration by the Kitimat Rod and Gun membership and may meld well together. Area Steams fisheries Enhancement Identify a number of local streams and solicit profession fisheries enhancement plans and advice. Once this has been established work towards implementing the developed plans. We would be more than willing to work with those selected to aid efforts on a volunteer bases. Kitimat River Drift Boat Launches There are a couple of areas used to unload boats along the Kitimat river for drifting. The existing launches are in need of repair and upgrade. There would also be great benefit to the community to add an additional two launching sites along the Kitimat River. Locations would need to be sought, reviewed, appropriate agencies consulted and contract established for their construction. Public Engagement Effective public engagement with stakeholders is paramount, resulting in a vast knowledge base that can aid proponents as they move forward. Most importantly provides an avenue to bring forward issues and address concerns in a proactive manner, and work towards</p>	<p>Coastal GasLink understands that wildlife population monitoring is within the purview of provincial regulatory agencies. Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR. The Application incorporates the best available information and assessment methodology to estimate potential Project effects. The assessment of potential adverse effects on vegetation is presented in Section 8 of the Application. Coastal GasLink will continue to engage provincial regulatory agencies and other stakeholders to refine mitigation and reclamation planning. Mitigation is outlined in the Environmental Management Plan (Appendix 2-A of the Application; refer to page 88 onward). The issue of increased access was documented along the project area in the assessment of potential project effects on land and resources (Section 14 of the Application). The Environmental Management Plan (Appendix 2-A of the Application) also contains an Access Control Management Plan (Appendix D3 of the Environmental Management Plan). Coastal GasLink also assessed the potential effects of increased access on wildlife in Section 10 of the Application. Coastal GasLink acknowledges that clearing of old forest habitat for the Project will contribute to habitat loss for marten (Sections 10.9.1 and 10.14.1 of the Application). Coastal GasLink will continue to engage provincial regulatory agencies and other stakeholders to refine mitigation as routing and construction requirements are finalized. Nest boxes will be considered as a potential mitigation tool. Trails are discussed in the Social Technical Report. Coastal GasLink acknowledges the fish and wildlife values of the areas crossed by the proposed Project. As part of its Application for an Environmental Assessment Certificate, Coastal GasLink completed studies to understand potential adverse effects of the project, Section 7 of the Application contains the aquatic environment effects assessment. Coastal GasLink has also completed an Environmental Management Plan, which can be found in Appendix 2-A of the Application. The Land and Resource Use section (Section 14) of the Application identifies recreational areas that may be potentially affected through the construction and operations of the Project. Measures will be employed as required to avoid or mitigate potential adverse effects. Coastal GasLink has undertaken a comprehensive stakeholder engagement program. For the purpose of the Application, the consultation efforts have been summarized in the Social Technical Report (Appendix 2M of the Application). Section 2 of the Social Technical Report outlines the methods used for engagement and consultation with potential project stakeholders. Results of Coastal GasLink's consultation with Aboriginal Groups is summarized in Section 23 of the Application, and also outlined in the Aboriginal Consultation Reports submitted by Coastal GasLink to the EAO. Coastal GasLink's public consultation efforts are outlined in Section 24 of the Application, and in the Public Consultation Reports submitted to EAO. Other consultation and engagement efforts are outlined in the Social Technical Report.</p>

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						<p>acceptable mitigation measures where needed. It is important to identify the many important values to area communities, citizens, and stakeholders. Values and lifestyle that's generation old need to be entrenched, respected, and where able nurtured and fostered by project proponents.</p>	

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8	N/A	N/A	16-Apr	Anonymous	Northwest Fish and Wildlife Association (Regional branch of the BCWF) and the Kitimat Rod and Gun	<p>The Northwest Fish and Wildlife Association (Regional branch of the BCWF) and Kitimat Rod and Gun appreciate the opportunity to provide input towards the Coastal Gas Link pipeline project that is intended to supply the proposed Shell LNG project south of Kitimat. It is unfortunate that the same opportunity was not provided for the Pacific Trail Pipeline project that today has resulted in a number of concerns amongst our members. Many that could have been addressed if the proponent actively engages our very public groups. As you are aware the values of fish, wildlife and habitats that sustain them are always at the top of the list of concerns on any resource based proposal. Yet government and often proponents do not seem to place its value correctly in terms of priority, funding and focus. Government and proponents will not be judged on words on paper, but on actions and impacts on the land and water. In government today there's clearly a lack of capacity to effectively oversee, regulate, protect, manage and enforce resource based projects. This is not limited to pipelines, but encompasses all resources and extraction thereof. The lack of capacity and oversight has created a fox watching the hen house approach which results in a host of conflicts and implications to fish, wildlife and habitat values. This needs to be addressed, and is particularly important now with the vast number of projects moving forward in our province today. Government is entrusted to represent the best interest of public. How is that achieved when the ministries tasked with this are starved of funds to effectively and ethically achieve this. Many large scale projects are moving forward throughout the province. It is concerning that in many of these areas wildlife inventories are grossly outdated (lack of capacity). It is paramount that before projects move forward such as the Coastal Link Pipeline that surrounding wildlife population inventories be updated prior to major work on the ground commencing. How can any project move forward without current benchmark data in terms of wildlife inventories? How can the impacts of projects to fish and wildlife be measured if inventory and habitat assessment work is outdated and in some cases non-existent? Below, but not limited to are a number of points for consideration: Update Goat inventory in areas Mountain Goat populations are sensitive to human development and resulting cumulative impacts. Considering the number of industrial projects proposed for the area we ask the Mountain goat populations in the vicinity of the pipeline right of way have credible population assessments completed. It is important that we have accurate up to date benchmark data before the project approaches construction phase. Inventorying goat populations is straight forward primarily hinging on the cost of helicopter time, and qualified persons to plan and lead the survey. We would be more than willing to work with those selected to conduct the survey on a volunteer basis. Update and modernize Grizzly Bear Population estimates for GPUs impacted by right of ways Grizzly bear populations are also sensitive to human development, resulting cumulative impacts, and fragmentation of habitat. Advancements to better determine Grizzly bear populations are now available. Currently our areas Grizzly bear estimates are based on old modeling techniques, and would greatly benefit from reassessment using modern hair snares and DNA testing techniques. We would be more than willing to work with those selected to aid efforts on a volunteer basis. Enhance moose browse by willow hinging in applicable areas along right of ways Area moose populations would benefit from the development and implementation of a willow hinging program. Willow hinging is where the willow plant is cut and pushed over, creating many new chutes which is choice browse for ungulates. This would require identifying areas of existing willow browse, accessing the area, and properly hinging the willow plants. This has been done around Babine Lake area and has proven to be successful habitat enhancement of ungulate browse. Pipeline right of way seeding Careful consideration needs to be taken to restore vegetation impacted by pipeline construction. Of paramount concern is bank stabilization particularly at water crossings or where the pipeline runs parallel to a stream, often salmon bearing. In other areas we suggest grasses and browse be selected that will provide the most benefit to native wildlife species. Protection of wildlife travel corridors Fragmentation and isolation of habitat directly caused by the clearing of pipeline right of ways has a number of negative implications to wildlife. It</p>	<p>Coastal GasLink has committed to continued engagement and dialogue as described in the Public Consultation Plan. In the Environmental Management Plan included in the Application (Appendix 2-A), there is a description of the notification procedures Coastal GasLink will undertake prior to Project construction. During Project operations Coastal GasLink will implement TransCanada's Public Awareness program, as described in Section 1.2.6 of the Application. Coastal GasLink acknowledges the fish, wildlife and habitat values of the areas crossed by the proposed Project. As part of its Application for an Environmental Assessment Certificate, Coastal GasLink completed studies to understand potential adverse effects of the project on wildlife and wildlife habitat as well as fish and aquatic resources. Section 7 of the Application contains the aquatic environment effects assessment, and Section 10 contains the assessment on wildlife and wildlife habitat. Mitigation proposed to reduce the potential effect, "disruption of hunting and fishing activities" is presented in Table 14-30, page 14-96. Mitigation to address potential effects on Wildlife and Wildlife Habitat is included in Section 10.0 and effects on the Aquatic Environment in Section 7.0. In the Environmental Management Plan included in the Application (Appendix 2-A), there is a description of the notification procedures Coastal GasLink will undertake prior to Project construction. Coastal GasLink understands that population monitoring is within the purview of provincial regulatory agencies. The Application prepared for the Project incorporates the best available information and assessment methodology to estimate potential Project effects. The proposed mitigation to reduce residual Project effects on mountain goat and grizzly bear aligns with provincial regulatory guidelines and recommendations. The confidence in the significance conclusions for residual Project effects and residual cumulative effects on mountain goat and caribou is high. Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. Coastal GasLink will continue to engage provincial regulatory agencies and other stakeholders to refine mitigation and advance reclamation planning. Measures to enhance regeneration of willow and other browse species, which may include minimum disturbance construction methods, staking, planting rooted stock, and potentially hinging, will be identified as routing and construction requirements are finalized, on a site-specific basis as part of the reclamation plan for the Project. As part of its Trapper Engagement and Compensation Program, Coastal GasLink has been engaging with trappers in the project area, and will continue to do so. Coastal GasLink is working with local stakeholders to lessen effects on local land users. As described in Section 1.2.6 of the Application, during operations Coastal GasLink will implement TransCanada's Public Awareness program. Once the Project is constructed, the right-of-way will be accessible to the public, subject to regulatory direction for access management. Section 14 of the Application addresses potential effects on the Project on the Land and Resource Valued Component (VC). Potential adverse effects of the project on recreation were considered in the assessment of the valued component "Current Use of Land and Resources" (Section 14.5 of the Application; see page 14-91 for a listing of potential adverse effects on recreation).</p>

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						<p>is paramount that wildlife corridors (zones) be identified and left undisturbed (vegetation/habitat left intact). This can be achieved by boring under the existing habitat therefore leaving vegetation and land undisturbed. It is critical that wildlife not be isolated from dispersing and accessing important habitats as a result of the creation pipeline or other right of ways. Isolating wildlife populations can negatively impact breeding, rearing, access to winter/summer ranges, food sources, amongst other issues. Where pipeline clearing occurs it's important to also identify and establish the value of strategically placed woody debris and windrows. Woody debris creates micro environments that can offset other damage caused through the clearing and construction of any right of way. A thorough assessment and plan should be required that establishes clear direction in this mitigation measure to the lessen impacts on wildlife. Public Access Many of the areas impacted by the pipeline encompass resource roads, back country access, and trails. There's a strong connection, social value and lifestyle spanning generations that relies on said access. It is important that public access be entrenched, and where possible expanded and maintained. There are incidences particularly in the Kitimat area where historic public access has been hindered, or outright denied due to private and industrial interests. We do not want to see this repeated as new and emerging proponents enter the area. Marten Nesting Boxes Engage active trappers (registered and lease trappers) in the Kitimat area and solicit their interest in installing marten nesting boxes. This is particularly important where nesting trees have been removed as a result of right of way clearing. Marten nesting boxes provide a safe, dry, and warm place where female marten give birth and rear young and have been proven to be effective. Would require about 30 nesting boxes per interested area trappers. We are aware of two local trappers willing to install marten nest boxes on a volunteer basis if boxes and telescoping ladder are provided. Plans for proper nesting boxes can be provided. The trapping community needs to be actively engaged, as the proponents work can have negative implications to both registered and lease trappers. Community Nature Appreciation Trail Work with local government and Stakeholders to establish a nature appreciation trail in Kitimat. A site to consider would be Duck Creek area which is currently the focus of habitat restoration by the Kitimat Rod and Gun membership and may meld well together. Area Streams fisheries Enhancement Identify a number of local streams and solicit profession fisheries enhancement plans and advice. Once this has been established work towards implementing the developed plans. We note that the pipeline corridor crosses Hirsch Creek, a salmon bearing stream. Due to funding cuts the Kitimat Hatchery program no longer enhances this watershed. We ask that the proponent consider working with hatchery staff in an effort to re-establish this hatchery program. Kitimat River Drift Boat Launches There are a couple of areas used to unload boats along the Kitimat River for drifting. The existing launches are in need of repair and upgrade. There would also be great benefit to the community to add an additional two launching sites along the Kitimat River. Locations would need to be sought, reviewed, appropriate agencies consulted and contract established for their construction. Public Engagement Effective public engagement with stakeholders is required, resulting in a vast knowledge base that can aid proponents as they move forward. Most importantly provides an avenue to bring forward issues and address concerns in a proactive manner, and work towards acceptable mitigation measures where needed. Creation of a Fish, Wildlife, and Habitat Legacy Fund Too often we see companies come into communities, extract resources, and shut down when the resource is depleted or economic conditions are not favorable. In its place left behind are the negative implication to fish, wildlife and the land and water. With no compensation or funding to correct damage done, or work towards improving fish, wildlife and habitats throughout the operation of any resource based operation. These impacts have and do compromise the public's interest, values, tradition, culture, and economics that revolve around otherwise healthy fish and wildlife populations, functioning ecosystems, and the habitats required to sustain them. We ask the proponents of Coastal GasLink establish a working Legacy Fund dedicated to enhancing the areas fish, wildlife, and habitat. It must be made clear that fish and</p>	

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						<p>wildlife are a common property of the people, and any financial contribution must NOT be taken as private ownership into that resource. With the number of large projects proposed in the Kitimat/Prince Rupert area we suggest that pipeline and LNG proponents come together in the development of a legacy fund. In doing so we believe it will generate the most value, encompass a larger land base, and be able to provide the funds required to do meaning full work on the land and water base. This would result in a direct benefit to fish, wildlife, habitat, and the many revered public values that revolve around them. In closing, it is important to identify the many important values to area communities, citizens, and stakeholders. Values and lifestyle that's generations old need to be recognized, entrenched and respected. Fish, wildlife and supporting habitats are of high value socially, traditionally, and economically. Many family and friendship bonds are nurtured and fostered through our many outdoor opportunities. This can include but not limited to hunting, fishing, trapping, wildlife viewing, camping, and simply be out and enjoying nature. For many this is a tradition and culture that has not only spanned decades, but in many cases generations. It is paramount that fish, wildlife, and habitat values be clearly identified, monitored, managed, and enhanced to maintain a revered lifestyle that revolves around the health of these values. We look forward to your response and are open to further discussions and consultation opportunities with government and the proponent.</p>	
9	N/A	N/A	23-Apr	Anonymous	Public (Fort St. James)	<p>I am very concerned with the location of this pipeline because it crosses critical sturgeon habitat on the Stuart River. I am aware the proponent did move the pipelines proposed route further away from the sturgeon habitat. That distance is not enough. The sturgeon are an important part of Nak'azdli culture. Because the sturgeon are endangered the people of Nak'azdli have not been able to kill sturgeon to feed our families for generations. This is an important thing to consider in terms of the impacts on First Nations. You cannot mitigate the loss of a species or way of life of a culture. I don't see why the pipelines cannot follow the route that is already in place. It would be great if industry would work with the public, First Nations, and Government to create an LNG corridor. Further more there are far too many pipelines crossing Nak'azdli Territory. The jobs that this pipeline will create for Nak'azdli and the municipality of Fort St. James are few.</p>	<p>Coastal GasLink considered a number of factors when evaluating pipeline routing options. The Application (Section 1.4) includes a description of the route evaluation criteria, including paralleling or routing within existing disturbances, and avoiding environmentally sensitive areas to the extent practical. Section 1.4 also describes Coastal GasLink's routing activities that progressed the Project from a conceptual corridor, to a study corridor and to the proposed route during which Coastal GasLink implemented the criteria listed in Section 1.4.4 of the Application. Coastal GasLink submitted an Addendum to the Application identifying six revisions to the Application Corridor on March 24 2014. Section 3.0 of the Addendum discusses the alternate corridor at the Stuart River crossing location that was identified as a result of the identification of critical habitat for white sturgeon in this section of the Stuart River at the previous crossing location. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties.</p>

