



Environmental
Assessment Office

Application Information Requirements

Cedar LNG Project

Proposed by:

Cedar LNG Partners LP

November 2021

Pursuant to the Environmental Assessment Act, S.B.C. 2002, c.43



PREFACE

The Application Information Requirements (AIR) specifies the information that Cedar LNG Partners LP by its general partner Cedar LNG Partners (GP) Ltd. (Cedar) is required to provide in their application for an Environmental Assessment Certificate (the Application), per section 16(2) of the 2002 British Columbia *Environmental Assessment Act* (BCEAA).

Cedar is proposing to develop the Cedar LNG Project (the Project), in Kitimat, British Columbia, as described in the Project Description at this [Link to the Project Description](#) on the British Columbia Environmental Assessment Office's (EAO) EPIC website. The Project is a natural gas processing, liquefaction, and liquefied natural gas (LNG) export facility. Liquefied natural gas will be exported pursuant to Licence GL-327 issued by the National Energy Board on May 27, 2016 in favour of Cedar 1 LNG Export Ltd. (wholly owned by Haisla Nation), which permits annual exports of up to 8.55 billion cubic metres (m³) for 25 years (Cedar may apply to extend to 40 years). Preliminary information on the conceptual approach to developing the Project is provided in the draft AIR for context.

The EAO issued a section 10 Order to Cedar on August 30, 2019 confirming that the Project requires an environmental assessment certificate, pursuant to section 10(1)(c) of BCEAA, before it may receive provincial permits to construct and operate the Project. The Project is a reviewable project pursuant to the Reviewable Projects Regulation (B.C. Reg. 370/02) with one assessment trigger; Part 4 (Energy Projects), Table 8 (Petroleum and Natural Gas Projects), Row 1 (Energy Storage Facilities) which includes “. . . a new energy storage facility with the capability to store an energy resource in a quantity that can yield by combustion ≥ 3 PJ of energy.” The section 11 Order describing the scope, procedures, and methods for the environmental assessment of the Project, pursuant to section 11 of BCEAA, was issued by the EAO on December 13, 2019.

On December 19, 2019, the Impact Assessment Agency of Canada (IAAC) determined that a federal impact assessment is required for the Project, pursuant to sections 30, 37d and 52 of the Physical Activities Regulations under the federal *Impact Assessment Act* (IAA). Since that date, Cedar has determined that it will electrify the Project and therefore section 30 of the regulation no longer applies. As such, there are two assessment triggers in the Physical Activities Regulations (SOR/2019-285) under the *Impact Assessment Act*:

- Section 37(d) “The construction, operation, decommissioning and abandonment of . . . a new facility for the liquefaction, storage or regasification of liquefied natural gas, with a liquefied natural gas processing capacity of 3 000 t/day or more or a liquefied natural gas storage capacity of 136 000 m³ or more;”
- Section 52 “The construction, operation, decommissioning and abandonment of a new marine terminal designed to handle ships larger than 25 000 DWT.”

On September 17, 2019, the EAO submitted a substitution request pursuant to the IAA and in accordance with the Canada-British Columbia Impact Assessment Cooperation Agreement. On January 24, 2020, the federal Minister of Environment and Climate Change granted approval for substitution of the federal process with the provincial regulatory review process. As required by the EAO, this draft AIR also meets the requirements of the Cooperation Agreement and additional conditions described in the federal Minister's substitution decision.

The following Indigenous Nations and government agencies will have the opportunity to review and comment on the draft AIR:

Indigenous Nations identified in the section 11 Order:

- Haisla Nation
- Gitga'at First Nation
- Gitxaala Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- Lax Kw'alaams Band
- Metlakatla First Nation
- Haida Nation
- Métis Nation British Columbia

Provincial Agencies:

- British Columbia Oil and Gas Commission
- Climate Action Secretariat
- Ministry of Energy, Mines and Low Carbon Innovation
- Ministry of Environment and Climate Change Strategy
- Ministry of Health
- Ministry of Forests, Lands, Natural Resource Operations and Rural Development
- Ministry of Jobs, Economic Recovery and Innovation

- Ministry of Municipal Affairs
- Ministry of Transportation and Infrastructure

Federal Agencies:

- Canadian Coast Guard
- Environment and Climate Change Canada
- Employment and Social Development Canada
- Fisheries and Oceans Canada
- Health Canada
- Indigenous Services Canada
- Impact Assessment Agency of Canada
- Innovation, Science and Economic Development Canada
- Natural Resources Canada
- Public Safety Canada
- Transport Canada
- Women and Gender Equality Canada

Municipal and Regional Agencies:

- City of Terrace
- District of Kitimat
- Northern Health
- Regional District of Kitimat-Stikine

Cedar will respond to comments received from Indigenous Nations, government agencies, and the public on the draft AIR, and prepare and re-submit a revised draft AIR to the EAO. The EAO will finalize the AIR once revisions resulting from consultation with government agencies, Indigenous Nations, and the public have been incorporated. The Application will be prepared in accordance with the finalized AIR issued by the EAO.

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TABLE OF CONCORDANCE

A Table of Concordance, in the format shown below, will be included in the Application to demonstrate where the requirements in the AIR are found in the Application.

Table 1: Table of Concordance between Approved AIR and the Application

AIR Section, Title and Page Number	Information Requirement	Information Location in Application (Application Section, Title, Page Number and Appendix)

ABBREVIATIONS AND ACRONYMS

- AIA – Archaeological Impact Assessment
- AIR – Application Information Requirements
- BCEAA – British Columbia *Environmental Assessment Act* (2002)
- CA – census agglomerations
- CAAQS – Canadian Ambient Air Quality Standards
- CAC – criteria air contaminant
- CO – carbon monoxide
- COSEWIC – Committee on the Status of Endangered Wildlife in Canada
- CRIMS – British Columbia Coastal Resource Information Management System
- CSD – Statistics Canada Census Subdivision
- dBA – A-weighted sound pressure levels
- dBLC – weighted sound pressure levels
- DFO – Fisheries and Oceans Canada
- EAC – Environmental Assessment Certificate
- EAO – Environmental Assessment Office
- ECCC – Environment and Climate Change Canada
- FLNG – Floating LNG
- FMA – Fisheries Management Area
- FNIGC – First Nations Information Governance Center
- GBA+ – gender-based analysis plus
- GHG – greenhouse gas
- ha – hectare

- HADD – harmful alteration, disruption or destruction of fish habitat
- HCA – *Heritage Conservation Act*
- IAA – *Impact Assessment Act*
- IAAC – Impact Assessment Agency of Canada
- IR – Indian Reserve
- km – kilometre
- kV – kilovolt
- LAA – local assessment area
- LNG – liquefied natural gas
- LPG – liquefied petroleum gas
- m – metre
- m³ – cubic metre
- MWLAP – Ministry of Water, Land and Air Protection
- N – nitrogen
- NO₂ – nitrogen dioxide
- NO_x – nitrogen oxides
- OGC – British Columbia Oil and Gas Commission
- PM₁₀ – inhalable particulate matter
- PM_{2.5} – respirable particulate matter
- RAA – regional assessment area
- RDA – Regional District Electoral Area
- RDKS – Regional District of Kitimat-Stikine
- S – sulphur

- SARA – *Species at Risk Act*
- SO₂ – sulphur dioxide
- TDR – Technical Data Report
- TEM – Terrestrial Ecosystem Mapping
- TEU – twenty-foot equivalent unit
- VC – valued component

APPLICATION SUMMARY

The Application will include an executive summary that includes the following:

- A summary description of the Project, including the assessment scope.
- A brief overview of engagement approaches with Indigenous Nations, the public and government agencies to date.
- A summary of the key issues raised by Indigenous Nations, the public and government agencies.
- A summary of key effects (positive and adverse), proposed mitigation and enhancement measures and residual and cumulative effects.
- A summary of key effects on Indigenous Nations and their rights and proposed mitigation measures.

1.0 PROJECT OVERVIEW

This section of the Application will provide information on Cedar LNG Partners LP, by its general partner Cedar LNG Partners (GP) Ltd. (Cedar), the project context, a description of the Cedar LNG Project (the Project), and consideration of alternative means of carrying out the Project.

1.1 Project Context

The Application will provide a high-level overview of the Project including:

- The type of project
- The objective of the Project
- A statement of the general Project location and names of the nearest communities
- Discussion of the relevant history of the Project, including exploratory or investigative history

1.2 Proponent Description

This section of the Application will:

- Describe Cedar, including company history, type of company or organization, and affiliations/partnerships
- Provide contact information for Cedar representatives for the Project (e.g., name, address, phone, email)
- Identify the parties that contributed to preparation of the Application. An appendix will identify key personnel responsible for preparing the Application including their qualifications and the sections for which they were responsible.

Cedar is a Haisla Nation-led partnership with Pembina Pipeline Corporation. The Project is anticipated to be the first Indigenous-majority owned liquefied natural gas (LNG) export facility in Canada, providing unprecedented opportunity for both Haisla Nation and the region. The business philosophy of Haisla Nation is to advance commercially successful initiatives and to promote environmentally responsible and sustainable development, while minimizing impacts on land and water resources, partnering with Indigenous Nations and non-Indigenous persons, working with joint venture business partners, and promoting and facilitating long-term development opportunities.