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10	N/A	N/A	29-Apr	Peggy Muir	Public (Hazelton)	The increase in greenhouse gases from fracking, transportation and conversion to LNG is huge and will greatly disturb BC's commitment to reduce greenhouse gases. The impact of such a project will greatly affect salmon habitat, which is both an economic and traditional resource. Our own health will also be negatively affected by contamination of ground water, by pollution of the air to all communities downwind of the proposed plants, and by overall global warming.	Significance of the potential residual adverse effects on greenhouse gas emissions from Project emissions was determined in accordance with Section 3 of the Application Information Requirements (AIR). Section 4.2.3 of the AIR provides direction on the assessment of GHGs, noting that GHGs will be assessed at the global geographic extent. Estimated Project GHG contributions were compared to total global emissions, and the 0.012% contribution was determined to be not significant. The AIR also directed Coastal GasLink to estimate the marginal contribution of the Project GHG emissions to provincial and national emission totals. Coastal GasLink will continue to work with the BC government and will also prepare a detailed GHG Management Plan in consultation with the appropriate regulatory authorities. Coastal GasLink has assessed potential adverse effects of the proposed Project on fish and fish habitat and water quality in Section 7 of the Application. Adverse effects on traditional land use are assessed in Section 16 of the Application, and Section 20 contains an assessment of potential adverse effects on human and ecological health.
11	N/A	N/A	29-Apr	Ruth Brady	Public (Hazelton)	I keep thinking it must break your heart to read all of these emails and think of the damage that would be done to our province and in turn to the world if even one of these LNG projects was to be completed on our coast. As Canadians, as BC'ers [British Columbians] we should be ashamed that we are thumbing our noses at the promised greenhouse gas reduction by 2020. How can we let this happen.	Coastal GasLink has acknowledged Air Quality and GHG Emissions as valued components in Section 6.0 of the Application. Please refer to the Air Quality TDR (Appendix E) and the GHG TDR (Appendix F) for detailed information supporting the assessment.
12	N/A	N/A	29-Apr	Gillian Smith	Public (Lions Bay)	Please stop messing with the environment and democracy. The project's environmental effects are an issue, and pose a level of risk, that is of global concern and consequence. · The project is wrong; the process to evaluate it is broken. · No reasonable person would want to see this project come to pass. · No amount of projected economic return could ever compensate for the environmental damage that would ensue from this project's contributions to climate change. Stop the Pipelines now!	Coastal GasLink welcomes feedback on its projects and encourages interested parties to participate in related regulatory processes to express their views to the decision-makers.
13	N/A	N/A	29-Apr	Anonymous	Public (Hazelton)	The residents of Northern BC will continue to protest LNG pipelines because there is absolutely no evidence to the contrary, that this kind of exploitation of resources will not drastically harm the local, regional and global environments. Greed and stupidity are the only driving factors behind this kind of irresponsible economic development.	Coastal GasLink welcomes feedback on its projects and encourages interested parties to participate in related regulatory processes to express their views to the decision-makers.

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14	N/A	N/A	05-May	Anonymous	Public (Hazelton)	<p>Long live the beauty and health of British Columbia may it gain in healthy environmental vitality. Looking at the Coastal Gas Link Pipeline/LNG Canada Gas Project I see no reason to continue its progress. The production of greenhouse gas emissions from the pipeline being at a 6% level is too much. That added on to the Shell LNG Canada Plant, adding another 20% greenhouse gas emissions. That means air pollution blowing in from the coast, and health problems. Plus the remodeling of the plant from import to export will create a large un-recycled trash heap. These numbers do not fit within the BC legislation to reduce greenhouse gases. This project and the other 2 currently being assessed would increase approximately 135% in the timeframe they are required to be reduced by 33%. Then there is the fracking required to fill the pipes and all the emissions from that. The amount of water used is ridiculously too much and the contamination of that water is abhorrent. Let alone the idea of storing the contaminated water somewhere for some amount of time for no use. Water is for drinking and growing not wasting. Water needs to re-circulate thru the soil and atmosphere to keep our environment healthy, not be stored away as a tainted resource. The project has too many negative environmental effects on B.C. and globally, concerning Freshwater impacts, Fish habitat, Ocean life, Greenhouse gas emissions and Economy. Tankers will be polluting all the way to China and back to Canada weekly. Plus citizens will be restricted to land and ocean use because of proximity to the project. The monetary gain for British Columbians is nil compared to the trashy outcome. Let Canada and B.C. put our money towards a healthy environment to live in.</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. Coastal GasLink notes that the Project is a natural gas transmission pipeline. The exploration and production of the natural gas, including hydraulic fracturing, and the potential effects on the marine environment from shipping are outside of the scope of the Coastal GasLink Pipeline Project. The Application contains information about the potential adverse effects of the proposed Project on the five pillars identified in the BC <i>Environmental Assessment Act</i>, including environment, social, economic, heritage and health. Potential adverse effects on greenhouse gas emissions, fish and fish habitat, surface and ground water quality and quantity, as well as social and economic conditions were addressed in the Application. Through a combination of project design, seeking to avoid potential adverse effects and a comprehensive plan to mitigate for potential adverse effects, residual adverse effects associated with the proposed Project were found to be not significant.</p>
15	N/A	N/A	05-May	Tim Combs	Public (Hazelton)	<p>I am strongly opposed to the proposed Coastal GasLink Pipeline for many reasons. I think it is disgraceful that the government of BC is ignoring the target of reducing green house gases by 33% by 2020. I believe that the construction of the many proposed pipelines poses too great a risk to salmon and trout bearing rivers and streams. The huge facilities proposed to be built on the coast for processing the LNG to ship overseas embody a huge risk to the estuaries they would be transforming. These areas have been carefully put together over the centuries to facilitate life in all of its many forms. No we are not better planners, than a complex interconnected natural system. We have no right to alter the environment drastically simply for commercial profit. Our democratic rights are swiftly being whittled away by governments who ignore people's wishes and side with commercial objectives. Science is even left out of the assessment process as crucial watersheds are left without protection due to the changes contained in bill C38. These proposed pipelines pose a real threat on a global scale in relation to greenhouse gas emissions and I am ashamed that the governments, both provincial and federal are disregarding this fact. We must allow only responsible modest development of our resources that will ensure cheap safe energy for future generations in Canada. It is time for sanity to reign in the BC Northwest.</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. The Application contains information about the potential adverse effects of the proposed Project on the five pillars identified in the BC <i>Environmental Assessment Act</i>, including environment, social, economic, heritage and health. Potential adverse effects on greenhouse gas emissions and the aquatic environment were addressed in the Application. Through a combination of project design, seeking to avoid potential adverse effects and a comprehensive plan to mitigate for potential adverse effects, residual adverse effects associated with the proposed Project were found to be not significant. Coastal GasLink welcomes feedback on its projects and encourages interested parties to participate in related regulatory processes to express their views to the decision makers.</p>

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16	N/A	N/A	05-May	Anonymous	Public (Hazelton)	<p>Hereby I wish to express my sincere concerns about all proposed LNG pipelines in BC, in particular the Coastal GasLink project and its environmental assessment.</p> <p>In the last year(s) the government has altered several environmental laws, to name a few: right-of-ways through parks & recreational sites in BC, changes to water and waterway use as well as taking iconic marine animals off the list of threatened species. None of these alterations are serving an improvement toward tighter environmental protection. On the contrary, they represent steps backwards. I can't interpret this governmental performance any other way than intentionally watering down protection laws in order to accommodate easy access to resource extraction for big business. If environmental standards are weakened to the point of meaningless, I strongly fear for the effectiveness of an environmental assessment that seems impartial to start with. Common knowledge of bought or muffled scientists does not alleviate my fear. Yet, the environmental assessment procedure seems the last resort for reason.</p> <p>Under described circumstances, environmental concerns and values are likely to be underrepresented or even disregarded. Also, current trends seem to advocate "economic benefits of LNG projects for local people". As this is the language of the day, I, being one of these local people, will take an entirely anthropocentric point of view, for arguments sake. Our fragile environment, already under stress from previous wrong practices, still provides crucial services to local populations. Vegetation delivers clean air for us to breathe and unpolluted skies allow our solar panels to supply us with renewable energy. Pure rivers and creeks provide us with drinking water and food via fresh fish and watered gardens. Fertile soil, uncontaminated and secured against erosion, permits us to grow our own vegetables. Various habitats and landscapes serve us for recreation or small business, plus offer us wild foods; game for hunters and mushrooms and berries for others. This highly interconnected system of organic and inorganic matter supports our economy, our livelihood and our quality of life. All of the above mentioned environmental services and many more are of priceless value to us as they are essential in keeping us alive, healthy and prosperous. An unbiased environmental assessment will account for that.</p> <p>An LNG project like Coastal GasLink threatens it all, and not just locally. The entire production line from fracturing sites via pipelines to coastal LNG plants indisputably impacts local residents along the planned route, with regards to all valued components within the BCEAA Pillars. While the one component employment might see a temporary improvement, all other 16 components are adversely affected to various degrees, from minor to irreversible impacts. This equation alone speaks for itself.</p> <p>If I was, for arguments sake, to neglect the possibility of accidents and malfunctions, we still talk about inevitable impact that comes with the plain project implementation: massive amounts of contaminated and toxic wastewater, right-of-way damage, destruction of crucial salmon habitat, an increase in high-risk marine transport frequency and many more. This would be the "only" impacts if we'd live in ideal territory. But this is not the case. BC's location at the ring of fire threatens its terrain with earthquakes; steep mountains add the risk of rock slides and avalanches, pipeline river crossings above and underground are in danger from unpredictable high water events, and so on. So, who is to neglect the possibility of accidents and malfunctions?</p> <p>Hopefully not the environmental assessment! Beyond localized impact, the whole of BC will be affected by an increase in carbon emissions. Furthermore, our oceans, all coastal communities and marine dwelling life forms are in jeopardy. Above all, our global climate is at stake big time due to pollution caused along the production line and the burning of fossil fuels by the final consumers.</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. The Application contains information about the potential adverse effects and cumulative effects of the proposed Project on the five pillars of assessment identified in the BC <i>Environmental Assessment Act</i>, including environment, social, economic, heritage and health. The Application also includes information about the risks associated with accidents of malfunctions, as well as potential effects of the environment on the project, such as seismic event, terrain hazards, and extreme weather events. The Application also includes assessment of potential adverse effects on topics such as vegetation, air quality, surface and ground water quality and quantity, fish and fish habitat, wildlife and wildlife habitat, and human and ecological health. Through a combination of project design, seeking to avoid potential adverse effects and a comprehensive plan to mitigate for potential adverse effects, residual adverse effects associated with the proposed Project were found to be not significant.</p> <p>Coastal GasLink has undertaken detailed terrain analysis, the results of which continues to inform the construction planning and detailed engineering design of the Project. In addition to the current process administered by the BC EAO, Coastal GasLink is required to provide detailed information regarding the design of the Project for review by the Oil and Gas Commission.</p>

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						<p>Is BC's goal to reduce greenhouse gas emissions yet another law soon to be altered or does this environmental assessment advice to abide to the responsibilities stated in The Greenhouse Gas Reduction Targets Act?</p> <p>None of the above impacts (potential or inevitable) improve the life of local people or populations around the globe. On the contrary, local residents are subject to the consequences of LNG business implications. We are the ones to bear all negative side effects on a social, heritage, health, economic and environmental level. Personally, my quality of life has already decreased by 50 percent with the mere proposal of this project. On a grand scheme, as we are all linked together, the global community has to suffer if our province and country does not make environmentally sound decisions.</p> <p>The unfavourable ratio of energy gained and energy invested makes LNG even economically worthless. By no means is such a destructive and unbalanced undertaking the short- or long-term solution to energy problems, not locally and not globally. We know way better than that: decreasing our needs and utilizing renewable resources are the answers, for our health and the well-being of the planet that sustains us. This is our responsibility!</p> <p>As the Coastal GasLink project is only one of the ever-growing number of proposed LNG developments for BC, I hardly dare to do the math on the cumulative effects on local and world population. Projects of this magnitude facing so many uncertainties are bound to disrupt environmental functions that are likely to cause major ecosystem failure. An analysis of the facts conveys only one thing very clearly to me: there is not a single profit in this project that could compensate for my/our loss of essential environmental services.</p> <p>If we do not apply the principles of caution and sustainability now, we will fail to secure our basic needs for present day people as well as for future generations. Without clean water to drink, unpolluted air to breath and healthy foods to eat, we will not live long enough to even get a taste of the fruits LNG is falsely promising. Evaluating meager and short-lived money making opportunities versus the priceless benefits of environmental services supplied by nature for free, reveals but one reasonable recommendation from an environmental assessment: STOP LNG!</p>	

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17	N/A	N/A	05-May	Carolyn Himmelright	Public (Hazelton)	<p>This proposed pipeline parallels the proposed Enbridge pipeline. The First Nations people of this area have made it quite clear they do not want any pipelines going through their territories. If they are opposed to this route then there is no social license given. This should be respected by your office. How can the this province justify the increase of Greenhouse Gases that will be generated by the "natural" gas being produced to fill this pipeline when it has been legislated to reduce our province's carbon footprint by 33% by 2020. This particular project will cause a large increase in emissions of said gases. The cumulative impact of the nine projects proposed is staggering. The water licenses being given by OGC for the environmental studies being undertaken by the other companies given the green light by your office is so alarming to anyone caring about all life in this area that to see one more come on stream (no pun intended) is terrifying. Who protects the environment from these environmental studies?</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. The Application contains information about the potential adverse effects of the proposed Project on the five pillars identified in the BC <i>Environmental Assessment Act</i>, including environment, social, economic, heritage and health. Greenhouse gas emissions were addressed in the Application. Through a combination of project design, seeking to avoid potential adverse effects and a comprehensive plan to mitigate for potential adverse effects, residual adverse effects associated with the proposed Project were found to be not significant.</p>

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18	N/A	N/A	03-May	Nikki Skuce	Public (Hazelton)	<p>To Whom It May Concern:</p> <p>I'm writing with regards to the proposed TransCanada Pipeline Ltd application to build the Coastal GasLink Pipeline Project from near Ground birch to the proposed LNG Canada Development Inc. LNG export facility in Kitimat, BC.</p> <p>Given the large number of proposals to build LNG pipelines from the Northeast of British Columbia to the coast, and several proposals to build LNG plants in either Prince Rupert or Kitimat, there needs to be a cumulative environmental assessment. Taking each project individually does little to assess the overall impact and potential risks. The potential cumulative effects studied by the proponent also falls short given the number of proposals for industrial development in this region.</p> <p>Studying the impacts of the pipeline separate from that of the terminal and up-stream extraction, is also short-sighted and does little to shed light on the actual potential impacts to air quality, air sheds, greenhouse gas emissions, wildlife, landscape, fisheries, migratory birds, etc. of the proposed project from end to end.</p> <p>With regards to fish, the proponent deems the cumulative effects to be "not significant". Yet, it is not obvious that the proponent has all the baseline information needed. The proponent also admits that there will be "fish mortality" but downplays the impact given the Coastal GasLink's commitment to follow "industry best-practices". The proposed pipeline would cross four major watersheds, within which there are salmon-bearing streams and rivers. There are also several First Nations whose territory this proposed project would cross; so in addition to any regulations relevant to fish habitat, there is certainly commercial fish, as well as First Nations' food, social and ceremonial fish values. Fisheries values are managed or protected under the Fisheries Act and BC's Water Act. While these Acts need to be followed the federal government gut the Fisheries Act in Bill C38 as well as took most rivers and streams along the proposed route out of the Navigable Waters' Act. Given these changes, there is little assurance in Coastal GasLink's claims that the impacts of construction and operation of their pipeline will be "not significant" with regards to fish, in particular salmon and steelhead trout.</p> <p>Full cost accounting of the GHGs associated with this proposed project is needed – from shale has to LNG conversion (ideally to where its burned/used). BC is required by law to meet its GHG commitments and seems to be trying to find ways to exempt natural gas extraction, pipelines and LNG plants. While Coastal GasLink "acknowledges the importance of GHG emissions management and the exciting legislative framework in BC," they only commit to engaging in a "dialogue" with the province. In addition, the company completely downplays the need to address GHGs given their calculated percentage of proposed emissions as they relate to global emissions. While TransCanada would prefer to wait until approval to come up with a plan to address GHGs, the EAO should require a plan up-front given BC's legally-binding commitment to reach their target.</p> <p>The proposed Coastal GasLink project states that it will cross a number of grizzly bear populations and important caribou habitat, and admits that "compensation or offsets...may be required". This proposed pipeline project may add to the cumulative effects on caribou, thus leading to their demise. More needs to be done by the proponent in terms of complying with the Species at Risk Act, as well as with local First Nations and conservationists, and ministry scientists and staff. Compensation and offsets for a species may not be acceptable.</p> <p>The proponent admits that this may also be true for the white-bark pine. Ironically, this is a species at risk threatened because of climate change. Putting a right-of-way for a gas pipeline through some of its last remaining forest is somewhat ironic. All efforts should be made to completely avoid cutting down these trees given how little</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. The Application contains information about the potential adverse effects and cumulative effects of the proposed Project on the five pillars of assessment identified in the BC <i>Environmental Assessment Act</i>, including environment, social, economic, heritage and health.</p> <p>Coastal GasLink notes that it will implement the mitigation outlined in Section 7.0 of the Application to avoid or reduce the potential adverse effects on fish and fish habitat, and will continue to work with appropriate regulatory authorities including Fisheries and Oceans Canada (in accordance with the <i>Fisheries Act</i>) and the Oil and Gas Commission (in accordance with the <i>Water Act</i>). Coastal GasLink's mitigation is based on a combination of regulatory requirements, industry accepted best practices, and through practices that have been continually improved through a long history of experience. Coastal GasLink describes potential adverse effects of the Project on traditional land and resource use in Section 16 of the Application, and characterizes potential adverse effects on individual Aboriginal groups in Section 23 of the Application.</p> <p>The project's contributions to greenhouse gas emissions were assessed in accordance with the Application Information Requirements.</p> <p>The Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC MOE 2014) notes that, in practice, the mitigation hierarchy is often considered holistically and iteratively. Coastal GasLink adopted an iterative approach to mitigating potential Project effects as outlined in the Environmental Mitigation Procedures, beginning with avoidance, minimization and on-site mitigation, prior to consideration of the need for alternative mitigation strategies, such as compensation or offsets.</p> <p>The Application discusses mitigation and environmental management strategies for project effects for caribou in Section 10.6 and for cumulative effects in Sections 10.13.2 and 10.13.3. Coastal GasLink will endeavor to adhere to recommended guidelines, including the general wildlife measures (GWMs). The schedule of work within the high ungulate winter range (UWR) unit is expected to be constrained by terrain and heavy snowfall, resulting in activity within the timing window. Coastal GasLink will continue to discuss the proposed construction schedule and deviation from the GWMs with the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) to identify acceptable approaches as the project advances through the BC OGC permitting process.</p> <p>Given the sensitivity of some areas crossed by the Project, such as caribou habitat, or areas with whitebark pine, and in accordance with the mitigation hierarchy, Coastal GasLink has incorporated consideration of alternative mitigation strategies, such as compensation or offsets, and monitoring into mitigation planning to reduce the magnitude of residual Project effects.</p> <p>Uncertainty associated with the assessment of potential adverse effects will be further addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.</p> <p>Coastal GasLink has undertaken detailed terrain analysis, the results of which continues to inform the construction planning and detailed engineering design of the proposed Project. In addition to the current process administered by the BC EAO, Coastal GasLink is required to provide detailed information regarding the design of the Project for review by the Oil and Gas Commission.</p> <p>As described in the Application Coastal GasLink is made up of two limited partnerships. There should be no concern regarding the financial viability of Coastal GasLink as it has the support of TransCanada Corporation behind it. Limitation of liability is a characteristic of a limited partnership but the limitation of liability is between the owners of the limited partnership, not a limitation of the liabilities that the limited partnership may incur.</p>

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						<p>of this type of ecosystem is left.</p> <p>Coastal GasLink admits that terrain integrity and slope instability are its biggest challenges. A number of landslides have occurred along the proposed route, some causing damage to existing residential has pipelines. The EAO should demand more detailed study and planning from the proponent before granting a certificate, not trusting the company with little or no monitoring to do so adequately during the "detailed engineering" phase.</p> <p>A huge concern, as mentioned by the proponent in their consultation with Aboriginal groups, is the potential conversion of gas pipeline to oil pipelines. While Coastal GasLink states that they are designing a natural gas pipeline and intend it for the LNG Canada export facility, there are no guarantees that their pipeline will never be converted to carrying oil. In fact, TransCanada is proposing to convert gas pipelines to carry tar sands oil east in Canada. During an LNG forum in the region, Shell Canada (a partner in the LNG facility TransCanada hopes to link to) admitted that the pipelines could be converted easily, but promised not to do so. In a recent visit to Moricetown, Minister Coleman promised the forum that the BC Government would pass a policy to prevent has pipelines from being converted to heavy oil. Yet this policy currently does not exist. Until it does (or even after it does), should Coastal GasLink be approved, a stipulation must be part of the contact that the pipeline can never be used to carry oil.</p> <p>In the application, Coastal GasLink states that their application "is informed by TransCanada's experience gained over 60 years of natural gas pipeline design, construction and operation, and includes mitigation that has become industry-accepted best practice as a result of testing and effectiveness monitoring". But is TransCanada operating under a limited partnership (Coastal GasLink Ltd) to off-set financial risks? While this seems to be common industry practice for pipeline companies, there are questions regarding the financial viability of the "wholly owned subsidiary" and their level of pipeline companies looking to minimize liabilities.</p> <p>Lastly, while the proponent claims to consider public engagement an "integral part" of the development of their application, it was interesting how few communities were part of their tour during the public comment period and how few opportunities existed to engage with the company in the Town of Smithers.</p> <p>Thank-you for the opportunity to comment and for considering the recommendations above.</p>	
19	N/A	N/A	01-May	Anonymous	Public (Mackenzie)	<p>I am greatly concerned about possible changes in the geothermal activity and pattern in the vicinity of the Crooked River. The over wintering swans require this geothermal activity to keep the Crooked River free of ice in certain spots all winter. Disruption of this geothermal activity caused by pipeline construction could severely damage winter habitat for swans.</p>	<p>Coastal GasLink acknowledges the importance of areas of the Crooked River to overwintering trumpeter swans in Table 10-2 of the chapter assessing potential adverse effects of the Project on wildlife and wildlife habitat. Potential adverse effects of the proposed Project on groundwater quality and quantity are also discussed in Section 7 of the Application. Through a combination of project design, seeking to avoid potential adverse effects and a comprehensive plan to mitigate for potential adverse effects, residual adverse effects associated with the proposed Project were found to be not significant.</p>

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20	N/A	N/A	01-May	Sheila Peters	Public (Smithers)	I have grave concerns about the cumulative impact of this project on top of all the other LNG projects proposed for the northwest, impacts both in terms of the areas where intensified fracking will take place to feed the pipeline and in the land across which the pipeline(s) would be built. This is another form of fossil fuel extraction, which in turn uses fossil fuels to produce the LNG, thus increasing enormously our carbon footprint. It makes no sense and we should not be undertaking any further fossil fuel projects without an intelligent national energy strategy which focuses on reducing our use and export of such fuels. In this, I wholeheartedly support the Wet'suwet'en chiefs.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. The Application contains information about the potential adverse effects and cumulative effects of the proposed Project on the five pillars of assessment identified in the BC <i>Environmental Assessment Act</i> , including environment, social, economic, heritage and health. Potential adverse effects of the proposed Project on greenhouse gas emissions are assessed in Section 6 of the Application. The exploration and production of the natural gas, including hydraulic fracturing, is outside of the scope of the Coastal GasLink Pipeline Project.
21	N/A	N/A	01-May	Anonymous	Public (Hazelton)	<p>This project will cause permanent damage to the fish, our rivers, our air and the ground water supply.</p> <p>First Nations people in this area rely on fish as a major part of their diet....this is not cultural history but current practice and is their birthright. Fly fishing is a major part of our economy here...Fishing guides, lodges, small businesses including stores and gas and motels rely on this for income.</p> <p>It is wrong to have any negative impact on our rivers...if this were not true the Ministry of the Environment would not have been so adamantly opposed to having any logging, industry or personal use of the river over the years. Our infrastructure is not designed for work camps...the roads will not support work camps of up to 1,000 workers. The negative social impact of having such a large influx of mostly men, will be immense. I have sons who have worked in camps and they warned that the use of drugs and alcohol will increase to extremely dangerous levels and cause havoc among our young people. Are the RCMP being prepared for this? Are social workers being prepared for this? Are Fish and Wildlife being prepared for the increase in hunting and fishing? Are health services being prepared for the increase in medical needs?</p> <p>This is wrong for the global environment...we are supposed to be decreasing our pollution as per many international meetings and accords.</p> <p>We have not seen just exactly how LNG is going to have a positive effect on our finances...it mostly appears to be costing us for construction of such sites. This project certainly does not have my social licence. As a long standing member of this community I am frightened by this project.</p>	<p>Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. The Application contains information about the potential adverse effects and cumulative effects of the proposed Project on the five pillars of assessment identified in the BC <i>Environmental Assessment Act</i>, including environment, social, economic, heritage and health.</p> <p>Potential adverse effects of the proposed Project on the aquatic environment, including fish and fish habitat, are assessed in Section 7 of the Application. Section 20 of the Application contains an assessment of human and ecological health effects, and speaks to country foods. The potential adverse effects of the proposed Project, including camps, on community infrastructure and services, including community quality of life, is assessed in Section 15 of the Application.</p> <p>Coastal GasLink confirms that all employees and contractors are required to comply with Company policies including:</p> <ul style="list-style-type: none"> • Alcohol and Drug Policy, • Harassment-free Workplace Policy, • Aboriginal Relations Policy, • Code of Business Ethics
22	Application Section 5	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Minor grammatical note: TEM, sometimes referred to in this Section as "terrain ecosystem mapping", should be referenced as "terrestrial ecosystem mapping", consistent with other Sections of the Application.	Acknowledged

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23	Application Section 5.4.1	Page 5-12	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Section 5.4.1, Page 5-12, indicates that approximately 96% of the proposed route (non-Agricultural Land Reserve areas) falls within moderate (50%) or high (46%) categories for erosion potential, primarily due to steep slopes and heavy rainfall in some areas. As the Interior Plateau Physiographic Division (characterized by flat to gently rolling uplands) covers approximately 56% of the proposed route (Section 5.4.2), it seems that steep slopes should represent a much smaller portion of the proposed route.	The apparent discrepancy regarding the proportions of areas rated moderate to high for erosion potential, and the proportion of the route through the Interior Plateau which has predominantly gently rolling slopes is due to two factors: 1. Although the Interior Plateau is predominantly gently rolling, steeper slopes do make up a substantial proportion of the area, for example at stream crossings or other features with steeper slopes. At the scale of the soil mapping carried out for this project, such slopes are easily delineated and rated for erosion risk based on their slopes. At the scale of mapping of the Physiographic Division, these smaller, more steeply sloping areas are not discernable. 2. Areas of high rainfall in the western part of the proposed route, soils receive a higher erosion risk rating than would be the case for soils on similar slopes in areas of lower rainfall.
24	Application Section 5.5.5	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Section 5.5.5 scopes out the need for a cumulative effects assessment (CEA), with the statement that the "potential residual adverse effects, which might remain after mitigation, will be minor in nature, will be limited to the Project Footprint and are determined to be unlikely to occur." However, the paragraphs below Table 5-7 (describing potential residual effects) each suggest that residual effects, although unlikely and not significant, are unavoidable or inevitable. Despite their characterization as not significant, some residual effects (despite mitigation) were estimated, a scenario that typically triggers the requirement for inclusion in the CEA. Further, clarifying the CEA boundary will help the reader understand why effects from past projects and reasonably foreseeable future projects are assumed to have no cumulative loss or degradation interaction with the soil capability residual effects (below) estimated for this project: Soil loss due to wind erosion; Soil loss due to water erosion; Soil compaction and rutting; Altered landscape contours and drainage patterns; and Topsoil loss or degradation (agricultural capability only). Similar to above comment, Page 5-46 suggests that, because residual adverse effects will not be significant, will be limited to the Project Footprint and will not interact cumulatively with other past, present or future projects, there will be no potential for cumulative effects and an CEA is not required. Clarifying the CEA boundary will help the reader understand why effects from the past projects and reasonably foreseeable future projects are assumed to have no cumulative loss or degradation influence.	The boundary used for CEA is the regional study area, which was defined for each valued component.
25	Application Section 6.7.3	Page 6-49	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The Application (Page 6-49) states: "The GHG emissions from the proposed Project will contribute to global annual GHG emissions due to the exhaust from construction vehicles and the open burning of cleared debris and unsalvageable timber along the pipeline ROW." Table 6-21 identifies the following key recommendation/mitigation: "Avoid open burning of timber, tree/shrub debris and stumps – and instead mulch it for spreading on ROW and maximize timber salvaging where feasible." The Application should indicate under what conditions it would be considered not feasible to avoid open burning of cleared debris and unsalvageable timber.	Coastal GasLink considers the following factors in determining the feasibility in avoiding the burning of biomass: • access required for equipment required to remove the biomass from the working area; • economic considerations of retrieving the timber in remote locations; • proximity to mills and ability for mills to accept the timber; and, • assessing the amount of energy (fuel consumption) required to retrieve the timber.