This philosophy fits with Haisla Nation's Comprehensive Community Plan entitled *duu'duks'wa ci'mo'ca*, which means "our vision" in the Haisla language. The Comprehensive Community Plan identifies nine inter-connected community goals required to achieve Haisla Nation's vision of a strong, independent and proud nation that is healthy in mind, body and spirit. These nine community goals are:

- **Housing**—Increase access to healthy, affordable, suitable housing for all members
- **Language and Culture**—Revitalize Haisla language and cultural practices
- **Youth**—Support the growth and development of Haisla children and youth to be strong, successful, and independent
- **Education**—Provide high quality education, capacity building, and employment training for all members
- **Economic Development**—Promote economic development that respects community values and creates employment, and skills development opportunities for members
- **Elders**—Support Haisla Elders and facilitate intergenerational learning opportunities
- **Environment**—Protect and steward Haisla Nation's traditional territory, including fisheries and watersheds
- **Health and Well-being**—Support physical, spiritual, and emotional health and well-being through holistic programs that reflect Haisla culture
- **Community Safety**—Support Haisla Nation members to feel safe and secure in their communities

Throughout the development of the Project, Cedar and the Haisla Nation will work to leverage opportunities to advance these goals.

Contact information for Cedar and the primary contact person for the assessment process is provided in Table 1.2.1.

Table 1.2.1: Proponent Information

Name of the Designated/Reviewable Project	Cedar LNG Project
Name of the Proponent	Cedar LNG Partners LP, by its general partner Cedar LNG Partners (GP) Ltd.
Proponent Corporate Address	4000, 585 – 8th Avenue S.W. Calgary, Alberta T2P 1G1
Proponent Contact Information	604.245.1002
Company Website	cedarlng.com
Company President	Doug Arnell
Primary Contacts	Jon Turner, 604.245.1002 Lara Taylor, 604.245.1002

1.3 Project Location

The Application will describe the Project's location and marine shipping route.

The Project is located in the District of Kitimat (Figure 1.3.1) and includes both onsite and offsite components. Onsite components will be located within District Lot 99 and the adjacent Water Lot A (Lot A District Lot 5469), which is called the Project Area (Figure 1.3.2). The Project Area encompasses an area of approximately 125 ha. In addition, an approximate 500 metre (m) buffer (safety awareness zone) around the anticipated marine terminal components will be required. Offsite components include an approximately 8 kilometre (km) long transmission line corridor from the Minette Substation to the Project Area, and marine shipping between the Project Area and the pilot boarding location at or near Triple Island.

When transiting to and from the Project Area, LNG carriers will follow a well-established deep-sea shipping route open year-round (Figure 1.3.3). LNG carriers would enter Canadian waters through Dixon Entrance north of Haida Gwaii, proceed eastward and then southward through Hecate Strait, and continue their transit into Browning Entrance at the northern extent of Principe Channel. Vessels will follow a route south through Principe Channel before navigating through Nipean Sound, Otter Channel, Lewis Passage, Wright Sound, and Douglas Channel.

Descriptions of the following features will be included in the Application:

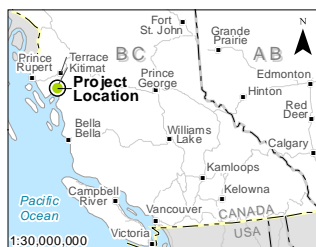
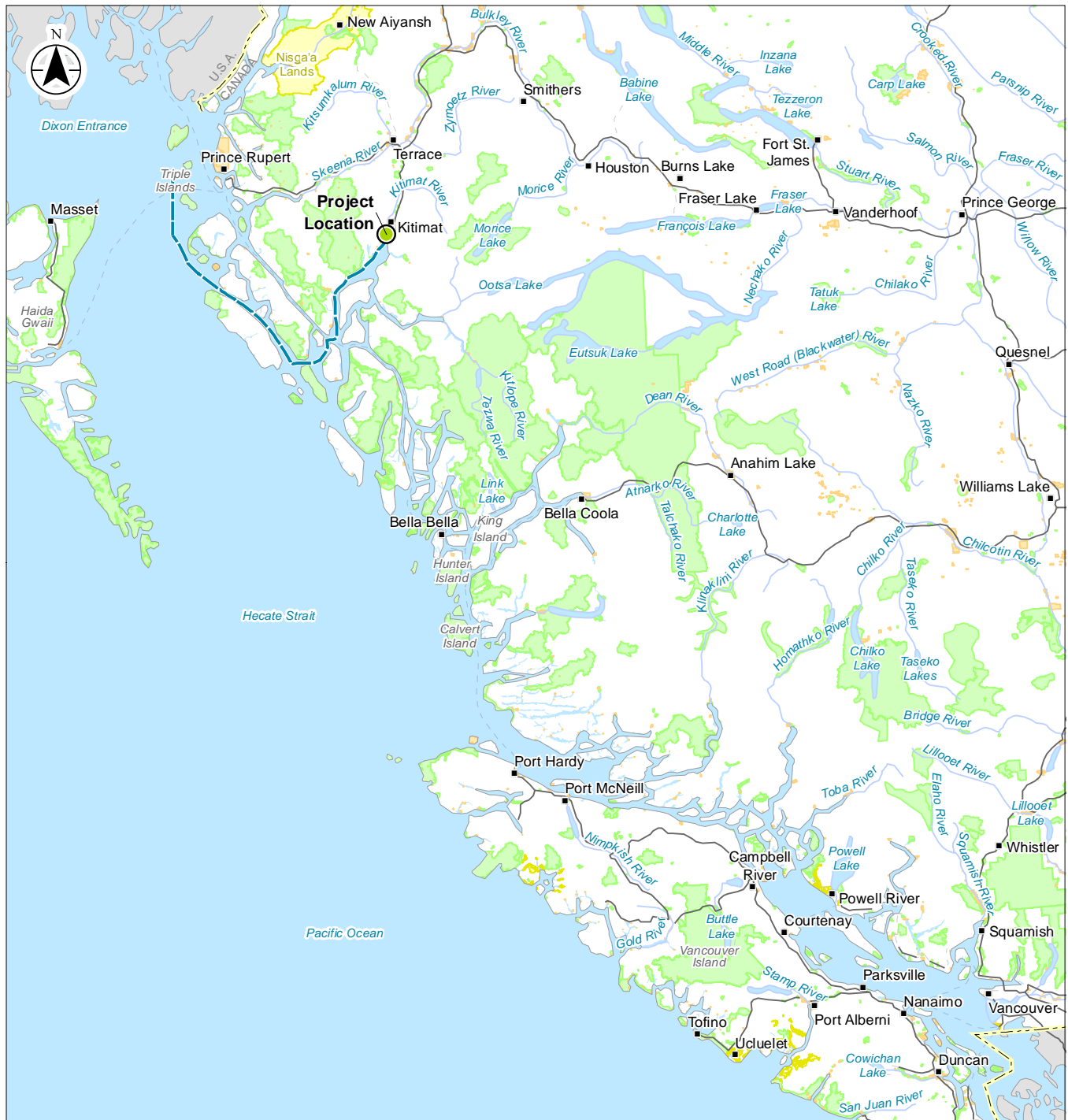
- Project Area, including the latitude and longitude coordinates
- Land lease and other tenure agreements required for project infrastructure
- Project access route, transportation corridors, and navigable waters

- Environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, marine protected areas, marine refuges, ecologically and biologically sensitive areas, wildlife habitat areas, old growth management areas, ungulate winter ranges, wetlands, estuaries, habitats of federally or provincially listed species at risk and other identified sensitive areas.
- Current land and marine uses in proximity to the project infrastructure and shipping route
- Lands subject to conservation agreements in proximity to the project infrastructure
- The locations of potable drinking water sources in proximity to the project infrastructure (municipal or private)
- Local and Indigenous communities, including distances to these communities
- Indigenous traditional territories and/or consultation areas, Treaty and/or Title lands, and Reserve lands
- Summary of culturally and locally important features of the landscape

Where more detail is provided in another section of the Application (e.g., on land use) a reference to the relevant section will be included.

The following information will be included on maps:

- On- and off-site project components
- Indigenous traditional territories and/or consultation areas, Treaty and/or Title lands, and Reserve lands
- Local and Indigenous communities
- International, provincial, and territorial boundaries, where applicable
- Parks and protected areas
- Legally protected wildlife habitat



Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Highway
- - - Resource Road
- - - Ferry Route
- Watercourse
- Waterbody
- Reserve Land
- Treaty Lands
- Park or Protected Area
- Project Location
- Marine Shipping Route (Approximate Location)

0 50 100 150 km
 1:4,000,000 (at original document size of 8.5x11)



Project Location: Kitimat, British Columbia
 Project Number 123221301
 Prepared by LTRUDELL on 20210603
 Discipline Review by WPRYSTAY on 20210603

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

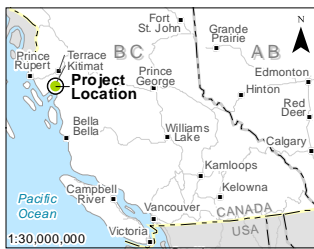
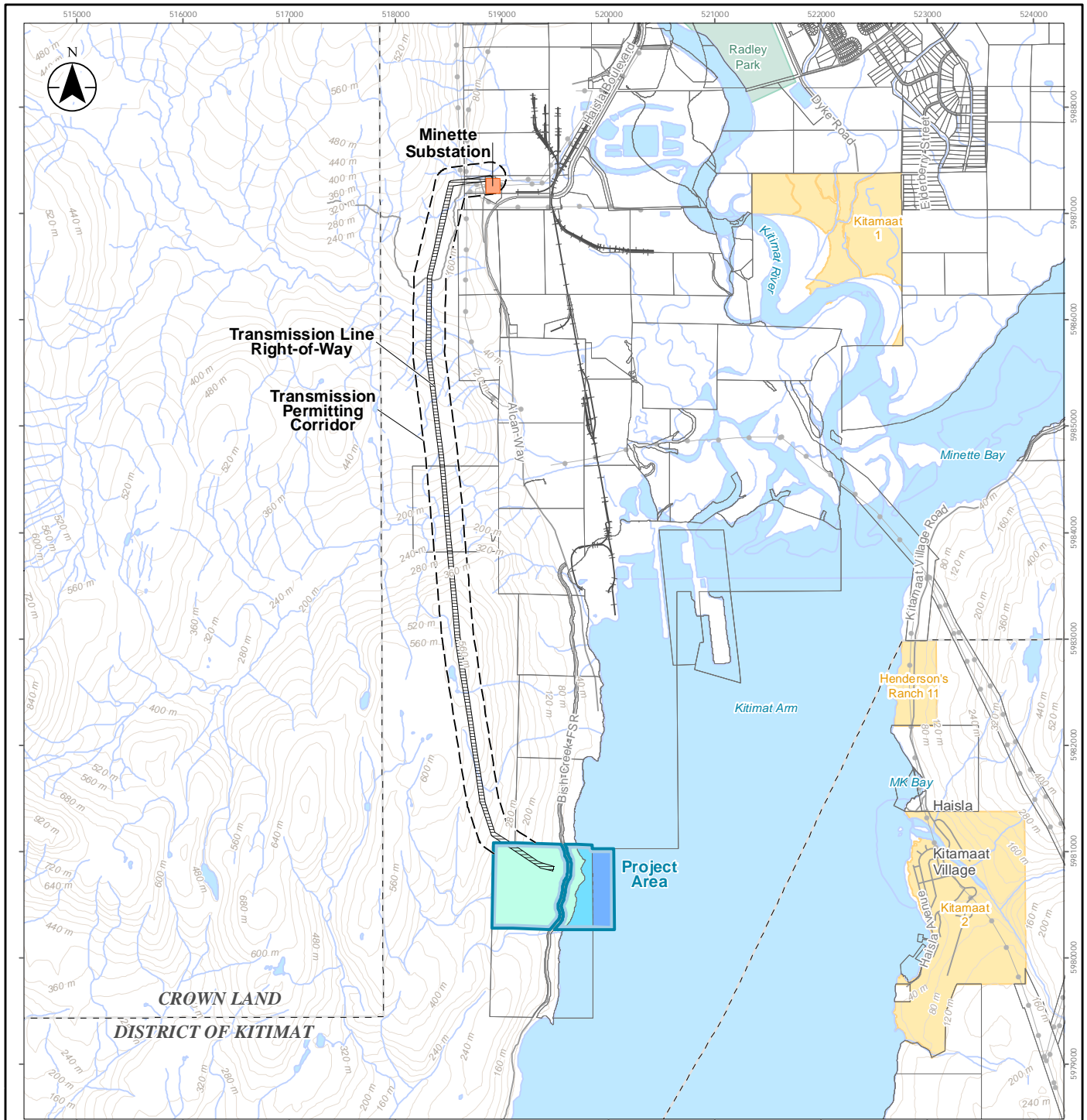
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1.3.1

Title

Cedar LNG Project Location

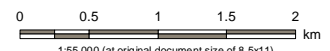
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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Road
- Railway
- Transmission Line
- Topographic Contour (40 m)
- Waterbody
- Cadastral (Legal Lot) Boundary
- Reserve Land
- Local Greenspace
- District of Kitimat
- Municipal Boundary
- Minette Substation

- Project Area
- Transmission Line Right-of-Way
- Transmission Permitting Corridor (300 m wide)
- Parcel Owned by Haisla Enterprise Ltd.**
 - District Lot 99, Plan 14740, PID 013-061-267
 - Water Lot A, Plan EPP 14217, PID 029-462-142
- Proposed Crown Lease**
 - Conceptual Water Lot



Project Location: Kitimat, British Columbia
 Project Number 12321301
 Prepared by LTRUDELL on 20210603
 Discipline Review by WPRYSTAY on 20210603

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

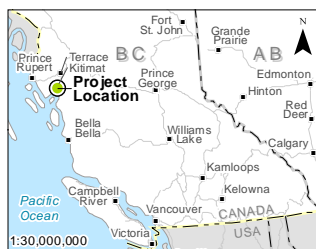
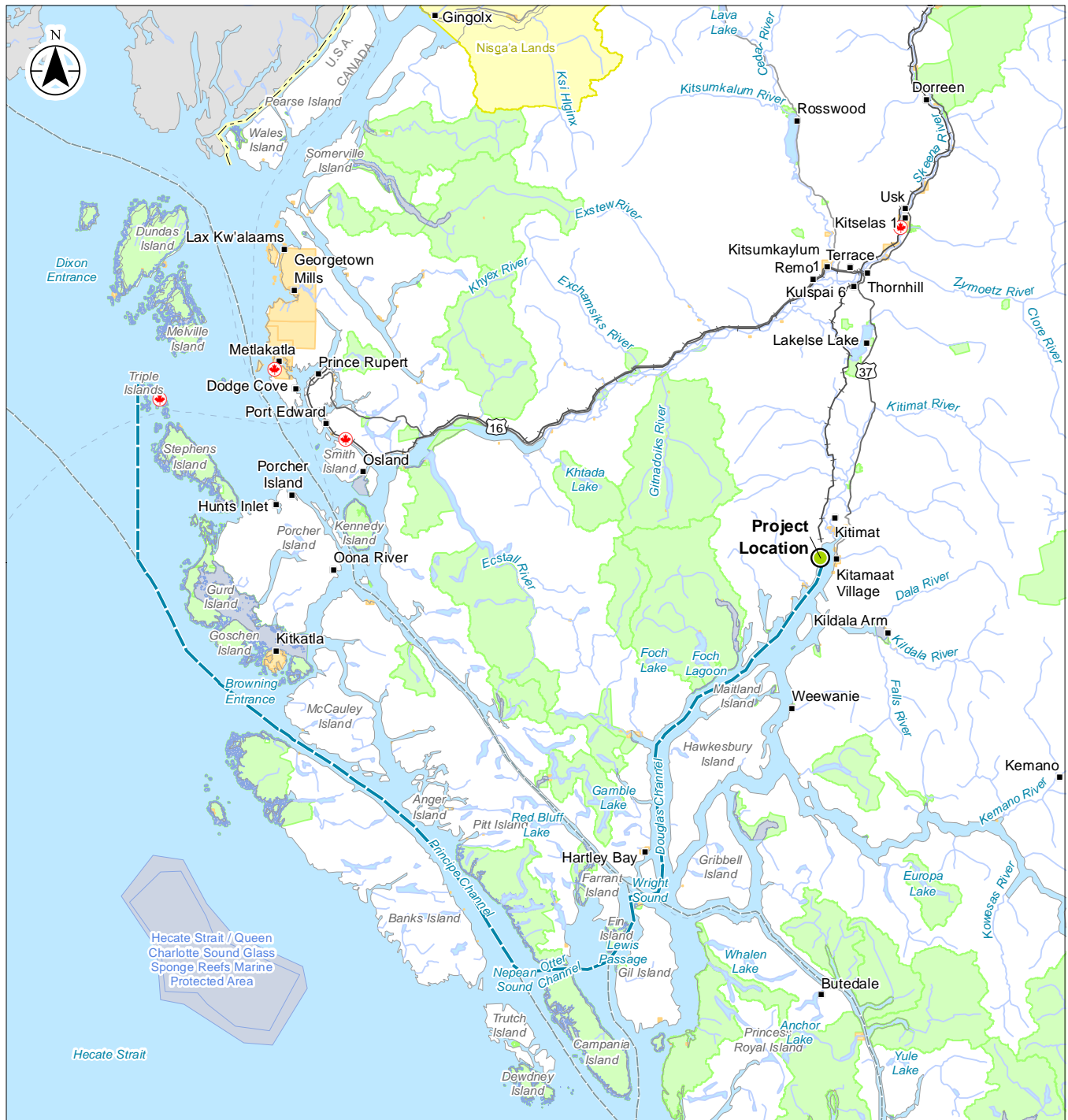
Figure No.

1.3.2

Title

Cedar LNG Project Area

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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- International Boundary
- Highway
- Road
- Ferry Route
- Shipping Route
- Railway
- Watercourse
- Waterbody
- Reserve Land
- Treaty Lands
- Park or Protected Area
- Marine Park, Ecological Reserve, Protected Area or Conservancy Area
- Project Location
- Marine Shipping Route (Approximate Location)
- ★ National Historic Site of Canada

0 10 20 30 40 km
 1:1,250,000 (at original document size of 8.5x11)



Project Location: Kitimat, British Columbia
 Project Number 123221301
 Prepared by LTRUDELL on 20210603
 Discipline Review by WPRYSTAY on 20210603

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

Figure No.