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26	Application Section 6.7.5	Page 6-53	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>The Application states concludes that greenhouse gas (GHG) emissions from the Project will contribute to the cumulative effects of global GHG emissions, but also concludes (Page 5-63) that "...the contribution, although measurable and potentially important in comparison to provincial and national levels (6% and 0.5%, respectively) will be not significant in a global context (0.012%)". However, projected Project GHG emissions would be characterized as being of high magnitude at provincial and national scales (under CEAA 2003 guidance). The Application should present a clear explanation as to the significance of projected GHG Emissions from the Project. Is there a threshold definition (even in the global context) for what constitutes a significant effect for GHG emissions? The statement (Page 6-53) that "...no individual activity is responsible for global effects on climate due to GHG emissions, but instead it is the result of the multitude of activities across the globe releasing GHGs to the atmosphere" suggests that no individual project/activity can be considered to have a significant effect, despite recognition that "a scientific consensus is emerging which suggests global emissions of GHGs and consequent changes to global climate represent a significant cumulative effect (International Panel on Climate Change [IPCC] 2007)." The collective emissions of the proposed Project and other potential future projects (as emissions estimates become available) should be compared against the interim provincial targets set by the Natural Gas Climate Action Team (6% below 2007 levels by 2012, and 16% below 2007 levels by 2016), and the results included in the Application. Other past and reasonably foreseeable future projects that overlap or occur in close proximity to at least a portion of the proposed Coastal GasLink pipeline project include: • Pacific Northern Gas Looping Project (Pre-Application Phase) • Pacific Trail Pipeline Project (5-Year Certificate Extension approved in 2013).</p>	<p>Significance of the potential residual adverse effects on GHGs from Project emissions was determined in accordance with Section 3 of the AIR. Section 4.2.3 of the AIR provides direction on the assessment of GHGs, and was assessed at the global geographic extent. Estimated Project GHG contributions were compared to total global emissions, and the 0.012% contribution was determined to be not significant. Considering that the environmental effect is not bound to provincial or national jurisdictional boundaries, comparisons to these inventories were conducted to determine if the Project would be a low, medium or high contributor (as per CEAA 2003 guidance). In the absence of any thresholds, it was determined that contributions to provincial and national inventories (6% and 0.5%, respectively) would suggest the Project is a high contributor. As a result, Coastal GasLink will prepare a detailed GHG Management Plan in consultation with the appropriate regulatory authorities.</p>

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27	Application Section 7.5.1	Page 7-59	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Table 7-8 states that a potential environmental effect of the installation of watercourse crossings associated with pipelines and access roads is the "alteration or loss of instream habitat". However, under the heading, "Potential Residual Environmental Effect(s)" on Page 7-59 of the Table, only the alteration of instream habitat is listed as a potential residual environmental effect of these activities. Habitat alteration occurs when, for example, natural substrate is replaced by non-natural substrate, such as a culvert, but the overall amount of habitat available remains the same. Under this scenario a loss of habitat does not occur. However, the installation of watercourse crossings can also result in a loss of fish habitat. Channel infilling and associated loss of habitat occurs when the natural area of a channel is reduced from activities such as the installation of undersized culverts, or the installation of bridge abutments within the channel. Since the Project will require the installation of watercourse crossings on access roads that could result in a loss of fish habitat, HRFN requests that the following text be added as a potential residual environmental effect on Page 7-59 of Table 7-8: "Loss of instream habitat within the ZOI due to channel infilling" Page 7-59 of Table 7-8 also does not include a mitigation measure essential to preventing the loss of fish habitat from the installation of watercourse crossings on access roads, i.e., "the design and installation of watercourse crossing structures, such as culverts and bridge abutments, such that the natural width of the stream channel will not be constricted". HRFN requests that this mitigation measure be included in Table 7-8 as a "Key Mitigation".</p>	<p>Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel. Through the implementation of mitigation and confirmation that no channel infilling will take place, assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required.</p>

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28	Application Section 7.5.1	Page 7-72	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Table 7-8 states that temporary blockages to fish movement may occur during construction, but fails to indicate that blockages can also occur during operations. Undersized culverts can result in velocity barriers within culverts during high-flow periods. Additionally, an undersized or improperly installed culvert can result in scouring of the streambed at the culvert outlet and the creation of a "perched" culvert, which prevents fish from entering the culvert.</p> <p>Further, even though a bridge or culvert may be designed and installed to provide fish passage, it is not unusual for unforeseen events, such as the construction of a beaver dam within a culvert, or sudden accumulations of debris within a culvert resulting from high run-off, to block fish movement during the operations phase of a project.</p> <p>Given the information presented above, HRFN requests that Table 7-8 be revised as follows:</p> <ul style="list-style-type: none"> • Text under the heading, "Proposed Project Phase" on Page 7-72 should state "Construction and Operations", rather than "Construction"; • Text under the heading, "Potential Residual Environmental Effect(s)" on Page 7-72 should state "Temporary blockage of fish movements during construction and operation of isolated watercourse crossings"; and, • "Routinely inspect watercourse crossings and remove potential blockages to fish passage following BC government standards" should be added to the Table (Page 7-72) as a "Key Mitigation". 	<p>Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel.</p> <p>Through the implementation of mitigation and confirmation that no channel infilling will take place, assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required.</p> <p>Coastal GasLink will routinely inspect watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.</p>
29	Application Section 7.5.2	N/A (Table 7-9)	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Table 7-9 should include the following potential residual effects: "Loss of instream habitat within the ZOI due to channel infilling during construction activities"; and, "Temporary blockage of fish movements during construction and operation of isolated watercourse crossings" "Spatial boundary", "temporal context", "magnitude" and "likelihood" will need to be stated within the Table for both of these effects.	Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel. Through the implementation of mitigation and confirmation that no channel infilling will take place, assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required. Coastal GasLink will routinely inspect watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.
30	Application Section 7.5.3	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The additional potential effects identified in Sec. 7.5.2 should be described within Sec. 7.5.3	Section 7.5.2 is an overview description of what is contained in Section 7.5.3.
31	Application Section 7.5.4	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The potential effects identified in Sec. 7.5.2 should be included in Table 7-10 and described within Sec. 7.5.4.	The potential residual environmental effects listed in Table 7-9 are included in Table 7 10 and discussion of determination of significance and confidence is described in Section 7.5.4 following Table 7-10.

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32	Application Section 7.5.6	Page 7-102	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Text under the heading "Potential Cumulative Effect", near the top of Table 7-11, makes reference to "instream habitat disturbance", which includes habitat alteration, but make no reference to a well-documented effect of the construction of watercourse crossings – habitat loss. Therefore, text under this heading should also make reference to habitat loss.</p> <p>It is also well-documented that blockages to fish movement can occur within watercourse crossing structures during operations, as described above. Therefore, the "Temporal Boundary" for potential effects associated with the blockage of fish movement should be "Construction and Operations", rather than just "Construction".</p> <p>The potential effects identified in Sec. 7.5.2 should be included in Table 7-11 and evaluated within Sec. 7.5.6.</p> <p>Page 7-102 states: "Direct habitat loss occurs where the bed or banks of waterbodies are disturbed and recovery of pre-construction conditions does not occur", and "...Urban or agricultural development...can alter the physical structure of inshore habitats, rendering them unsuitable for spawning and rearing". In fact, the above text describes habitat alteration/disturbance, rather than habitat loss. Habitat loss/destruction occurs when the amount of available fish habitat is reduced, and this should be stated in the text. HRFN requests that Sec. 7.5.6 be revised to better distinguish between "habitat loss" and "habitat alteration".</p>	<p>The potential residual effects associated with the proposed Project on the protection of recreationally, commercially, and/or culturally important fish and fish habitat VC identified in Section 7.5.2 are the potential effects of the proposed Project and are evaluated in Section 7.5.3. The potential effects in Section 7.5.2 differ from those in Table 7-11 as this table is a presentation of the cumulative potential residual effects which includes the identification of existing activities and reasonably foreseeable developments acting in combination with the potential residual effects. The combined potential residual effects are further summarized in Section 7.5.6 following Table 7-11.</p> <p>The statement "Direct habitat loss occurs where the bed or banks of waterbodies are disturbed and recovery of pre-construction conditions does not occur" describes the loss of habitat as disturbed bed and banks without recovery of pre-construction conditions which would result in a reduction of quantity of habitat and ultimately loss. Urban or agricultural development on waterbody shores such as dykes, docks, marinas and bank modifications, as well as dewatering of watercourses, are provided as examples of a direct loss of instream habitat and not as potential effects of the proposed project.</p> <p>"Habitat alteration occurs where waterbodies are disturbed and habitat attributes such as substrate, depth and channel width are deliberately or inadvertently changed." In cases such as these, habitat will only be altered.</p>

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33	Application Section 7.7.1	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>A common problem with gas pipelines is frost bulb formation and its hydrological impacts. This issue was not considered in the Application. For example, frost bulb formation can lead to redirection of groundwater in cold regions, which can in turn cause large icing and block streamflows. Such changes in flow patterns can have significant implications for localized floods, soil erosion and aquatic habitat. HRFN requests that the possible effects of frost bulb formation be considered, particularly for cold regions. HRFN further requests that Table 7-30 identify frost bulb formation as a potential environmental effect during the operations phase, and include key mitigation measures and potential remedial environmental effects in the Table. Further discussion of frost bulb formation should be included in Section 7.7.2 – “Potential Residual Adverse Effects” – as appropriate. Similarly, the Application did not consider the possible effects of climate change on water resources. The effects of climate change on water resources are real, with potentially significant, long-term consequences. As the proposed Project spans regions having dry (500 mm) to wet (4000 mm) climates, the associated shift of temperature and precipitation could contribute significantly to cumulative watershed effects on water resources. HRFN requests that the cumulative effects assessment for the Project also consider potential climate change effects. At a minimum, data on projected future climate change should be included in the Application and their implications for water resources in the RSA discussed.</p>	<p>Frost bulb formations are not likely to occur within the environmental setting of the proposed Project as Arctic conditions which facilitate them are not typically encountered within the project area. Coastal GasLink recognizes that the presence of several major mountain ranges and the Pacific Ocean influence BC’s climate. Climatic conditions in the area of the proposed Project during operations of the pipeline and facilities could manifest in many ways which are described in Section 22 of the EA. Coastal GasLink, through its continued ROW surveillance efforts and scheduled inspection and maintenance activities, will utilize an adaptive management approach in order to accommodate local environmental conditions that may change due to changing climatic conditions. Planning for specific adverse weather events due to climate change is not feasible due to uncertainty surrounding it. Coastal GasLink acknowledges the potential effects of climate change on water resources. Section 7 of the Application considers the effects of the proposed Project on the aquatic environment, and therefore does not address the effects of future climate scenarios. The effect of future climate scenarios is considered to be an effect of the environment on the project, and is addressed in Section 22 of the Application. Topics that are associated with climate change that are discussed in Section 22 of the Application include extreme weather events, fire, slope stability and mass wasting events, future climate scenarios, and forest pests and pathogens.</p>

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34	Application Section 7.7.5	Page 7-166 Lines1-3 & Page7-169	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>The Application used stream-crossing density as a positive indicator of surface water quality for CEA. As stated in the Application, stream crossing density data "... underestimate the cumulative adverse effects risk in agriculture watersheds where riparian clearing, rather than the density of water crossings, is an important source of sediment" (Page 7-166 Lines1-3). A better watershed disturbance indicator is equivalent watershed disturbance area and its percentage (EDA, %) or equivalent clear-cut area (ECA, %). EDA or ECA has been frequently used for representing cumulative and integrated watershed disturbances (e.g., road construction, urbanization, forest harvesting and agriculture activities) as it accounts for various types of disturbance and their post-disturbance hydrological recovery. Using this indicator, all small watersheds (RSA: regional assessment area) interacting with the proposed Project can be mapped and classified in terms of disturbance levels. Undertaking this improved watershed assessment would significantly enhance cumulative effects assessment and identify the most sensitive watersheds for implementation of more meaningful mitigation measures. HRFN requests that a better watershed assessment be conducted using watershed disturbance indicators such as ECA or EDA. It is particularly important to identify sensitive watersheds potentially affected by the Project, given the Application's conclusion (Page7-169) that there is a high likelihood that the proposed Project will contribute to cumulative adverse effects on surface water quality.</p>	<p>Stream crossing density calculations were not used to assess Project-specific water quality effects but were part of the cumulative effects assessment; an assessment conducted to identify how potential adverse effects from a proposed project could interact with impacts from other developments occurring in the same region. Using a quantitative metric allows an understanding of the potential cumulative effects of the proposed Project in relation to existing and reasonably foreseeable future developments. While there are other metrics that can be used for watershed assessment, stream crossing density was used for this assessment as an indirect measure of sediment and nutrient input resulting from land use. Project-specific monitoring and mitigation measures, such as surface water quality monitoring are discussed in the environmental effects assessment (refer to Table 7-8 of Section 7.5.1). Stream crossing density is not used to guide surface water quality monitoring during construction. Coastal GasLink agrees that Equivalent Clear-cut Area (ECA), in combination with other factors, is a useful indicator of watershed disturbance (B.C. Ministry of Forests 2001). However, its applicability for cumulative effects assessment for the proposed Project is limited due to the lack of spatial data on future cutblocks. Instead, stream crossing density was used as an indicator of cumulative effects on surface water quality. As indicated in Porter et al. (2013): "Stream crossings at road intersections represent potential focal points for fine sediment input and intercepted flow delivery, as well as potential physical impediments to fish movements. In general the greater the density of road-stream crossings on forest land, the greater the potential risk to fish and their habitats." Coastal GasLink acknowledges that there is a high likelihood the proposed Project will contribute to cumulative adverse effects on surface water quality but notes that the residual cumulative increase in effects is Not significant (Table 7-37, page 7-171) and concludes that additional assessment for cumulative effects on surface water quality is not necessary. References: B.C. Ministry of Forests. 2001. Watershed assessment procedure guidebook. 2nd ed., Version 2.1 For. Prac. Br., Min. For., Victoria, B.C. Forest Practices Code of British Columbia Guidebook. Porter, M., S. Casley, Darcy Pickard, E. Snead, and K. Wiekowski. 2013. Draft Version 3.1, February 2013. Tier 1 Watershed-level fish values monitoring protocol. Draft report prepared by ESSA Technologies Ltd. For British Columbia Ministry of Forests, Lands and Natural Resource Operations and BC Ministry of the Environment (MOE), Victoria, BC. 28 p.</p>

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35	Application Section 7.7.7 & 7.7.8	Page 7-172 and 7-179	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Using a literature review, desktop analysis, limited field work and qualitative professional judgment, the Application concludes that the proposed Project, through implementation of various mitigation measures, is not likely to result in any potential significant adverse effects on both surface water and groundwater (Page 7-172 and Page 7-179). While this conclusion is reasonable for relatively large watersheds, it may be questionable for small watersheds (<10 km ² or <100 km ²) or watercourses. As the effects of the proposed Project on water quality and quantity are likely localized, the assessment and conclusions should have been conducted and drawn at this spatial scale. Unfortunately, localized effects have not been fully and quantitatively assessed, probably due to a lack of data and resources. Without an assessment of potential effects on smaller watersheds, the above-stated conclusion is questionable.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. Cumulative adverse effects were assessed at the Regional Study Area scale. The RSA for the Aquatic Environment is defined in the AIR. Cumulative effects are considered at the spatial scale defined by the RSA. In determining an appropriate scale for the regional study area (RSA) and the cumulative effects assessment, two primary factors were considered: <ul style="list-style-type: none"> • If the spatial extent was too large, effects of the project appear relatively small (Hegmann et al. 1999; Antoniuk 2000, 2002; Magdych et al. 2002). • If the spatial scale was too small, it may exclude potentially significant development (Hegmann et al. 1999; Finley and Revel 2002). <p>To balance these factors, the RSA was defined to include the area encompassed by all sub-basins crossed by the proposed route and the cumulative effects assessment was applied to the RSA as a whole. For further detail, assessment was also conducted at the basin level.</p>
36	Application Section 7.7.X	Page 7-175, Lines 14-16	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The implications of surface water and groundwater interactions have not been fully discussed in the Application. Although the quality of groundwater contributing to streamflow has been considered in the assessment of surface water quality (Page 7-175, Lines 14-16), understanding and locating areas affected by the proposed Project where surface water and groundwater interact is critical for protecting groundwater quality. Such areas often occur in springs, wetlands, mountain-front fractures, and others. HRFN requests that areas where surface water and groundwater interact be identified, and that appropriate mitigation measures be identified, such as avoiding trenched crossings at sites where surface water and groundwater interact. This information should be presented in the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects of the proposed project in accordance with the AIR issued by the BC EAO in May 2013. Existing data about springs and groundwater inflow is limited (see p.7-174). The Application assumes that the proposed route may cross areas with natural groundwater/surface water, and outlines water quality mitigation based on industry accepted best practices accordingly. By applying the water quality mitigation summarized in Section 7 of the Application, potential adverse effects on groundwater quality will be reduced to acceptable levels.