1.3.3

Title

Cedar LNG Project Marine Shipping Route

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1.4 Project Components

The Application will provide a description of the project components including:

- Onsite infrastructure, facilities, and components
- Offsite infrastructure, facilities and components determined to be within the scope of the Project in the section 11 Order
- Confirmation that the Project will use electricity from BC Hydro and that gas-fired turbines (i.e., self-generation) will not be used
- A map showing the locations of the onsite and offsite infrastructure, facilities, and components

As outlined in the section 11 Order, the Project consists of the following onsite components and facilities:

- Floating LNG (FLNG) facility – A purpose-built, permanently-moored floating natural gas liquefaction facility with capacity of approximately three million tonnes annually using established liquefaction technology
- Marine terminal – A dedicated terminal providing security, material on- and off-loading capability, power and pipeline to FLNG tie-ins, fire protection/suppression, and an optional small craft (tug) jetty
- Supporting infrastructure – Land-based supporting infrastructure, including warehouses, substation, security building, parking, utilities, access roads
- Temporary infrastructure and facilities, including laydown areas and construction offices

Associated offsite components and activities related to the Project are:

- Transmission line – An approximately 8 km long 287 kV transmission line
- The operation of LNG carriers and other supporting marine traffic along the marine shipping route between the marine terminal and the pilot boarding location at or near Triple Island

The Application will also provide a summary of the changes that have been made to the Project since submission of the August 2019 Initial Project Description and December 2019 Detailed Project Description, including rationale for the changes.

1.5 Project Activities

The Application will provide a description of the key activities that will occur during the construction, operations, and decommissioning phases of the Project, including their proposed scheduling. Proposed scheduling will identify time of year, frequency, and duration for key project activities, as applicable. This will include a discussion of shipping activities. Any overlapping phases will be described.

1.6 Operational Waste Management

The Application will describe the anticipated major liquid effluents, air emissions and solid wastes that will be generated during operation of the Project.

1.7 Workforce Requirements

The Application will describe the anticipated labour requirements, employee programs and policies, and workforce development opportunities for the Project, including:

- Opportunities for employment, outlining the anticipated number of positions (full time equivalents) to be created for each project phase.
- Skills and education levels for key positions
- Investment in training opportunities
- Expected workforce requirements based on the National Occupational Classification system and timelines for employment opportunities.
- Anticipated work rotation schedules and means to get employees to the project site (e.g., fly-in/fly-out, bus)
- Anticipated housing arrangements for the workforce for each project phase
- Anticipated hiring policies including hiring programs
- Workplace policies and programs for Indigenous employment and employment of other underrepresented groups
- Employee assistance programs and benefits including career planning, employee counselling, family support, transition planning, pension plan and group insurance benefit plans.
- Workplace policies and programs including codes of conduct, workplace safety programs and cultural training programs.

1.8 Alternative Means of Carrying out the Project

The Application will identify and consider alternative means of carrying out the Project that are technically and economically feasible, including through the use of best available technologies, and the potential effects, risks, and uncertainties of those alternatives. Considerations include, but are not limited to, alternative technologies, processes, mitigation, and design.

The Application will describe the alternative means considered. Cedar has evaluated and is evaluating a number of alternative designs and technologies for the Project, including:

- Location of the liquefaction units and storage (land-based or floating)
- Alternative cooling options for the liquefaction process
- Alternative marine terminal and jetty designs (one jetty or two jetties)
- Alternative power supply options (100% electrification, self-generation, or a combination thereof)

For each of the alternative means of carrying out the Project, the Application will:

- Describe the criteria used to determine the technical and economic feasibility of the alternative means
- Identify alternative means that are technically and economically feasible.
- Describe the criteria for comparing the alternative means that are technically and economically feasible and identify the preferred means. Criteria will include consideration of the following factors and may also include economic, logistic or other factors relevant to the comparison:
 - Environmental, economic, social, heritage and health effects
 - Effects to Indigenous interests
 - Effects on greenhouse gas (GHG) emissions
 - Risks and uncertainties
- Identify the potential effects, risks, and uncertainties of each technically and economically feasible alternative means of carrying out the Project.
- Identify the preferred means of carrying out the Project.
- Discuss how best available technologies (if applicable) have been considered in identifying the preferred means.

- Summarize the potential effects, risks and uncertainties of the preferred means and how these are assessed in the Application (with reference to other parts of the Application where applicable for more detail).
- Where alternative means for carrying out the project result in corresponding changes to the health, social, or economic conditions, Gender-Based Analysis Plus (GBA+) and the provincial guidelines on Human and Community Well-being will be applied to the effects analysis to describe disproportionate effects on distinct human populations who may be more vulnerable to adverse effects. The proponent will also consider the views or information provided by Indigenous nations, the public and other participants in establishing parameters to compare the alternative means.

2.0 REGULATORY FRAMEWORK

The Application will provide an overview of the assessment process, relevant policies, initiatives, and assessments, land and marine use plans, Indigenous Nation arrangements, and permitting.

2.1 Assessment Process

This section of the Application will provide an overview of the anticipated assessment process for the Project to meet provincial and federal requirements, with federal requirements substituted with the provincial assessment.

The Application will include:

- A statement that the Project is reviewable under the Reviewable Projects Regulation (BCEAA) and the Physical Activities Regulations (IAA) and identification of the trigger(s) for its review.
- A high-level overview of the assessment process.
- A statement that the Application has been developed pursuant to the Application Information Requirements (AIR) approved by Environmental Assessment Office (EAO) and complies with relevant instructions provided in the section 11 Order and any other direction provided by EAO.
- An overview of the approach to address the requirements for a substituted assessment (e.g., how the federal requirements align with the valued component (VC) selection and assessments).

2.2 Relevant Policies, Initiatives and Assessments

The Application will identify government policies, study initiatives, and regional and strategic assessments relevant to the Project and/or the assessment, and their implications (e.g., Clean BC Plan and government GHG reduction targets).

2.3 Land and Marine Use Plans

The Application will summarize any land and marine use plans of a government (provincial, federal, or an Indigenous Nation) that may be relevant to the Project and consider whether the Project is consistent with the identified plans.

The physical components of the Project are located entirely within the municipal boundaries of the District of Kitimat and the traditional territory of Haisla Nation. The land is privately owned by Haisla Nation and zoned for industrial and port development by the District of Kitimat's Official Community Plan. The marine shipping route passes through the marine traditional territories of eight Indigenous Nations.

The following land use plans apply to the Project:

- District of Kitimat's Official Community Plan and the Kitimat Municipal Code Bylaw Part 9 (Planning)
- Kalum Land and Resource Management Plan

The following marine use plans apply to the Project and/or its marine shipping route:

- Pacific North Coast Integrated Management Area
- Marine Plan Partnership for the North Pacific Coast
- Indigenous Nation Marine Plans:
 - Haisla Community Marine Use Plan
 - Gitga'at Marine Use Plan
 - Gitxaala Marine Use Plan
 - Interim Land and Marine Resource Plan of the Allied Tsimshian Tribes of Lax Kw'alaams Band
 - Metlakatla Draft Marine Use Plan
 - Kitsumkalum Marine Use Plan

2.4 Indigenous Nation Arrangements

The Application will identify and describe how the assessment has considered the following arrangements:

- Any applicable arrangements between federal or provincial governments and Indigenous Nations that are pertinent to the Project (e.g., any treaty, self-government, land claims).
- Any agreements between Cedar and Indigenous Nations applicable to the assessment of the Project.

2.5 Permitting

The Application will provide a summary of the anticipated federal, provincial and municipal permits required for the Project, as well as any permitting updates relative to the information provided in the Permitting Plan developed by Impact Assessment Agency of Canada (IAAC) and EAO to indicate any new anticipated permitting requirements not previously identified.

3.0 PUBLIC ENGAGEMENT

The Application will:

- Describe Cedar's ongoing and proposed public engagement activities regarding the Project.
- Describe the efforts made to distribute project information and the information and materials that were distributed during the consultation process. This section of the Application will also describe the methods used, where the consultation was held, organizations and groups consulted, the views expressed and the extent to which this information was incorporated in the design of the Project as well as in the Application.
- Summarize key issues that were raised through engagement with the public and stakeholders and the potential environmental, economic, social, heritage and health effects that were identified, including disproportionate effects, for diverse subgroups within the population and effects to current and future generations.
- Describe how Cedar will address the issues raised during public consultation (e.g., through alternative means, mitigation measures, monitoring programs, adaptive management to deal with uncertainty).
- Identify public concerns that were not addressed (if any) along with the reasons that the concerns were not addressed.
- Provide details regarding how Cedar will keep the public involved in the Project if it is approved and proceeds.

Cedar's plans for public consultation are outlined in the Public Consultation Plan, available on the EAO's EPIC website (<https://www.projects.eao.gov.bc.ca/>). Cedar will also prepare Public Consultation Reports as required by the section 11 Order. These reports will also be available on the EAO's EPIC website.

4.0 LOCAL GOVERNMENT ENGAGEMENT

The Application will:

- Describe the process for engaging local governments potentially affected by the Project.
- Describe Cedar's ongoing and proposed local government engagement activities regarding the Project.
- Describe the efforts made to distribute project information and the information and materials that were distributed during the consultation process. This section of the Application will also describe the methods used, where the consultation was held, the views expressed and the extent to which this information was incorporated in the design of the Project as well as in the Application.
- Provide a summary of key issues related to the Project that were raised through engagement with local government and the potential environmental, economic, social, heritage and health effects that were identified, including disproportionate effects on distinct human populations and effects to current and future generations.
- Describe how Cedar will address issues raised during local government consultation (e.g., alternative means, mitigation measures, monitoring programs, adaptive management to deal with uncertainty).
- Summarize local government concerns that were not addressed (if any) along with the reasons that the concerns were not addressed.
- Provide details regarding how Cedar will keep local governments involved in the Project if it is approved and proceeds.

Cedar's plans for consultation with government agencies, including local governments, are outlined in the Agency Consultation Plan, available on the EAO's EPIC website (<https://www.projects.eao.gov.bc.ca/>). Cedar will also prepare Agency Consultation Reports as required by the section 11 Order. These reports will also be available on the EAO's EPIC website.