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37	Application Section 8	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Terrestrial Ecosystem Mapping (TEM) is relied upon for identifying the location of Ecological Communities of Concern. The TEM may be inaccurate and given the survey intensity level may not be precise enough to locate rare communities. No method of ground-truthing and marking the actual location of Ecological Communities of Concern is provided in the Application. It is critical that the location of the Project footprint be field checked to verify the location and nature of Ecological Communities of Concern to allow for mitigation to take place as required. HRFN requests that a method for verifying and marking the location of Ecological Communities of Concern be included in the Application and that the location of these communities be verified using this method.</p> <p>While baseline field work identified locations of rare plant species, the survey did not cover the entire Project footprint area. However, rare plant surveys should be conducted during pre-construction and construction phases within all areas of the proposed Project footprint having the potential to support rare plants.</p> <p>How invasive plants are to be located for treatment beyond locations identified through baseline field work is not detailed. HRFNs request that a method for mapping and marking invasive plant infestations be described in the Application and that the location of invasive plants within the proposed Project footprint be identified and marked.</p>	<p>Section 2.4 of the Vegetation Technical Data Report identifies the limitations of the study pertaining to ecological communities at risk. Notwithstanding the identified limitations, the standards and methods used for Terrestrial Ecosystem Mapping (TEM) for the Project, including scale and survey intensity level, were identified in section 3.4.1 of the AIR. These standards, guidelines, and methods were reviewed by working group members and the BC EAO and have been adhered to. The method used for ground truthing ecological communities of concern is described in Section 2.3 of the Vegetation Technical Data report.</p> <p>Field Survey effort for TEM plots targeted ecological communities of concern within the Proposed route.</p> <p>Additional fieldwork is planned to assess the location of particular ecological communities of concern within the project footprint. Section 7.1 of the Environmental Management Plan contains resource-specific protection measures pertaining to ecological communities of concern and Appendix C.9 of the Environmental Management Plan is an Ecological Community of Concern and Species of Concern Contingency Plan, both sections of the Environmental Management Plan identify methods for marking communities at risk and mitigating potential effects to these communities.</p> <p>Appendix C.9 of the Environmental Management Plan is a Plant Species of Concern Contingency Plan that includes provisions for mitigating potential effects to plant species at risk that might not have been detected during baseline surveys.</p> <p>Invasive plants will be located and marked during construction activities, and dealt with according to the Provincial Regulation. Coastal GasLink will develop an Invasive Plant Management Plan in advance of construction, in consultation with the appropriate regulatory authorities.</p>
38	Application Section 8.5.1	Page 8-29, Lines 21 and 22	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Lines 21 and 22 on Page 8-29 state: "The proposed route was selected to reduce clearing of mature vegetation wherever practical". However, the Application does not indicate specifically how this was accomplished. As noted in the Application, maximizing the retention of mature trees in areas affected by mountain pine beetles is extremely important. The Application does not indicate that effort was expended to route the pipeline to avoid remnant areas of mature forest within areas where mountain pine beetle impacts had been significant. HRFN requests that an analysis be performed to identify areas where the retention of late seral forest is critical, such as areas that have been heavily affected by mountain pine beetle or areas of high levels of timber harvest where little late seral forest remains.</p>	<p>Coastal GasLink considered a number of factors when evaluating pipeline routing options. The Application (Section 1.4) includes a description of the route evaluation criteria, which among various factors considered, includes staying adjacent or in existing disturbances, and avoiding environmentally sensitive areas.</p> <p>Coastal GasLink acknowledges the ecological importance of mature and old forest. Locations where old forest could not be avoided are described on Page 8-16 of the Application. Potential adverse effects on old forest and other ecological communities of concern are described and mitigation provided in Section 8 of the Application.</p>

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39	Application Section 8.5.1	Page 8-29, Lines 30, 31 and 32.	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Lines 30, 31 and 32 on Page 8-29 state: "A small portion of the Project Footprint will be retained as an early seral, low-growing plant community". This implies a large portion of the Project footprint will be allowed to reach later seral status, with an attendant increase in diversity of habitats. It is unclear how this will occur as the Application states that the Project footprint will be subject to periodic clearing. HRFN requests that the Application clarify how vegetation and seral stages will be managed within the Project footprint.	Section 1 of the Application outlines activities with the various phases of the proposed Project. Vegetation management activities are described in Table 1-14 of the Application. Coastal GasLink will implement TransCanada's existing vegetation management procedures during operations to effectively control the growth of vegetation on the permanent ROW, using the most environmentally appropriate and economical vegetation management methods. The only areas where removal of forest is required for the life of the facility are the compressor and meter station sites and the approximately 10m wide area above the operating pipeline. Coastal GasLink will reclaim disturbed areas to the appropriate vegetative cover, which will include allowing for natural reforestation. Vegetation control (including weeds) will be conducted in accordance with requirements from the appropriate regulatory authority on an as-needed basis and will comply with the British Columbia Weed Control Act.
40	Application Section 8.5.1	Page 8-31, Lines 34-37	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Page 8-31, lines 34-37 state that management actions will include "pre-disturbance control of existing invasive plant infestations, reducing soil disturbance, ensuring Project vehicles and equipment are free of weed seeds and plant fragments, seeding bare soils, controlling the spread of new invasive plants and maintaining healthy plant communities". The Application should include clear procedures as to how this will be accomplished.	Section 7 of the Environmental Management Plan addresses the plans to manage the potential for the introduction or spread of invasive plants. In addition, Coastal GasLink will prepare an Invasive Plant Management Plan before construction, in consultation with the appropriate regulatory authorities.
41	Application Section 9.4.3	Wetland Area Estimation	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The Wetlands Technical Data Report (TDR), Section 1.3.4 - Regional Study Area states: "The wetlands regional study area (RSA) was established to contextualize potential effects of the proposed Project on wetlands at a landscape scale". The Local Study Area (LSA) was mapped using TEM or aerial photo interpretation, but the RSA was not similarly mapped. However, the relative percentage of wetlands within the RSA and LSA was assumed to be the same. This assumption may not be accurate and needs to be verified within the Application. The RSA cannot fulfill its contextual purpose if its characteristics are not accurately described in a manner that allows reliable comparison to the LSA. HRFN requests that the RSA be assessed using the same aerial photography methodology conducted for the LSA, and that the results of these assessments be included in the Application.	Coastal GasLink's assessment of potential adverse effects on wetlands was completed in accordance to the requirements in the AIR, issued by BC EAO in May 2013. The Wetlands Local Study Area (LSA) was mapped at a finer resolution to reflect that effects on wetlands are most likely to occur within 1 km of the construction footprint. The mapping of the Wetlands RSA uses an accepted BC government database, the BC Freshwater Atlas wetlands layer, which is considered an authoritative source for mapping freshwater resources in BC (ILMB 2010). Using provincial databases is an accepted methodology for assessing effects on a regional scale. The BC Freshwater Atlas is the best known data source currently available for mapping wetlands on a watershed scale; the Wetland RSA covers more than 6,000,000 hectares. Integrated Land Management Bureau. 2010. Freshwater Water Atlas User Guide. GeoBC Integrated Land Management Bureau. Victoria, BC. iv + 70 pp.
42	Application Section 9.5.1	Loss of Wetland Hydrologic, Habitat and Biogeochemical Function	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Compressor and meter stations construction have a more profound effect on wetlands than upland areas. HRFN requests that the Application indicate that compressor and meter stations will be located to avoid disturbance to wetlands.	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in the wetland at this location. The location of compressor facilities along the pipeline is based on the gas hydraulic analysis for the system. Further evaluation criteria information used in the selection of potential compressor station sites is provided in Section 1.4.14 of the Application.
43	Application Section 9.5.1	Page 9-37, Lines 8-10 (Ancillary Sites)	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Lines 8-10 on Page 9-37 state: "Because roads and pipelines are linear features, the potential adverse effects associated with access roads are expected to be similar to the effects described for pipelines". However, as roads require continued severe compaction and do not allow for re-vegetation, roads clearly have greater negative effects on vegetation and wildlife than do pipelines. HRFN requests that road construction be kept to a minimum within wetlands.	During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical in wetlands. Section 1.4.15 of the Application outlines access road evaluation criteria.

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44	Application Section 9.5.1	Ancillary Sites (Table 9-8)	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>The mitigation measures provided in Table 9-8 are inadequate and not described in sufficient detail. At a minimum, mitigation should be specified for each major wetland type (bogs, fens, marshes and swamps).</p> <p>Section 9.5.1 suggests using woody mulch in peat bogs and recreating micro-topography to maintain hydrological function and micro-habitats. These mitigation measures should be included in Table 9-8.</p>	<p>The mitigation measures identified in Table 9-8 are applied to all wetland classes. All wetland mitigation identified in the Environmental Management Plan ([EMP] Appendix 3-A) will be applied to all wetlands encountered during construction of the proposed Project. For example, key mitigation such as re-establishing preconstruction contours to restore natural flow patterns will be implemented in all wetlands to maintain hydrological function.</p> <p>Mitigation identified in the EMP (Appendix 3-A) include measures to reduce erosion by spreading mulch, which will be implemented in wetlands, where applicable; applying mulch is a practice recommended in Fisheries and Oceans Canada documents for riparian areas to reduce erosion and promote vegetation re-establishment (EMP; Appendix 3-A). The mitigation in Table 9-8 specify re-establishment of pre-construction contours to restore hydrological function and proper soil handling help to promote the re-establishment of vegetation communities and microtopography associated with those vegetation communities.</p>
45	Application Section 9.5.2	Page 9-46, Line 18	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Line 18 on Page 9-46 indicates the percentage of wetlands within the RSA likely to be disturbed. As previously mentioned, wetlands within the RSA were not assessed using a reliable or comparable methodology, such as TEM or aerial photo interpretation. Since wetlands within the RSA were assessed using methodologies that do not provide an accurate accounting of wetlands present, such as Broad Ecosystem Inventory (BEI) and the BC Freshwater Atlas, only a qualitative conclusion, rather than a quantitative one, may be drawn regarding relative amounts of wetlands within the Project footprint and RSA.</p>	<p>The mapping of the Wetlands RSA uses an accepted BC government database, the BC Freshwater Atlas wetlands layer, which is considered an authoritative source for mapping freshwater resources in BC (ILMB 2010). Using provincial databases is an accepted methodology for assessing effects on a regional scale. The percentage of wetlands likely to be disturbed in the RSA is provided to contextualize the area disturbed on a landscape scale. The percentage of wetlands likely to be disturbed in the RSA is a quantitative estimate that informs qualitative conclusions.</p>
46	Application Section 9.5.3	Potential Residual Adverse Effects – Determination of Significance and Confidence	21-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>While residual impacts may be insignificant at the overall project scale, there may be numerous instances of significant adverse impacts at a local scale, for example, when trees within a wetland in a landscape already heavily impacted by harvesting are removed, eliminating some of the last critical habitat for a particular species of wildlife within an area. HRFN requests that previously severely impacted landscapes in the vicinity of the LSA be identified, and that the Application indicate how these areas will be avoided by the pipeline or describe special mitigation measures that will be applied within these areas.</p>	<p>Coastal GasLink applied the methods for assessing potential adverse effects of the proposed project outlined in the AIR, issued by EAO in May 2013. Information on the potential adverse effects of the proposed Project on wildlife and wildlife habitat is provided in Section 10 of the Application. Existing disturbances were spatially accounted for in the habitat models (as described in the Wildlife and Wildlife Habitat Technical Data Report in Appendix 2-L of the Application). Section 10.6 of the Application identifies mitigation to reduce the potential adverse effects of the proposed Project on wildlife habitat.</p>
47	Application Section 9.5.5	Page 9-57, Line 4-6	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Lines 4-6 of Page 9-57 state: "Assessment of more potential local adverse effects in the Wetlands LSA also informs the cumulative effects assessment, as spatial and temporal crowding can occur at a local scale". The Application, however, does not identify where local adverse effects are significant, and unless the locations of these sites are provided, adverse effects on these sites cannot be mitigated. HRFN requests that the Application identify the location of wetlands – particularly bogs and treed wetlands – that may be locally significant and impacted by the Project, and identify the mitigation measures that will be applied within these areas.</p>	<p>The specific locations of treed bogs and swamps that are crossed by the proposed route are identified in the wetland line of the Resource Information Section on the Environmental Work Sheets (Appendix 3 C). Wetland mitigation will be applied in all wetlands affected by the proposed Project. Though tree growth will be restricted along an approximately 10 m wide area over the operating pipeline, all wetland types provide habitat function in different ways, so there is not expected to be an overall loss of habitat function with a change from a treed to shrub or graminoid-dominated wetlands.</p>
48	Application Section 9.5.6	Page 9-58, Lines 6-8	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Page 9-58 lines 6-8 state "As the BC FWA underestimates wetland area, the wetland delineation and BC FWA were merged for the purposed of calculating potential cumulative adverse effects in the RSA". The meaning of this statement is unclear. HRFN requests that the method for quantifying wetlands in the RSA be clearly detailed within the Application.</p>	<p>The Wetlands RSA is defined in Table 9.2 of the Application, and also in Section 4.5.1 of the AIR, issued by BC EAO in May 2013. The detailed wetland delineation undertaken within the Wetland LSA was combined with the BC Freshwater Atlas wetlands layer to create a dataset on the watershed scale appropriate for calculating cumulative effects. Cumulative effects assessment that identifies where existing and future disturbance affects wetlands requires a spatial dataset that has coverage on a regional level, such as the BC Freshwater Atlas. The Wetland LSA is embedded within the Wetlands RSA; consequently, the higher resolution data in the LSA forms a part of the dataset used to calculate cumulative effects in the Wetland RSA.</p>
49	Application Section 9.5.7	Table 9-15	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Table 9-15 addresses only regional effects. However, there may be significant potential effects at a local level that require analysis. HRFN requests that local areas that could be significantly impacted by the Project be mapped, and that the Application include the location of these areas and the mitigation measures that will be applied to reduce impacts.</p>	<p>The locations of wetlands crossed by the proposed route, have been mapped and are identified in the Environmental Work Sheets (Appendix 3-C). Wetland mitigation identified in the Environmental Management Plan ([EMP] Appendix 3-A) will be applied to all wetlands encountered during construction of the proposed Project.</p>