5.0 VALUED COMPONENT SELECTION

Cedar outlined its proposed approach to VC selection in the Valued Components Selection document (Appendix B) which will undergo review by the EAO, working group and Indigenous Nations identified on the section 11 Order for the Project. Once the VCs selected for inclusion in the assessment are confirmed, the rationale for their selection will be summarized in Table 5.0.1. The VCs included herein are consistent with those presented for review in the Valued Components Selection document.

Table 5.0.1: Valued Components

Pillar	Valued Component (VC)	Reason for Selection
Environmental Assessment	Air Quality	The Project may have emissions that affect the atmospheric environment through construction, operation and/or decommissioning of the LNG facility. This includes emissions from LNG carriers and tugboats at or near the Project's marine terminal and along the marine shipping route during operations. Changes to the atmospheric environment could affect human health, and acidification/eutrophication from sulphur and/or nitrogen deposition may affect vegetation resources and/or surface water quality.
	Acoustic	Construction, operation, and decommissioning of the Project will have noise emissions that may affect the acoustic environment. Changes to the acoustic environment could affect human health and wildlife behaviour in the vicinity of the Project.
	Freshwater Fish	Project development may affect freshwater fish and fish habitats, due to construction, operation, and decommissioning of the Project infrastructure and changes in water quality. The IAA requires assessment of potential effects to fish and fish habitat. Indigenous communities and the public are concerned about effects on fisheries.
	Marine Resources	The Project has the potential to affect marine resources through construction of the marine infrastructure and changes to water quality through marine shipping and transportation. This includes the potential to affect marine resources through underwater noise from Project construction and operation, including LNG carriers. The IAA requires assessment of potential effects to fish and fish habitat and aquatic species. Indigenous communities and the public are concerned about effects on fisheries and marine mammals.
	Vegetation Resources	The Project has the potential to affect vegetation and wetland resources through clearing and site preparation. The Project has the potential to cause indirect effects on vegetation communities (e.g., air emissions may cause changes in soils). Wetland conservation is of importance to federal and provincial governments and Indigenous Nations.
	Wildlife	Site clearing will result in the loss or alteration of wildlife habitat which could affect wildlife movement patterns and mortality risk. The IAA requires assessment of potential effects on migratory birds. Ministry of Environment and Climate Change Strategy and Environment and Climate Change Canada are concerned with protecting breeding birds and species at risk. Indigenous communities are concerned about effects on species they hunt or that have cultural importance.

Pillar	Valued Component (VC)	Reason for Selection
Economic Assessment	Employment and Economy	Federal, provincial and municipal governments, the public and Indigenous Nations will want to understand potential pressures and benefits of the Project on employment, cost of living, and economic trends.
Social Assessment	Infrastructure and Services	Project construction activities may place pressure on local and regional infrastructure and services. Population changes associated with the Project may increase the demand for housing and accommodations and place additional demand on local and regional infrastructure. Project-related business growth and increased incomes for residents may affect community infrastructure and services.
	Land and Resource Use	Construction and operation of the Project may affect access and use of private and Crown lands. The Project may affect non-tenured land-uses including both consumptive (e.g., hunting, fishing, trapping, and vegetation gathering) and non-consumptive (e.g., hiking and off-road vehicle operation) uses, and visual quality.
	Marine Use	Floating infrastructure and shipping activities associated with the Project have the potential to affect marine use, including fishing, and navigation. Population-related effects of the Project can also increase pressure on marine fisheries.
Heritage Assessment	Heritage	Project activities may result in the alteration, disturbance, or destruction of archaeological or heritage resources. Indigenous communities are concerned with impacts to archaeological sites.
Health Assessment	Human Health	Project construction, operation and decommissioning may result in an increase in air and noise emissions that may affect human health. Where the Project affects the chemistry of the air, soil or water in a manner that influences human health, health-related topics such as air quality, drinking water quality, and country food chemistry will be considered.

5.1 Scope of the Assessment

The Application will outline the VCs selected for assessment (see Appendix B) as well as the scope of the assessment for each VC, including regulatory and policy setting, and the selection of potential effects and indicators to measure potential effects. When a VC is considered a “pathway” for potential effects on another VC, the Application will identify such linkages. This will include a discussion on electromagnetic fields from the power transmission line between the Project substation and BC Hydro Minette Substation.

6.0 VALUED COMPONENT ASSESSMENT METHODS

The Application will describe the methods used to assess the potential effects of the Project on VCs.

The proposed methods meet the requirements under BCEAA and the IAA as well as those included in the section 11 Order for the Project. The proposed methods also take into consideration the most recent guidance on effects assessment issued by the EAO (EAO 2020a). The assessment takes a structured approach that first identifies the Project’s potential effects then assesses potential adverse cumulative effects. Cumulative effects are defined as the residual effects of the Project that have the potential to interact with the effects of other past, present or reasonably foreseeable projects or activities. Mitigation measures to reduce or eliminate potential adverse effects and enhancement measures to increase potential positive effects will be described.

The key steps in the assessment include:

- Scoping the assessment, including describing the relevant statutes, policies and frameworks applicable to the assessment, and identifying potential effects and indicators
- Discussing the influence of consultation and engagement on the assessment
- Defining assessment boundaries, spatial (local and regional assessment areas), temporal, administrative and technical as applicable
- Describing the existing conditions in the local and regional assessment areas
- Assessing Project-specific effects, including positive and adverse effects. This includes identification of mitigation measures to reduce or avoid adverse effects and enhancement measures to increase positive effects.
- Assessing cumulative effects
- Describing the follow-up strategy

Figure 6.0.1 provides an overview of the key assessment steps identified in EAO’s *Effects Assessment Policy (Version 1.0)* (2020a).

Figure 6.0.1: Summary of the Effects assessment Steps



Best available science, Indigenous knowledge and local knowledge will be considered and integrated throughout the assessment process. The Application will describe how scientific, Indigenous, and local knowledge was used in the assessment. For Indigenous knowledge, the Application will outline how Indigenous knowledge was used in alignment with the Indigenous knowledge policies and protocols of each Indigenous Nation that provided this information. Further, the Application will confirm that the Indigenous Nation has provided consent for the use and public disclosure of the Indigenous knowledge, and that the Indigenous Nation agrees that the Indigenous knowledge has been appropriately characterized within the Application.

6.1 Relevant Statutes, Policies and Frameworks

The Application will summarize the regulatory and planning context for the management of the VC, including relevant legislation, policies and frameworks specific to the VC. These may include various acts, regulations, policies, standards, cooperation agreements, and/or decision-making frameworks including Indigenous legislation or policy.

6.2 Assessment Boundaries

The Application will describe the spatial, temporal, administrative and technical boundaries of each VC to be used in assessing the potential effects, describe the methods used to identify the boundaries and provide a rationale for each boundary. Information on boundaries for each VC will be included in the appropriate VC sections of the Application, and will encompass all relevant project phases, components and activities. No transboundary effects are expected outside of British Columbia or Canada's jurisdiction. The spatial boundary maps for VCs will clearly identify any Project components located on lands and waters that lie within federal jurisdiction or treaty lands.

The following spatial boundaries are proposed to be used in the effects assessment:

- Local assessment areas (LAA) for each VC, as described in Table 6.2.1
- Regional assessment areas (RAA) for each VC, as described in Table 6.2.2

The Project footprint will encompass the physical footprint of onsite and offsite components (i.e., the extent of planned clearing and development within the Project Area and transmission line corridor). To be conservative, assessment areas are based on the entire combined extent of the Project Area and transmission line corridor, as shown on Figure 1.3.2. It is expected that as design of the Project progresses, the Project footprint will be refined, for example to exclude portions of the Project Area that will not be developed. The Application will include maps of the watershed(s) and potentially impacted watercourses and waterbodies, including known watercourse crossings.

Table 6.2.1: LAA Boundaries

VC	LAA Boundaries and Rationale
Air Quality	<p>The LAA for the air quality assessment of the FLNG facility will be based on the results of air dispersion modelling centered on the Project Area. The domain is determined to encompass predicted concentrations that are 10% of the applicable regulatory criteria.</p> <p>The LAA for the plume behaviour study of Project-related operational marine transportation emissions along the shipping route extends 3 km in all directions along the shipping route. This LAA is separate from the LAA for the air quality assessment of the FLNG facility.</p>
Acoustic	<p>The acoustic assessment includes a combined LAA and RAA of 3 km in all directions from the Project Area, shipping route and transmission line corridor.</p> <p>The LAA extends 3 km from the Project Area to encompass the nearest community, Kitamaat Village (Kitamaat 2). The OGC guidance requires environmental noise impacts to be assessed to 1.5 km from the Project, which is also assessed separately.</p>
Freshwater Fish	<p>To consider potential effects associated with land-based infrastructure, the LAA includes the Project footprint plus up to 100 m upstream and 300 m downstream from potentially affected stream and riparian habitat on smaller streams and 1 km downstream on large streams (i.e., Moore Creek and Anderson Creek).</p> <p>To assess potential operation-related acidification and/or eutrophication effects on freshwater streams and waterbodies, the acidification and eutrophication LAA is the area with a predicted sulphur plus nitrogen (S+N) deposition level of 100 S+N equivalents per hectare per year ($\text{eq ha}^{-1} \text{yr}^{-1}$) as predicted by air quality modelling for the Project “project alone” scenario as per provincial guidance</p>
Marine Resources	<p>The marine terminal LAA includes the marine portion (i.e., intertidal, subtidal, and pelagic) of the Project Area, plus a minimum 4 km buffer beyond the boundary of this portion of the Project Area. The LAA encompasses the area where the marine terminal construction, operation, or decommissioning may directly interact with marine resources.</p> <p>The shipping LAA includes the confined and open waterways from Kitimat Arm to Triple Island Pilot Boarding Station where Project LNG carriers, tugs and supply vessels could potentially directly interact with marine resources. Where the route is not confined by geography, the LAA extends 10 km on either side of the shipping lane.</p>
Vegetation Resources	<p>The marine terminal LAA includes areas to be disturbed within the Project Area and transmission line corridor (including access roads) plus a 120 m buffer.</p> <p>The air emissions LAA spatial boundaries for assessing change in native vegetation health and diversity due to air emissions will be based on the area predicted to receive sulphur and/or nitrogen deposition that exceed thresholds established by the Ministry of Environment and Climate Change Strategy. This will be determined by air dispersion modelling over a 40 km by 40 km domain centred over the facility site.</p>