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50	Wetlands TDR Section 1.4	Project Setting	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The Wetlands TDR outlines three means of dividing the study area into distinct areas with respect to wetlands: wetland regions of Canada (project crosses 3); ecoprovinces (4 crossed) and BEC (6 zones crossed). How these biophysical subdivisions are used for analyzing the data should be explained within the TDR. Wetland statistics and the significance of adverse effects for all described study area subdivisions should be provided, as wetlands will have differing importance within each subdivision.	Coastal GasLink has completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by BC EAO in May 2013. The Wetlands TDR described wetlands according to ecoprovinces and biogeoclimatic (BEC) zones in order to give the reader a better understanding of what wetland types are common across these different regions. Section 3.2 (Wetlands in the LSA) describes the wetlands in each of the four ecoprovinces, and includes information on the BEC zones that the wetlands fall into and if they are red- or blue-listed.
51	Wetlands TDR Section 2.3	Wetland Mapping	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	This section does not mention the wetland aerial photo imagery that was mapped at a 1:6,000 scale that was referenced in Section 9.4.3 of the Application. HRFN requests that the methods and results of the aerial photo interpretation be included in the Wetlands TDR.	The wetland aerial imagery interpretation at a 1:6,000 scale was undertaken as part of the Effects Assessment, and the methodology and results are included in Section 9.4.3 of the Application.
52	Wetlands TDR Section 2.6	Limitations of Study	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	This section does not mention the large discrepancy between BEI and BC Watershed Atlas data and TEM and aerial photo interpretation data. BEI and BC Watershed Atlas data are unreliable for accurate wetland assessment at scales that the mapping is presented. The wetland area within the RSA was estimated from TEM and aerial photo data that were collected for the LSA. A wetland assessment of the RSA was not conducted using appropriate methods, and this should be stated in the Wetlands TDR and Assessment report. BEI and BC Watershed Atlas data significantly underestimated the wetland area within the RSA by a magnitude of roughly 2-5 times. Why report on this data if they are so inaccurate? This issue must be discussed. Fifteen to 25% of wetlands were visited according to the TEM field sampling intensity level adopted. HRFN requests an explanation in the TDR as to how potential red-listed communities or plant species can be identified if 75-85% of wetlands present are not visited. Mitigation cannot be effectively prescribed if the bulk of the occurrences of rare communities are not verified. HRFN requests that a method for ground truthing the presence of potential red-listed communities and species and other communities and species of concern be described in the Wetlands TDR, that proper ground truthing be undertaken, and that the results of this work be presented in the TDR and Application.	The wetland aerial imagery interpretation at a 1:6,000 scale was undertaken as part of the Effects Assessment, and the methodology and results are included in Section 9.4.3 of the Application. The mapping of the Wetlands RSA uses an accepted BC government database, the BC Freshwater Atlas wetlands layer, which is considered an authoritative source for mapping freshwater resources in BC (ILMB 2010). Using provincial databases is an accepted methodology for assessing effects on a regional scale. The percentage of wetlands likely to be disturbed in the RSA is provided to contextualize the area disturbed on a landscape scale. The percentage of wetlands likely to be disturbed in the RSA is a quantitative estimate that informs qualitative conclusions. Differences in methodology of TEM versus aerial imagery interpretation does not change the estimation of the effects identified in Section 9 of the Application. Based on a review of literature and experience on previous projects, the effects of pipeline construction are considered predictable. Section 2.6 (Limitations of Study) discusses the use and limitations of TEM for the Coastal GasLink project. As it was not feasible to map the entire Wetlands RSA, surrogates in the form of BEI and FWA data were used to give an approximate area of the wetlands within the larger region. Section 2.6 of the Wetlands Technical Data Report fully identifies the limitations of the study pertaining to ecological communities at risk. Notwithstanding the identified limitations, the standards and methods used for Terrestrial Ecosystem Mapping (TEM) for the Project, including scale and survey intensity level, were identified in section 3.4.1 of the AIR. The methods used for ground truthing ecological communities of concern and detecting plant species at risk are described in Section 2.3 of the Vegetation Technical Data report. Field Survey effort for TEM plots targeted ecological communities of concern within the proposed route. Section 7.1 of the Environmental Management Plan contains resource-specific protection measures pertaining to ecological communities of concern and Appendix C.9 of the Environmental Management Plan is an Ecological Community of Concern and Species of Concern Contingency Plan, both sections of the Environmental Management Plan identify methods for marking communities at risk and mitigating potential effects to these communities.

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53	Wetlands TDR Section 3.2	Wetlands in the LSA	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	While results from TEM are provided, the Wetlands TDR does not include results derived from aerial photo interpretation at the 1:6,000 scale. The TDR should either report these results in the TDR and Application or provide an explanation as to why they are not included. Table 3-6 shows that there are significantly less wetlands within the Sub-Boreal Interior ecoprovince in the LSA than in other ecoprovinces within the LSA (6% vs 12-17%). Does this imply that, within the LSA, wetlands within the Sub-Boreal Interior are more important to retain than wetlands in other ecoprovinces, because they are a more uncommon element? This should be discussed.	<p>The wetland aerial imagery interpretation at a 1:6,000 scale was undertaken as part of the Effects Assessment, and the methodology and results are included in Section 9.4.3 of the Application. Terrestrial Ecosystem Mapping (TEM) is a standard method for vegetation mapping in BC, however, by allowing complex polygons, TEM does not necessarily identify the specific location of small wetlands (e.g. wetlands less than 2 ha) within a larger upland polygon, as a small wetland may only be indicated a percentage of a larger polygon. Identifying the specific locations of small wetlands in the Wetlands LSA enhances the data quality used for the wetlands effects assessment.</p> <p>Table 3-6 of the Wetlands TDR identifies that the percentage of wetland in the Sub-boreal/ Boreal interior (SBI) Ecoprovince is 6%. MacKenzie and Shaw (2000) indicate that wetlands are relatively common in the "Sub-boreal/Boreal Interior", so it is not expected that 6% wetland area identified in the Wetland LSA is an indication that wetlands are especially uncommon in the SBI Ecoprovince. The Wetlands LSA in the SBI Ecoprovince crosses mountainous areas with relatively few wetlands, which will lower the percentage of wetlands identified in the Wetlands LSA.</p> <p>Reference: MacKenzie, W. and J. Shaw. 2000. Wetland classification and habitats at risk in British Columbia. In: Proceedings of a Conference on the Biology and Management of Species at Risk: Vol. 2. 15-19 February, 1999. Kamloops, BC. BC Ministry of Environment, Lands and Parks and University College of the caribou. Victoria, BC and Kamloops, BC. 520pp.</p>
54	Wetlands TDR Section 3.2.1	Wetlands of the Boreal Plains - Traditional Ecological Knowledge	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	This section identifies "rat root" as a culturally important plant. In order for this species to be identified in the field and protected, the Wetlands TDR and Application need to identify its scientific name and any other frequently-used common name. Table 3-8 presents areas of various wetland types within the Project footprint and the LSA. We understand that Project footprint will cover a maximum of 5% of the area of the LSA (100 m versus 2000 m in width). One wetland type, BWBSwk1/110, occurs with considerably greater frequency in the Project footprint relative to the LSA (6.5 ha vs 69.0 ha). HRFN recommends that the pipeline be re-routed away from this wetland type within the Project footprint, to reduce impacts to this wetland type. A similar approach should be taken for the Sub-boreal Interior (Table 3-10) SBSwk1/Ws06, SBSwk2/Ws07, and SBSmk1/Ws06 wetland types. Also, the dimensions of the project footprint need to be provided.	<p>"Rat root" corresponds to the species <i>Acorus americanus</i>. Synonyms include <i>Acorus calamus</i> and <i>Acorus calamus</i> var. <i>americanus</i>. An alternative common name for <i>A. calamus</i> is American sweet-flag. During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical. Further evaluation criteria information used for pipeline route selection is provided in Section 1.4.4 of the Application. The wetland type BWBSwk1/110 is a White spruce-red swamp currant-horsetails community that is described as common in BWBS zone (DeLong et al. 2011). This community is very similar to BWBSmw/111, included in Table 3-8 of the Wetlands TDR. The relatively low frequency of BWBSwk1/110 suggested by Table 3-8 reflects that the majority of the Wetlands LSA in the BWBS zone occurs in the BWBSmw variant (not the BWBSwk1 variant), not that BWBSwk1/110 is rare on the landscape. BWBSwk1, as a floodplain ecosystem, is considered blue-listed in BC, and mitigation associated with ecological communities of concern will be applied during construction as identified in the Vegetation section (Section 8). Site series Ws07 is a common association in the Sub-Boreal Interior. Ws06 is a blue-listed community in BC and mitigation associated with ecological communities of concern will be applied during construction.</p> <p>Reference: DeLong, S.C., Banner, A., MacKenzie, M.H., Rogers, B.J., and B. Kaytor. 2011. A field guide to ecosystem identification for the Boreal White and Black Spruce Zone of British Columbia. BC Ministry of Forests and Range, Forest Science Program. Land Management Handbook N. 65. Victoria, BC. ix + 249 pp.</p>

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55	Wetlands TDR Section 3.2.3	Wetlands of the Central Interior	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Table 3-12 lists two wetland types that, as stated above, are found in greater proportion in the Project footprint than in the LSA – the SBSmc2/Ws02 and SBSmc2/Ws07 wetland types. Opportunities to re-route the pipeline around these wetlands should be considered.</p> <p>HRFN requests that the pipeline be re-routed to the north to avoid wetlands at the following locations:</p> <ul style="list-style-type: none"> • Map Sheet 17 – km 106-108 • Map Sheet 24 – km 154.5 • Map Sheet 32 – km 203.7-204.2 • Map Sheet 33 – km 210-211 	<p>The reviewer cross-references to wetlands that were identified using TEM data. Because TEM delineates polygons that are a complex of habitats, it is inherently limited in its ability to delineate the boundaries of wetlands. Because of this limitation, Coastal GasLink also completed wetland aerial imagery interpretation.</p> <p>During construction planning and detailed engineering design, Coastal GasLink will strive to avoid footprint to the extent practical. Further evaluation criteria information used for pipeline route selection is provided in Section 1.4.4 of the Application.</p> <p>Avoidance of construction footprint in all of the wetlands listed is not practical, due to terrain features, overlapping footprint with other projects, and constructability challenges. Where a wetland cannot be avoided, Coastal GasLink seeks to reduce the footprint in the wetland through detailed construction planning and engineering design by limiting extra temporary workspace and minimizing construction footprint.</p>
56	Wetlands TDR Section 10.2.2	Wildlife and Wildlife Habitat	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Section 10.2.2 states that several Wildlife Tree Patches (WTPs) designated for wildlife, biodiversity and other values will be intersected by the Project. The Application should identify where WTPs will be removed or negatively impacted and identify appropriate mitigation measures (e.g., replacement, timing restrictions and avoidance). The location, size, and values associated with replacement WTPs should be included in the Application. Otherwise, potential impacts to WTPs and the acceptability of mitigation measures cannot be assessed.</p>	<p>Coastal GasLink acknowledges that Wildlife Tree Retention Areas are important to the maintenance of stand-level biodiversity targets, associated with forestry activities. In its route selection, Coastal GasLink seeks to avoid these areas where practical. Where avoidance is not practical, Coastal GasLink will adhere to the requirements of the Oil and Gas Activities Act and regulations, and follow direction in the Oil and Gas Commission's Environmental Protection and Management Guide.</p>
57	Wetlands TDR Section 10.6	Wildlife and Wildlife Habitat Mitigation and Environmental Management Strategies	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Section 10.6 lists mitigation strategies to manage potential adverse effects of the Project. Most of the strategies that are crucial for mitigation are tempered with language designed to avoid committing to particular mitigation measures. For example, phrases like "at selected locations", "where practical", "as appropriate", "where warranted", "consider" and "recommend" are used. In order to be clear about where and when mitigation will be applied, these phrases should be replaced with text that will ensure that particular mitigation measures will be undertaken and necessary consultation with stakeholders, including HRFN, will take place.</p>	<p>In order to apply mitigation in an environmentally responsible and economically efficient manner, Coastal GasLink has designed a level of flexibility in its Environmental Management Plan. Section 25 of the Application outlines the framework for implementation of appropriate site specific mitigation, and includes references to consultation with the identified regulatory authorities and to notification of interested parties.</p>
58	Wetlands TDR Section 10.6	Wildlife and Wildlife Habitat Mitigation and Environmental Management Strategies	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>Mitigation strategies include adherence to timing restrictions and least risk work windows for migratory nesting birds, bat hibernacula or breeding colonies, bald eagle nests, ungulate winter range, and elk. Clearly, construction will take place outside of least-risk work windows, resulting in adverse effects to wildlife. The Application should acknowledge this conflict and estimate the actual effects of construction.</p>	<p>Coastal GasLink will continue to reference restricted activity periods as construction planning and detailed engineering design advances. If site-specific situations arise where Project activities may be a concern with respect to restricted activity periods, Coastal GasLink will work with the appropriate regulatory authorities to develop a practical approach.</p>
59	Wetlands TDR Section 10.6	Wildlife and Wildlife Habitat Mitigation and Environmental Management Strategies	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	<p>HRFN requests that specific commitments be made regarding the timing of construction around the wetlands identified in the Wildlife TDR Section 4.4 - Field Surveys, Subsection 4.4.2 - Spring Migration and Breeding Waterfowl Surveys, and around bald eagle and osprey nests identified in the Subsection 4.4.3 - Bald Eagle, Osprey, Trumpeter Swan and Great Blue Heron surveys.</p>	<p>Coastal GasLink will continue to reference restricted activity periods as construction planning and detailed engineering design advances. If site-specific situations arise where Project activities may be a concern with respect to restricted activity periods, Coastal GasLink will work with the appropriate regulatory authorities to develop a practical approach.</p>

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60	Wetlands TDR Section 10.12	page 10-137	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Section 10.12 discusses the determination of significance and confidence regarding potential residual adverse effects on wildlife key indicators (KIs). Since significance thresholds were not available for most indicators (only two are used within HRFN's scope of concern, both in the cumulative effects assessment), qualitative significance thresholds were adopted. On page 10-137 it is stated that potential residual adverse effects were not considered significant if they were reversible. The Project was considered reversible over the 'long-term'; therefore, it has been concluded that there will be no significant effect on wildlife. Long-term in the case of this project could be well over one hundred years, when regenerating forests would reach maturity after operations are complete. In some locations within HRFN's traditional area, Douglas fir trees will be removed that will likely never be replaced. This project should therefore not automatically be considered reversible with respect to vegetation or wildlife KIs.	The referenced section of the application states: "Potential residual adverse effects are considered not significant when they: • do not exceed accepted biological thresholds or standards • are not predicted to affect the indicator population to a degree such that stated management and conservation objectives might not be attainable • are reversible When a long-term or irreversible potential residual adverse effect with a magnitude that is predicted to exceed an accepted biological threshold or standard, or is predicted to affect the indicator population such that stated management or conservation objectives might not be attainable, it is considered significant." As outlined in Section 3 of the Application, significance determination is not made based on only one of the assessment criteria used to characterize the residual adverse effect. Consideration of all of the assessment criteria presented in Table 3-5 of the Application, including reversibility, characterizes the residual adverse effect and leads to the conclusion about significance.
61	Wetlands TDR Section 10.12	page 10-137?	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Confidence levels associated with predicted impacts to wildlife KIs of concern to HRFN were all rated as "high" except for bats (low), pond-dwelling amphibians (low) and western toad (low). However, confidence ratings associated with these KIs should be considered "low", due to inadequate field studies and lack of data necessary to predict impacts with greater certainty (see comments regarding remote cameras and bird surveys).	The high confidence rating for certain wildlife key indicators (KIs) reflects a strong understanding of cause-effect relationships and data pertinent to the proposed Project area in alignment with the methodology described in Section 3.7 of the Application. The low confidence rating for bats reflects a more limited understanding of cause-effect relationships (i.e., limited research and literature is available) and incomplete data relevant to the proposed Project area. The low confidence rating for pond-dwelling amphibians and western toad is primarily related to uncertainty regarding potential Project effects on hibernation habitat during winter construction.
62	Wetlands TDR Section 10.12	page 10-137?	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Residual adverse effects for all KIs of concern to HRFN concern were considered "not significant" due to conclusions in the Application regarding mitigation and reversibility. Due to a lack of data and inaccurate conclusions regarding long-term reversibility, HRFN considers this conclusion to be inaccurate for grizzly bear, moose, marten, fisher, bats, pond-dwelling amphibians, western toad, mature/old forest bird community, early seral forest bird community, wetland bird community, and northern goshawk. HRFN agrees with the determinations for grassland/shrubland bird community, rusty blackbird and common nighthawk.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Coastal GasLink acknowledges that aspects of the methodologies and terminology may not be accepted by all parties, but the methodologies employed in the Application are consistent with best industry practice and the AIR.
63	Wetlands TDR Section 10.13	Page 10-149	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The Application (Page 10-149) indicates that effects associated with mountain pine beetle (MPB) infestations (clearcuts, roads, etc.) were considered in the CEA; however, disturbances associated with the harvest of MPB-infected stands have not been included in Table 10-20, which quantifies existing and future areal disturbance in the Wildlife RSA. This Table should be revised to include these disturbances. Further, because the CEA covers the entire Project area, potential cumulative effects exclusive to HRFN's traditional area have not been described. HRFN requests that cumulative effects to wildlife within HRFN's area be assessed, and suggests that Land and Resource Management Plan information could be used for this purpose.	Coastal GasLink included disturbances, such as clearings and road, associated with MPB infestation in its quantitative analysis of cumulative adverse effects. It is outside of the scope of the cumulative effects assessment to distinguish between cutblocks and roads generated from the salvage harvest of MPB-infested stands and those resulting from other forestry activities.
64	Wetlands TDR Section 10.14	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The CEA for grizzly bear is based on "core" habitats of 10 km ² or more having no motorized access. Twenty-four core grizzly bear habitats will be intersected by the Project. The locations of these core habitats are not provided and should be included in the Application to enable potentially-affected stakeholders to provide meaningful review and comment.	Coastal GasLink has provided mapping of core grizzly bear habitat to the EAO.
65	Wetlands TDR Section 10.14	Page 10-179	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	For grizzly bear, baseline conditions for open road density already exceed the threshold of 0.6 km/km ² . The project will further increase open road density and therefore mitigation is proposed. Page 10-179 states that the proponent will develop an appropriate mitigation plan in consultation with regulators to reduce potential cumulative adverse effects on grizzly bear resulting from the Project. The proposed mitigation plan should be included in the Application, perhaps as a management plan included within Appendix D of the Environmental Management Plan.	Coastal GasLink will develop an appropriate mitigation plan in consultation with the regulatory authorities to reduce potential cumulative adverse effects on grizzly bear resulting from the Project.

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66	Wetlands TDR Sections 10.12 & 10.17	N/A	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The significance and confidence of potential residual adverse effects and residual cumulative adverse effects on wildlife and wildlife habitat is presented in Sections 10.12 and 10.17 of the Application, respectively. It was determined that for bats, pond-dwelling amphibians and western toad, impacts were not significant, with a low degree of confidence. HRFN requests that, given the low level of confidence in the conclusion regarding potential impacts to these species, plans to increase confidence in the assessment, through further inventory and monitoring, should be presented in the Application. These plans could be included in Appendix D of the Environmental Management Plan.	Please refer to Section 10.12.3 regarding monitoring and follow-up programs to address uncertainty in the affects assessment conclusions and effectiveness of mitigation. Monitoring programs will be developed in consultation with the appropriate regulatory authorities during the permitting phase of the Project. Uncertainty is expected to be adequately addressed through the implementation of an appropriate monitoring program, which Coastal GasLink will develop in consultation with the appropriate regulatory authorities. Should monitoring result in the need for further action, Coastal GasLink will work with the appropriate regulatory authorities to implement an adaptive management approach.
67	Wildlife and Wildlife Habitat TDR Section 2.1.1	Physical Setting	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Table 2.1 is out of date and will be more outdated as time progresses. For example, the California gull and Caspian tern are blue-listed by the BC Data Conservation Centre and could potentially occur in the Project area, but this is not indicated in the Table. The Application should indicate how it will be updated to reflect current information, and the extent to which additional inventory, mitigation, and monitoring may be required to ensure that the Application achieves this goal. It is particularly important that the Application be updated as required until operations commence.	Table 2-1 is based upon best available information at the time of the assessment. California Gull and Caspian Tern were both considered for inclusion in the table. California Gull was identified as a coastal migrant and unlikely to interact with the Project, and in the interior it was considered very unlikely to occur. Similarly, Caspian Tern was also identified as very unlikely to interact or overlap with the Project.
686	Wildlife and Wildlife Habitat TDR Section 3.5	Field Surveys	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Remote cameras were used to "...measure medium and large-size mammal use of at specific locations along the proposed route". No other field studies were undertaken to obtain mammal presence or movement data. Only 20 cameras were deployed over the entire pipeline route, with two being subsequently removed due to route changes. Within HRFN's area of concern, it appears that only one camera was used to obtain field data. It is HRFN's view that this approach was entirely inadequate to obtain information on mammal presence. There is general agreement among wildlife researchers that remote cameras should be used as a complimentary technique to other field studies, such as winter track counts, and should not be used as the primary or sole source of field information. Stationary cameras placed many kilometers apart fail to detect significant wildlife presence or movement that may occur out of camera range. Clearly, more field work is needed within HRFN's area of concern to obtain seasonal information on grizzly bear, moose, marten, fisher and bats. Winter field work is especially required to validate the moose, marten and fisher models. This fieldwork should be undertaken and the results provided in the Application.	Remote cameras are being used with increasing frequency due to their ability to remain in selected locations and potentially collect photo data over lengthy timeframes (several months at a time). Coastal GasLink recognizes that this survey method is not exhaustive or necessarily specific to a given species, however the technique can reveal unique information that would otherwise be rarely obtained (e.g., wolverine photographs), and further supports individual species information known to the area as collected through desktop literature reviews and the development of individual species accounts and habitat models. Remote camera data is intended to aid in the baseline characterization of wildlife and wildlife habitat, and is used along with other information to prepare detailed species accounts for the Project. Because of the duration that remote cameras are in operation (i.e., 24 hours a day for as many days as they are deployed), remote camera data improves confidence in detection (i.e., reduce false negatives) and occupancy (i.e., how often the site is used) estimates; this can be much more challenging with conventional winter track surveys. Furthermore, the likelihood that a species occupies a site can be related to habitat types and surrounding features and differences in detection probability can be attributed to these factors.
69	Wildlife and Wildlife Habitat TDR Section 3.6.5	Model Reliability and Confidence	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The Application states: "The reliability of a habitat suitability model reflects the level of information available on a species' life requisites and species-habitat relationships". Habitat models for moose, grizzly bear, marten, fisher, western toad, pond-dwelling amphibians, northern goshawk, common nighthawk and rusty blackbird were considered by the Proponent to be of moderate reliability, indicating that source information for these models was from within BC, but not necessarily from ecosystems within the area of the proposed Project. Therefore, the Application should include a plan to increase the reliability of these models through additional field studies, especially in HRFNs area of concern.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. A 'moderate' reliability qualifier indicates that ratings assumptions and adjustments within the model were based on information from similar ecosystems as those occurring in the wildlife and wildlife habitat LSA. The 'moderate' reliability qualifier can also include validation (RIC 1999), which for Coastal GasLink included the use of field data (see Section 4.5.2 of the Wildlife and Wildlife Habitat TDR). Field-based wildlife habitat assessments were completed in 2013 as part of the TEM field program. A total of 293 TEM survey plots were visited by wildlife biologists, and habitat suitability was assessed for several of the bird and mammal indicators. These plots were used to validate the bird and mammal office-derived models. Histograms of these comparisons are generally symmetrical, indicating that variability was not overly biased (i.e., models are unlikely to severely underestimate or overestimate the availability of habitat). The results of habitat models for this assessment are not expected to be exact characterizations of habitat effectiveness for every wildlife species potentially occurring in the Wildlife LSA, but are considered appropriate for assessing changes in habitat, evaluating the significance of these changes and identifying appropriate mitigation measures.

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70	Wildlife and Wildlife Habitat TDR Section 3.6.6	Birds	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Section 3.6.6 of the Wildlife TDR describes the wildlife habitat suitability models used for bird KIs. Ratings for the wetland bird community model were adjusted for elevation. The values of wetland bird community habitat within HRFN's area of interest has likely been underestimated, since "high" elevation sites over 800m (which would cover most of HRFNs area of concern in the Prince George and Dawson Creek LRMP areas) would only be rated "moderate" at best.	Habitat suitability models were completed following provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. All habitat rated as 'high' or 'moderate' in the wetland songbird community model was considered 'effective habitat', and thus included in the assessment of potential effects of the Project. As stated in the Application (see Page 68, Section 3.6.4 of the Wildlife and Wildlife Habitat TDR), 'high' and 'moderate' suitability habitat represent the top 75th percentile of the range in suitability, and therefore is considered a conservative approach to in identifying important habitat for the wetland songbird community .
71	Wildlife and Wildlife Habitat TDR Section 3.6.7	Mammals	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Section 3.6.7 of the Wildlife TDR describes the wildlife habitat suitability models used for mammal KIs. Winter foraging and winter shelters were modeled for moose. Habitat ratings were inappropriately reduced for disturbance, e.g., habitat suitability within 200 m of high-intensity disturbance such as primary roads was reduced by two classes and habitat suitability within 100m of moderate-intensity disturbance such as tertiary roads was reduced decreased by one class. These ratings underestimate the value of moose habitat in these locations, e.g., any south-facing or flat terrain with a shrub layer is likely used by moose in winter within HRFN territory. HRFN requests that habitat ratings for moose be properly assigned and habitat values properly determined, and that this information is included in the Application.	Habitat suitability models were completed following provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. Provincial standards recommend considering anthropogenic effects (e.g., sensory disturbance from roads) that may alter habitat suitability by adjusting ratings based on information from scientific literature and professional expertise (RIC 1999). Literature suggests that sensory disturbance from traffic cause moose to avoid using habitat adjacent to roads (Yost and Wright 2001; Laurian et al. 2008). Suitable habitat adjacent to busy primary roads (i.e., high intensity disturbance features) was downgraded by two classes to a minimum of (5) 'very low', and habitat suitable adjacent to less-busy tertiary roads (moderate intensity disturbance features) was downgraded by one class to a minimum of (5) 'very low'. It is acknowledged that moose may make use of habitat adjacent to roads and that this is captured within the models. However, the models are adjusted to provide results in alignment with known moose habitat preferences (i.e., literature suggests that habitat next to roads is not high in suitability).References:Laurian, C., C. Dussault, J.-P. Ouellet, R. Courtois, M. Poulin and L. Breton. 2008. Behavior of moose relative to a road network. The Journal of Wildlife Management 72:1550-1557.Resource Inventory Committee (RIC).1999. Wildlife Habitat Rating Standards, Version 2. Ministry of Environment, Lands and Parks. Victoria, BC. 98 pp.Yost, A.C. and R.G. Wright. 2001. Moose, caribou and grizzly bear distribution in relation to road traffic in Denali National Park, Alaska. Arctic 54:41-48.
72	Wildlife and Wildlife Habitat TDR Section 3.6.7	Mammals	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The high value of marten habitat within HRFN territory was not stated in the Application, likely due to the incorporation of incorrect ratings in the habitat suitability model. The clarification of contiguous areas with ratings of 1, 2 or 3, and mapping, is required to fully assess the appropriateness of the marten habitat model as it applies within HRFN territory.	Ratings for year round living habitat for marten were based on a comprehensive literature review of marten habitat preferences. This review identified the importance of coniferous leading mature and old growth forest stands with a complex structure for year round living (Thompson and Harestad 1994). These habitats were rated as high (1). Younger forest stands and stands that were deciduous dominated or mixed wood were rated lower (2-3). These lower ratings accounted for the potentially lower value of these stands for marten year round living owing to a lack of preferred forest structure characteristics. Model outputs were dependent on rating assumptions and the availability of spatial data. Reference: Thompson, I.D., and A.S. Harestad. 1994. Effects of logging on American martens, and Models for Habitat Management. Pages 355 - 367 in Martens, Sables and Fishers: Biology and Conservation. Cornell University Press, Ithaca, New York, USA
73	Wildlife and Wildlife Habitat TDR Section 3.6.8	Amphibians	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Section 3.6.8 of the Wildlife TDR describes the wildlife habitat suitability models used for amphibian KIs. In the case of western toad, it is likely that the suitability of toad habitat as predicted by the habitat model differs substantially from the actual value of toad habitat located within HRFN territory, as the model did not incorporate the value of roadside ditches as toad habitat. Roadside ditches may contribute more to local western toad populations than natural breeding sites, even if breeding success within ditches may vary substantially from year to year, depending on factors such as water level. HRFN considers the reliability of the model for toads to be low. HRFN requests that a procedure be developed to inventory roadside breeding sites along existing roads during summer construction, that mitigation measures be developed to protect western toads during construction, and that this information be included in the Application.	Coastal GasLink has committed to undertaking pre-construction surveys to identify wildlife habitat features which warrant site-specific mitigation (Table 10-6 of the Application). All western toad breeding sites, including roadside ditches, detected during pre-construction surveys will be recorded and mitigation will be implemented.