VC	LAA Boundaries and Rationale
Wildlife	<p>The marine terminal LAA is defined as a 1 km buffer around the terrestrial portion of the Project Area and transmission line corridor (including access roads). Potential effects on wildlife arising from on-shore and off-shore infrastructure will be assessed within the marine terminal LAA.</p> <p>For the assessment of potential effects to marine birds due to shipping, the shipping LAA is defined as a 1 km buffer around the marine shipping route which encompasses the northern end of Kitimat Arm and extends between the marine terminal and the Triple Island Pilot Boarding Station. The shipping LAA is confined to the marine environment up to the high-tide line.</p>
Employment and Economy	<p>The LAA encompasses communities with the greatest potential to experience effects (positive and adverse) related to Project requirements for labour, goods, and services.</p> <p>The LAA is comprised of the following Statistics Canada Census Subdivisions and Census Agglomerations: Kitimaat Village (Kitimaat 2), Kitimat District Municipality, Terrace CA (this includes the City of Terrace, Kitimat-Stikine E Regional District Electoral Area and Kulsapai 6), Kitselas 1, Kshish 4, Kitsumkaylum 1.</p> <p>Due to the relatively isolated geography of northwest British Columbia, the potential for Project employment and expenditures to result in adverse economic effects beyond the LAA is low. Although individuals from communities outside the LAA might want to obtain employment or otherwise participate economically in the Project, they would likely need to relocate to an LAA community or commute on a rotational basis, as the Project will likely be outside of daily commuting range by road.</p>
Infrastructure and Services	<p>The LAA encompasses communities with the greatest potential to experience effects (positive or adverse) of direct Project demand for infrastructure, services, and accommodations and effects of project-related changes in population, demographics, employment, and income. The LAA aligns with the employment and economy LAA.</p> <p>The LAA is comprised of the following Statistics Canada CSDs and CAs: Kitimaat Village (Kitimaat 2), Kitimat District Municipality, Terrace CA (this includes the City of Terrace, Kitimat-Stikine E RDA and Kulsapai 6), Kitselas 1, Kshish 4 IR, Kitsumkaylum 1.</p> <p>As with the employment and economy LAA, due to the relatively isolated geography of northwest British Columbia the potential for project-related effects outside the LAA is low.</p>
Land and Resource Use	<p>The LAA encompasses the area where changes in access and use of lands and resource could result from development of the Project (i.e., the Project Area and transmission line corridor) and encompasses the physical extent of the combined LAAs used to assess effects on the acoustic, freshwater fish, vegetation resources and wildlife (marine terminal) VCs where project-related activities could conflict with land and resource use.</p>
Marine Use	<p>The LAA encompasses waters where Project marine activities have the greatest potential to adversely affect navigation, fisheries, and other uses. The LAA includes waters surrounding the marine terminal plus confined channels (i.e., Kitimat Arm, Douglas Channel, and Principe Channel) along the marine shipping route and waters extending 6 km on both sides of the marine shipping route between Browning Entrance and the pilot boarding location at or near Triple Island Pilot Boarding Station.</p>
Human Health	<p>The LAA for the human health assessment is a 40 km x 40 km area center over the Project Area. This area is the combined assessment areas of other valued components that may influence human health; specifically, the assessment areas for air quality, acoustics, freshwater fish, vegetation resources, and wildlife. A 3 km LAA is used to consider Project-related operational marine transportation air and acoustic emissions along the shipping route and extends to include the Indigenous communities of Hartley Bay and Kitkatla.</p>
Heritage	<p>The LAA for the heritage and archaeological resources assessment will be the area where clearing and/or ground disturbance (including terrestrial, intertidal and subtidal areas) is required for the Project, (i.e., the Project Area, including the marine portion of the facility) and transmission line corridor.</p>

Table 6.2.2: RAA Boundaries

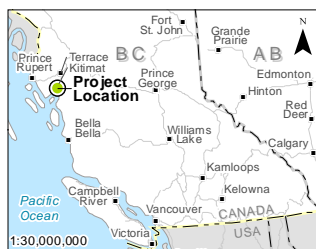
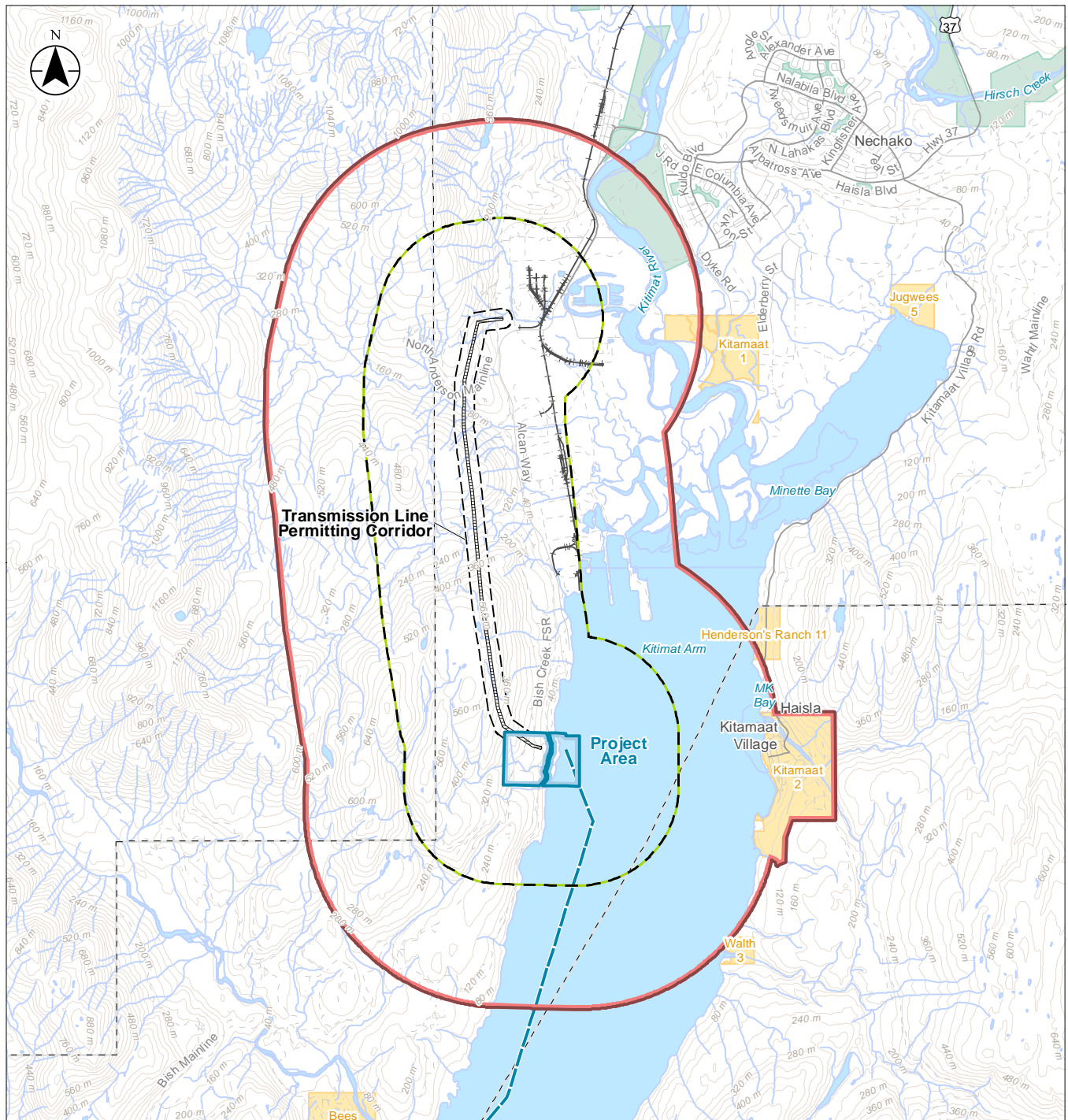
VC	RAA Boundaries and Rationale
Air Quality	The RAA for the FLNG facility air quality assessment is the same as the LAA. The RAA for the plume behaviour study is the same as the LAA.
Acoustic	The RAA for the acoustic assessment is the same as the LAA.
Freshwater Fish	The RAA includes the entirety of the watersheds intersected by the project footprint: Beaver, Anderson, Moore creeks and unnamed tributaries to Douglas Channel. These streams and their tributaries flow into the Kitimat River estuary and Kitimat Arm of Douglas Channel. The acidification and eutrophication RAA is the area with a predicted sulphur plus nitrogen deposition level of 100 S+N eq ha ⁻¹ yr ⁻¹ from air quality modelling the predicted potential cumulative air deposition within a 40 by 40 km air quality modelling domain.
Marine Resources	The marine terminal RAA is a broader marine area (i.e., intertidal, subtidal, and pelagic) of Kitimat Arm extending southward to Emsley Cove, the northern tip of Coste Island and Gobeil Islet to provide regional ecological context. The marine terminal RAA is the area where potential project effects to marine resources during marine terminal construction, operation or decommissioning could interact with existing or reasonably foreseeable projects and activities regionally. The shipping RAA is the same as the shipping LAA.
Vegetation Resources	The marine terminal RAA is the area to be disturbed within the Project Area and transmission line corridor plus a 1 km buffer. The air emissions RAA spatial boundary for assessing change in native vegetation health and diversity due to air emissions is the same as the 40 by 40 km air quality modelling domain.
Wildlife	The marine terminal RAA is defined as a 15 km buffer around the terrestrial portion of the Project Area and transmission line corridor (including access roads) plus portions of Jessie Lake watershed not within the 15 km buffer, which will provide landscape-level context for the assessment of cumulative effects on wildlife. The shipping RAA, for the assessment of potential effects to marine birds due to shipping, is defined as a 10 km buffer around the marine shipping route which encompasses the northern end of Kitimat Arm and extends between the marine terminal and the pilot boarding location at or near Triple Island Pilot Boarding Station. The shipping RAA is confined within the marine environment by the high-tide line.
Employment and Economy	The RAA includes the LAA as well as North Coast Regional District Electoral Areas A&C, and Kitimat Stikine Electoral Areas C and E.
Infrastructure and Services	The RAA includes the LAA as well as North Coast Regional District Electoral Areas A&C, and Kitimat Stikine Electoral Areas C and E.
Land and Resource Use	Within British Columbia, strategic land use planning is completed at the Land and Resource Management Plan (LRMP) area level. LRMPs guide land uses within geographically defined areas of the province. As such, the RAA is defined as the Kalum LRMP area.
Marine Use	Includes the LAA plus a 5 km buffer on each side where not confined by geography.
Human Health	The RAA for the human health assessment is the same as the LAA.
Heritage	The RAA for the heritage and archaeological resources assessment is the same as the LAA.