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74	Wildlife and Wildlife Habitat TDR Section 4.1	Review of Existing Data Sources and Literature	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	This Section includes Tables of legally-designated Ungulate Winter Ranges (UWRs). No UWRs for moose, deer or elk have been legally designated within the Prince George Land and Resource Management Plan (LRMP) region. However, moose winter range has been managed as part of landscape level forest development planning in this region for decades. Ungulate winter range, whether it has been legally designated or not, should be recognized and identified in the Application.	Coastal GasLink completed a comprehensive assessment of potential adverse effects in accordance with the AIR issued by the EAO in May 2013. The EAO completed its screening review February 28 2014 and accepted the Application filed on March 3 2014. Potential effects of the Project on moose (and other ungulates) were assessed using provincially designated UWR and Project-specific quantitative habitat suitability models for winter forage and winter shelter habitats. Coastal GasLink was unable to locate any spatial files for non-legal areas of moose winter habitat that overlap the wildlife and wildlife habitat spatial boundaries, and considered potential adverse effects of the proposed Project in relation to the output of habitat models.
75	Wildlife and Wildlife Habitat TDR Section 4.1	Review of Existing Data Sources and Literature	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	This Section also includes Tables of designated Wildlife Habitat Areas (WHAs). There are no WHA's listed for the Prince George LRMP region, likely indicative of a lack of existing inventory data for the region. Wildlife habitat surveys should be conducted within the Prince George LRMP area prior to construction, and mitigation plans developed in the event that construction activities could negatively impact important wildlife habitat areas.	The WHAs summarized in the Tables in Section 4.1 are designated by the Province. Coastal GasLink recognizes that non-designated areas can also be important for wildlife. Coastal GasLink will implement the mitigation to address potential adverse effects on wildlife outlined in the Environmental Management Plan (for example see Section 7.1.3 and Table 7-1 of the EMP).
76	Wildlife and Wildlife Habitat TDR Section 4.3	Traditional Ecological Knowledge	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Table 4-9 documents wildlife and wildlife habitat Traditional Ecological Knowledge (TEK) and related issues of concern for the Prince George LRMP region. Few concerns related to TEK were identified, and for identified concerns, the Application does not indicate how these concerns will be addressed or mitigated. In HRFN's area of concern, multiple beaver dams are located in the vicinity of Kilometer Point 225 of the proposed pipeline route. The Application should indicate how negative impacts to this feature will be mitigated.	Coastal GasLink clarifies that key issues and concerns raised by Halfway River First Nation during engagement are provided in Section 23 (Table 23-78), and notes concern with the potential loss of beaver dam/lodge. Coastal GasLink's responses to these key issues and concerns raised are also provided in Table 23-78, as well as cross-references to where these issues are considered in the Application. Sections 7 and 8 of the EMP in Appendix 2-A include information about measures that will be implemented should beaver dams be encountered along the construction right-of-way.
77	Wildlife and Wildlife Habitat TDR Section 4.5.3	Wildlife Habitat Suitability Models	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Table 4-49 shows the amount and quality of baseline winter foraging moose habitat present in the Wildlife and Wildlife Habitat LSA within a number of LRMP regions. The Application indicates that the LSA within the Prince George LRMP region totals 31,002 ha, of which 42 ha (1.4%) represents high-value habitat, 1,908 ha (6.2%) represents moderate-high value habitat, and 108 ha (3.5%) represents moderate-value habitat, for a total area of effective moose habitat of approximately 7 % of the LSA. Therefore, approximately 93% of the LSA within the Prince George LRMP region is considered to be low, very low or nil-value moose winter foraging habitat. This conclusion is mainly the result of incorrect habitat ratings adjustments for disturbances and a lack of field data to verify assumptions. Therefore, HRFN considers the habitat suitability model adopted by the Proponent for moose to be invalid, and further fieldwork is necessary to validate the model. If, in fact, there is currently very little high and moderately-high value moose winter foraging habitat in the Prince George LRMP region, it should be protected from further development.	Habitat suitability model results do not represent actual wildlife use of habitats, but provide a characterization of habitats in the LSA most likely to be used by a given species based on habitat attributes that have been demonstrated or deemed likely to affect the suitability of a given habitat. Wildlife habitat ratings field work followed provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. Suitability ratings from the field were used to validate the accuracy of the models, as ratings were based on species habitat requirements, ecosystem attributes, and presence of animal sign. Based on this, the habitat suitability modeling provided in the Application for moose winter habitat is considered appropriate for the assessment. Resource Inventory Committee (RIC).1999. Wildlife Habitat Rating Standards, Version 2. Ministry of Environment, Lands and Parks. Victoria, BC. 98 pp.
78	Wildlife and Wildlife Habitat TDR Section 4.5.3	Wildlife Habitat Suitability Models	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Table 4-50 shows the amount and quality of baseline winter shelter habitat for moose present in the Wildlife and Wildlife Habitat LSA within a number of LRMP regions. The Application indicates that the LSA within the Prince George LRMP region totals 31,002 ha, of which 179 ha is rated high for moose winter shelter (0.6%), 1077 ha is rated moderate-high (3.5%), and 601 ha is rated moderate (1.9%), for an effective habitat area of 1857 ha (6%). Therefore, 94% of the LSA within the Prince George LRMP area is considered to be low, very low or nil moose winter shelter habitat. This conclusion is mainly the result of incorrect habitat ratings adjustments for disturbances and a lack of field data to verify assumptions. Therefore, HRFN considers the habitat suitability model adopted by the Proponent for moose to be invalid, and further fieldwork is necessary to validate the model. If, in fact, there is currently very little high and moderately-high value moose winter shelter habitat in the Prince George LRMP region, it should be protected from further development.	Habitat suitability model results do not represent actual wildlife use of habitats, but provide a characterization of habitats in the LSA most likely to be used by a given species based on habitat attributes that have been demonstrated or deemed likely to affect the suitability of a given habitat. Wildlife habitat ratings field work followed provincial standards outlined in the British Columbia Wildlife Habitat Rating Standards (RIC 1999) and methods are described in detail in Section 3.6 of the Wildlife Technical Data Report. Suitability ratings from the field were used to validate the accuracy of the models, as ratings were based on species habitat requirements, ecosystem attributes, and presence of animal sign. Based on this, the habitat suitability modeling provided in the Application for moose winter habitat is considered appropriate for the assessment. Resource Inventory Committee (RIC).1999. Wildlife Habitat Rating Standards, Version 2. Ministry of Environment, Lands and Parks. Victoria, BC. 98 pp.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	Date Received	Contact	Agency represented	Issue Summary	Coastal GasLink Response
79	Wildlife and Wildlife Habitat TDR Section 4.7	Incidental Observations of Wildlife of Conservation Concern	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	There were 1877 incidental observations of wildlife, including wildlife sign, during field studies conducted by the Proponent. Of these, there were 250 observations of moose or moose sign and 133 observations of wildlife habitat features including nests, dens, wildlife trails, and mineral licks. The Application indicates that all wildlife features noted were considered for mitigation, but it is unclear as to how these features will be tracked for mitigation. HRFN requests that the Application include a Table showing the location of these features and a plan to mitigate potential impacts to these features.	Section 7 of the Environmental Management Plan states that Coastal GasLink will complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. The EMP also includes reference to habitat location for specific wildlife species. Alignment sheets that will be developed for construction will also indicate locations of wildlife habitat features that may be subject to site specific mitigation.
80	Wildlife and Wildlife Habitat TDR Section 5.1.1	Review of Existing Data Sources and Literature	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The Application indicates that during the course of fieldwork there were five observations of American bittern and eight observations of short-eared owl. The locations of these observations and any recommended field follow-up or mitigation measures are not stated in the Application. These records warrant follow-up or a rationale as to why follow-up is not required.	The sightings referred to are historical observations from the North American Breeding Bird Survey (Table 4-2), the British Columbia Breeding Bird Atlas (Table 4-3), and the Christmas Bird Count (Table 4-4). These data do not include specific location information (e.g., UTM or latitude/longitude coordinates), and thus additional information cannot be provided. No American bittern or short-eared owl detections occurred during project-specific field surveys (see Section 4.4.5 and 4.4.6), and no incidental observations were made (see Section 4.7). Therefore, no follow-up programs are proposed for these species.
81	Wildlife and Wildlife Habitat TDR Section 5.1.1	Review of Existing Data Sources and Literature	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	This Section (Page 295) refers to a Mitigation Management Table which contains data on wildlife habitat features observed and confirmed breeding locations for designated species. This Table will be continue to be updated as new information becomes available and is to be used during construction and final alignment planning. This table should be included in the Application to allow for a review of the appropriateness of proposed mitigation measures.	All proposed mitigation for the Coastal GasLink Project is listed in Section 26 of the Application.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	Date Received	Contact	Agency represented	Issue Summary	Coastal GasLink Response
82	Wildlife and Wildlife Habitat TDR Section 5.0	Wildlife-related Conclusions	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	HRFN requests that the following information be included in the Assessment Report to be prepared by the EAO: 1. Wildlife in the HRFN consultation area has already been heavily impacted by development, especially through loss of habitat. 2. HRFNs primary means of subsistence has traditionally been and continues to be the hunting of moose for food and the harvest of fur-bearing animals for income. Recent decreases in local moose populations have been well documented, and the winter of 2014 was extremely poor for HRFN trappers. 3. The Application acknowledges adverse effects of the project for every wildlife KI but determines that likely adverse impacts of the Project are "not significant" for each KI without adequate supporting data in many cases. 4. Habitat models were the primary platform for assessing effects on wildlife KIs. Some of the models were subject to "adjustments", with the result that habitat was deemed to be of much lower value than in reality. HRFN expected high habitat values to be recognized for moose and marten within HRFNs portion of the Project area. However, these were not reflected in the assessments. Therefore, either the model assumptions are wrong, primarily due to ratings adjustments to downgrade values and a lack of field verification, or there is at present very little high-value habitat left for moose and marten. If the latter is the case, all high-value habitats for moose and marten should be protected from development. 5. Certain mitigation measures proposed during construction are not feasible. For example, construction will have to take place outside of work windows of least risk, so there will be adverse effects to wildlife KIs that are not identified in the Application. 6. Little field work was done in HRFN area, there is no existing protection for resources (Ungulate Winter Ranges and Wildlife Habitat Areas have not been designated) and few important wildlife features have been identified. The confidence level associated with potential impacts to all wildlife KIs should be considered low. 7. Acceptable thresholds associated with the significance of impacts to wildlife of importance to HRFN have not been presented in the Application. The criteria used to assign qualitative significance thresholds, especially with respect to reversibility, make it impossible to conclude that the Project could result in significant negative effects to wildlife and puts wildlife populations in HRFNs area of concern at risk. 8. Many of the mitigation measures in the wildlife section of the Application are worded such that the proponent is under no obligation to actually implement the measures. 9. It is impossible to assess the potential effects of the Project for a portion of the proposed route without access to the information used in the Application, particularly the Geographic Information Systems (GIS) information. Mapping and GIS data utilized in the preparation of the Application should be made available to HRFN for review.	- Request not directed to Coastal GasLink.
83	Wildlife and Wildlife Habitat TDR Section 18.4	Baseline Information and Project Setting	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	There are 82 archaeological sites within 1000 metres of the proposed pipeline route, but the location of these sites has not been provided in the Application. The location of these sites should be shown in the Application so that First Nations can determine which sites are in their areas of interest.	Coastal GasLink understands its obligations under the BC Heritage Conservation Act includes avoiding the publication of details, including the location of archaeological sites in publically available documents.
84	Wildlife and Wildlife Habitat TDR Section 18.4	Baseline Information and Project Setting	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The archaeology baseline inventory is incomplete because fieldwork necessary to complete the inventory has not been completed. Areas where the archaeology inventory is incomplete should be shown in the Application.	Coastal GasLink has completed a comprehensive assessment of the potential adverse effects of the Project in accordance with the AIR, issued by the BC EAO in May 2013. Coastal GasLink expects to complete and submit to the appropriate regulatory authorities, the Archaeological Impact Assessment (AIA) final report in early 2015.
85	Wildlife and Wildlife Habitat TDR Section 18.5	Methods	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Archaeological impact assessment (AIA) fieldwork conducted in 2013 resulted in the discovery of 30 previously unrecorded archaeological sites and five previously unrecorded historic sites within the proposed Project footprint, but the location of these sites was not shown in the Application. HRFN requests that these locations be shown in the Application so that First Nations can determine which sites are in their areas of interest.	Coastal GasLink understands its obligations under the BC <i>Heritage Conservation Act</i> includes avoiding the publication of details, including the location of archaeological sites in publically available documents.

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Issue Tracking #	EAC Application Reference	EAC Application Page Number	Date Received	Contact	Agency represented	Issue Summary	Coastal GasLink Response
86	Wildlife and Wildlife Habitat TDR Section 18.6	Archaeological Sites Effects Assessment	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Table 18-5 provides proposed mitigation strategies in the event that archaeological sites are discovered during construction. However, no mitigation strategies are presented for known archaeological sites, such as site avoidance, site excavation, or project alteration. HRFN requests that mitigation measures pertaining to known archaeological sites be provided in the Application.	Coastal GasLink understands its obligations under the BC <i>Heritage Conservation Act</i> includes avoiding the publication of details, including the location of archaeological sites in publically available documents. Coastal GasLink expects to complete and submit to the appropriate regulatory authorities, the AIA final report in early 2015. In the event that archaeological sites are discovered during construction, Coastal GasLink will implement the Heritage Resource Discovery Contingency Plan, outlined in Appendix C of the EMP.
87	EMP	Page 31	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Page 31 of the Environmental Management Plan states that an Invasive Plant Management Plan will be implemented during the Project, and Table 8-7 of Section 8 of the Application references such a plan. However, an Invasive Plant Management Plan has not been included within the Environmental Management Plan. HRFN requests that an Invasive Plant Management Plan be included within Appendix D of the Environmental Management Plan. Additionally, an Access Management Plan, Mitigation Management Table, and Grizzly Bear Mitigation Plan are referenced in the Application but have not been included. In order to properly assess potential impacts to resources that are highly valued by HRFN and evaluate the adequacy of proposed mitigation measures, it is essential that the plans and table identified above be included in the Application.	All proposed mitigation for the Coastal GasLink Project is listed in Section 26 of the Application. Coastal GasLink will develop additional management plans in advance of constructing the proposed Project, and in consultation with the appropriate regulatory authorities.
88	EMP Section 8.4.2	Objectives	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The following additional bulleted objective should be inserted below the objective, "maintain habitat quality at crossing locations" "Avoid a loss of fish habitat at crossing locations" It must be recognized that "habitat quality" and "habitat quantity" are different entities, and it is important to maintain both habitat quality and quantity.	EMP Section 8.4.2 (pp. 60 of 88) –bullet 7 & 8- Habitat quantity is addressed in the following objectives: • comply with the habitat protection provisions of the <i>Fisheries Act</i> and the principle of "no net loss" of productive fish habitat of DFO's Policy for the Management of Fish Habitat; and• protect riparian areas in proximity to watercourse crossingsIn addition, Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings, which will prevent loss of instream habitat.
89	EMP Section 8.4.3	Specific Measures	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The following text should be added as a bulleted mitigation under the "Vehicle Crossings: General" Activity/Concern: "Design and construct watercourse crossing structures, such as culverts and bridge abutments, such that the natural width of the stream channel will not be constricted and the natural hydraulic capacity of the channel will be maintained at the crossing site".	Coastal GasLink confirms there will be no permanent infilling below the banks of watercourses at any crossings. Section 8.4 of the EMP outlines mitigation specific to watercourse crossings, and indicates that Coastal GasLink will avoid any infill from bridge abutments within the channel. Through the implementation of mitigation and confirmation that no channel infilling will take place, the assessment of the suggested potential residual effect "Loss of instream habitat within the ZOI due to channel infilling" is not required. Coastal GasLink will routinely inspect watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.
90	EMP Section 9	Post Construction Monitoring	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	Section 9 has not been written in sufficient detail to guide post-construction monitoring that will be required for the Project.	Coastal GasLink provides an outline of the Post-construction Monitoring Plan in Section 25.3 of the Application. Coastal GasLink will complete its Post-construction Monitoring Plan in advance of construction, in consultation with the appropriate regulatory authorities.
91	EMP Section 9.2	Process	22-Apr	Ecora Resource Group	Chief Darlene Hunter, Halfway River First Nation	The following text should be added to Section 9.2 "Stream crossings on access roads will be monitored regularly for the life of the pipeline to ensure that they are functioning as intended, and remedial work will be undertaken as required. Potential blockages to fish movement will be removed following DFO's "Culvert Maintenance" and "Bridge Maintenance" operational statements and the government of BC's "Standards and Best Practices for Instream Works".	Coastal GasLink will routinely inspect watercourse crossings and remove potential blockages to fish passage on any permanent water crossing that is left in place and controlled by Coastal GasLink.