The following temporal boundaries will be used in the effects assessment:

- **Construction:** up to approximately four years, commencing following receipt of necessary regulatory approvals and a final investment decision by Cedar.
- **Operation:** pursuant to Licence GL-327 issued by the National Energy Board, the Project will operate for 25 years following completion of construction. Cedar may apply to extend GL-327 to a 40-year term. A 40-year lifespan will be used for the purposes of the Application.
- **Decommissioning:** approximately 12 months following the end of operation

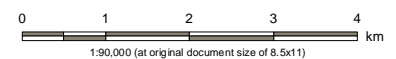
Where applicable, VC-specific temporal boundaries will be described.

Where administrative or technical boundaries have constrained the assessment of potential effects, the nature of the boundaries and their influence on the assessment will be documented in the Application.



Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Highway
- Road
- Local Street
- - - Resource Road
- + - - Railway
- Topographic Contour (40 m)
- Waterbody
- Reserve Land
- Local Greenspace
- District of Kitimaat
- - - Municipal Boundary
- Project Area
- Transmission Line Right-of-Way
- Transmission Permitting Corridor (300 m wide)
- Marine Shipping Route (Approximate Location)
- Cedar LNG Criteria Boundary (1.5 km)
- Acoustic**
- Local Assessment Area
- Regional Assessment



Project Location: Kitimaat, British Columbia
 Project Number 123221301
 Prepared by WWU on 20210629
 Discipline Review by SZABANI on 20210629

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

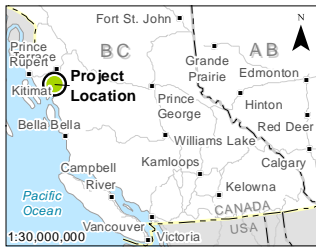
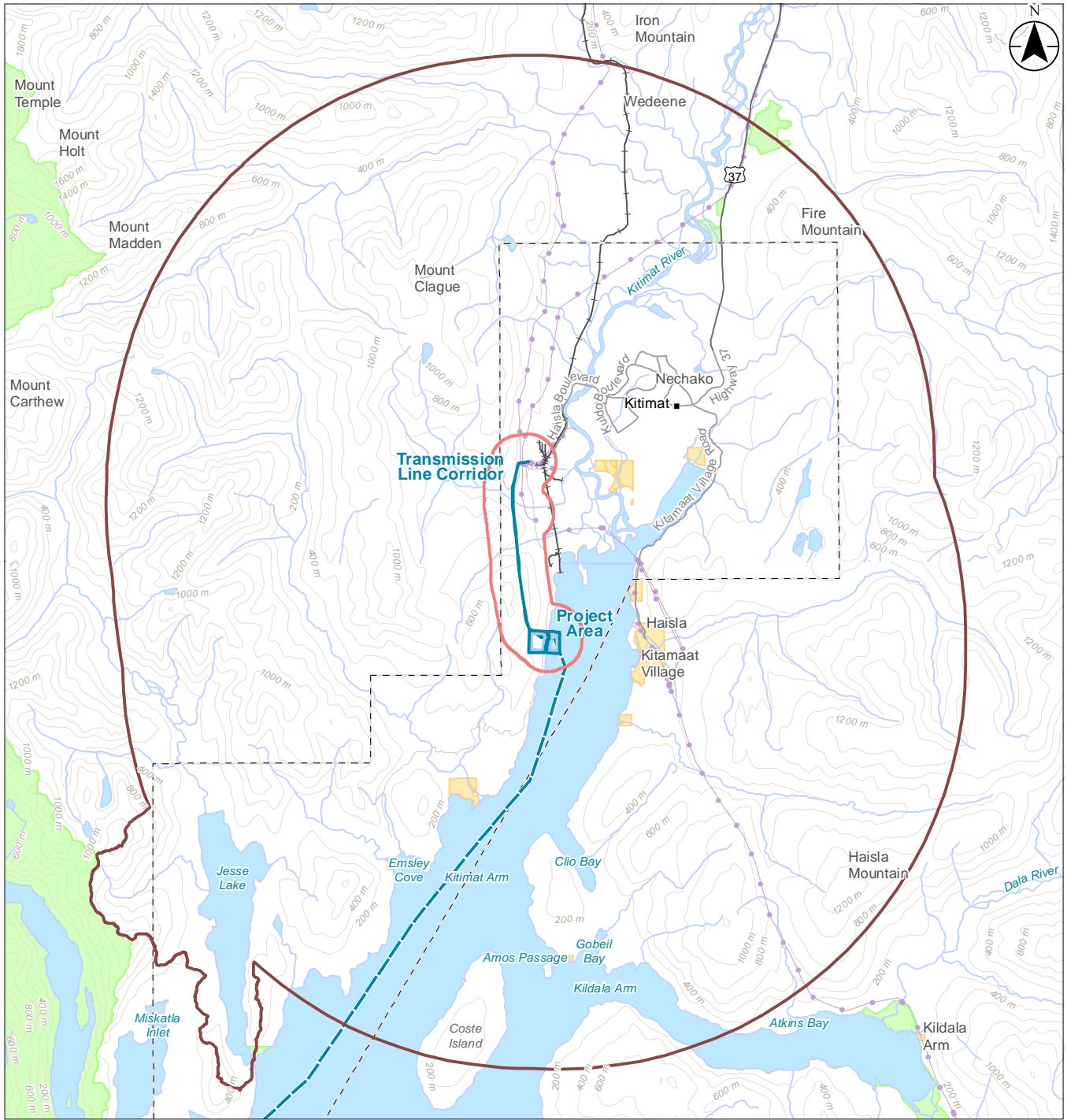
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6.2.2

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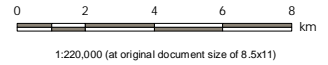
Acoustic Local and Regional Assessment Areas

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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Highway
 - Road
 - Local Street
 - Railway
 - Transmission Line
 - Topographic Contour
 - Watercourse
 - Waterbody
 - Reserve Land
 - Park or Protected Area
 - District of Kitimat
 - Municipal Boundary
- Project Area
 - Transmission Line Corridor
 - Marine Shipping Route (Approximate Location)
 - Wildlife (Marine Terminal)
 - Local Assessment Area
 - Regional Assessment Area



Project Location: Kitimat, British Columbia
 Project Number 123221301
 Prepared by LTRUDELL on 20200129
 Discipline Review by JMUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

Figure No.

6.2.5

Wildlife (Marine Terminal)
Local and Regional Assessment Areas

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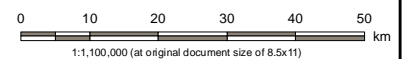
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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Highway
- - - Resource Road
- - - Ferry Route
- Watercourse
- Waterbody
- Reserve Land
- Terrestrial Park, Ecological Reserve, Protected Area or Conservancy Area
- Marine Park, Ecological Reserve, Protected Area or Conservancy Area

- Project Location
- Marine Shipping Route (Approximate Location)
- Wildlife (Shipping)**
- ▨ Local Assessment Area
- ▨▨▨ Regional Assessment Area



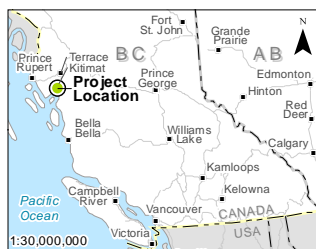
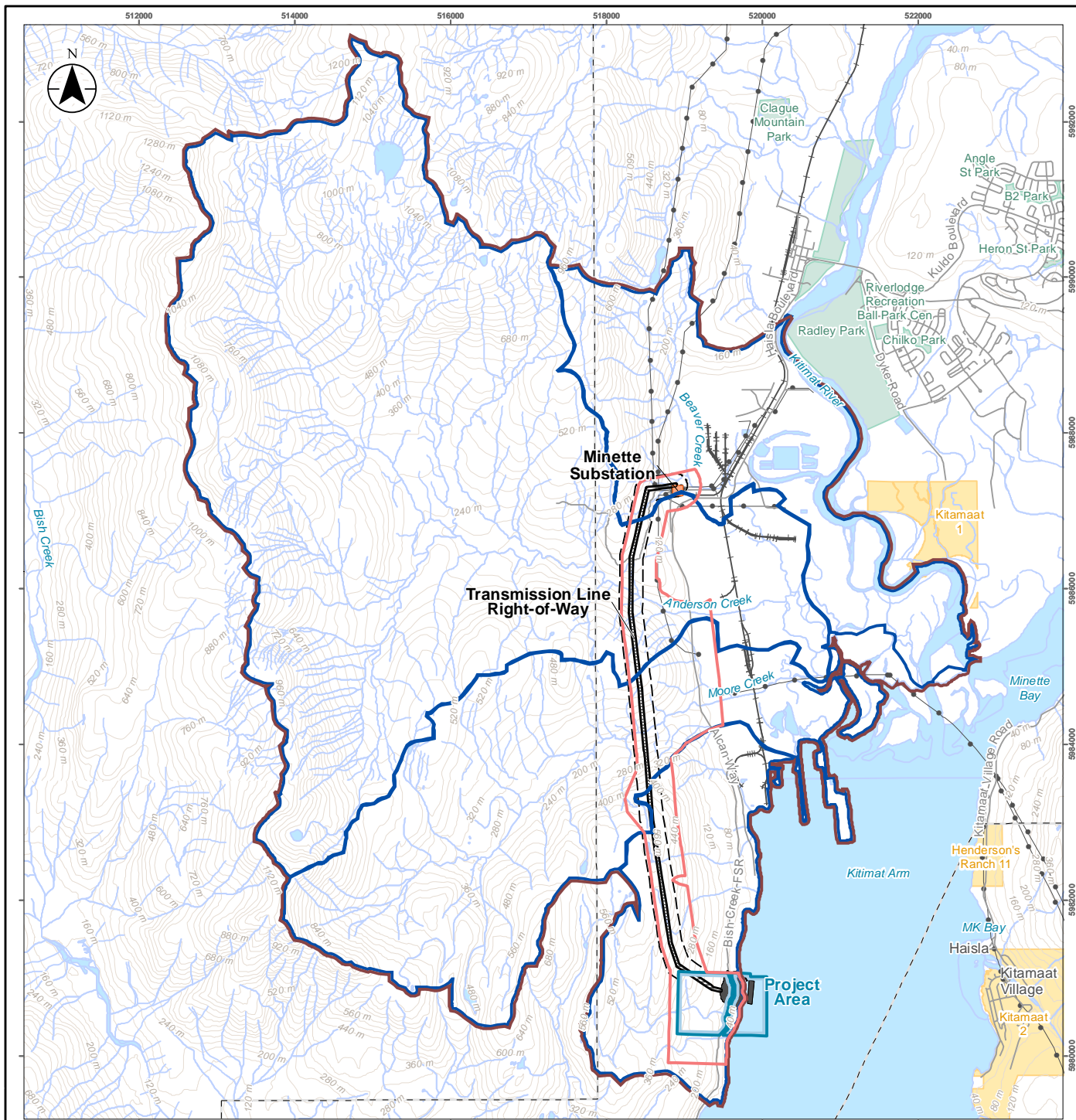
Project Location: Kitimat, British Columbia
 Project Number 123221301
 Prepared by LTRUDELL on 20200129
 Discipline Review by JMLUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

Figure No.

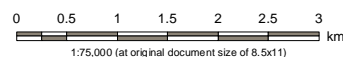
6.2.6

Wildlife (Shipping) Local and Regional Assessment Areas



Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Road
- Railway
- Transmission Line
- Topographic Contour (40 m)
- Waterbody
- Reserve Land
- Local Greenspace
- District of Kitimaat
- Municipal Boundary
- Minette Substation
- Watershed
- Project Area
- Transmission Line Right-of-Way
- Marine Terminal
- Transmission Permitting Corridor (300 m wide)
- Freshwater Fish**
 - Local Assessment Area
 - Regional Assessment Area



Project Location: Kitimaat, British Columbia
 Project Number 12321301
 Prepared by LTRUDELL on 20210628
 Discipline Review by RKEELER on 20210628

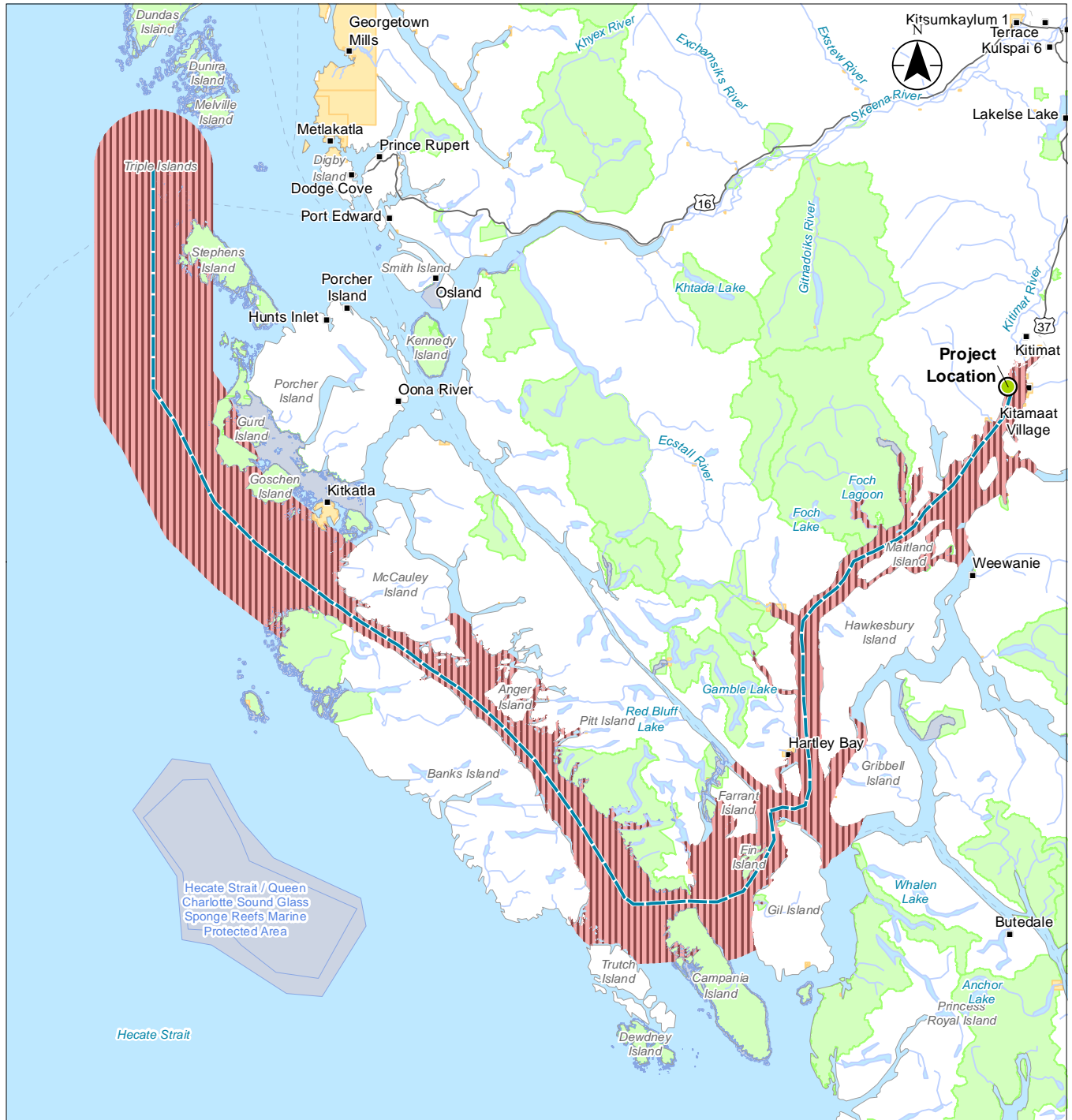
Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

Figure No.

6.2.7

**Freshwater Fish
 Local and Regional Assessment Area**

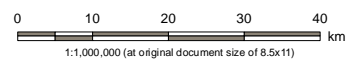
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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia;
 Natural Resources Canada; Canadian Hydrographic Service

- Highway
- - - Resource Road
- - - Ferry Route
- Watercourse
- Waterbody
- Reserve Land
- Terrestrial Park, Ecological Reserve, Protected Area or Conservancy Area
- Marine Park, Ecological Reserve, Protected Area or Conservancy Area

- Project Location
- Marine Shipping Route (Approximate Location)
- Local Assessment Area
- Regional Assessment Area



Project Location:
 Kitimat,
 British Columbia

Project Number 123221301
 Prepared by LTRUDELL on 20200129
 Discipline Review by JIMUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

Figure No.

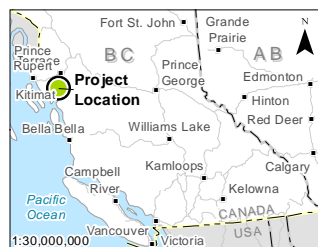
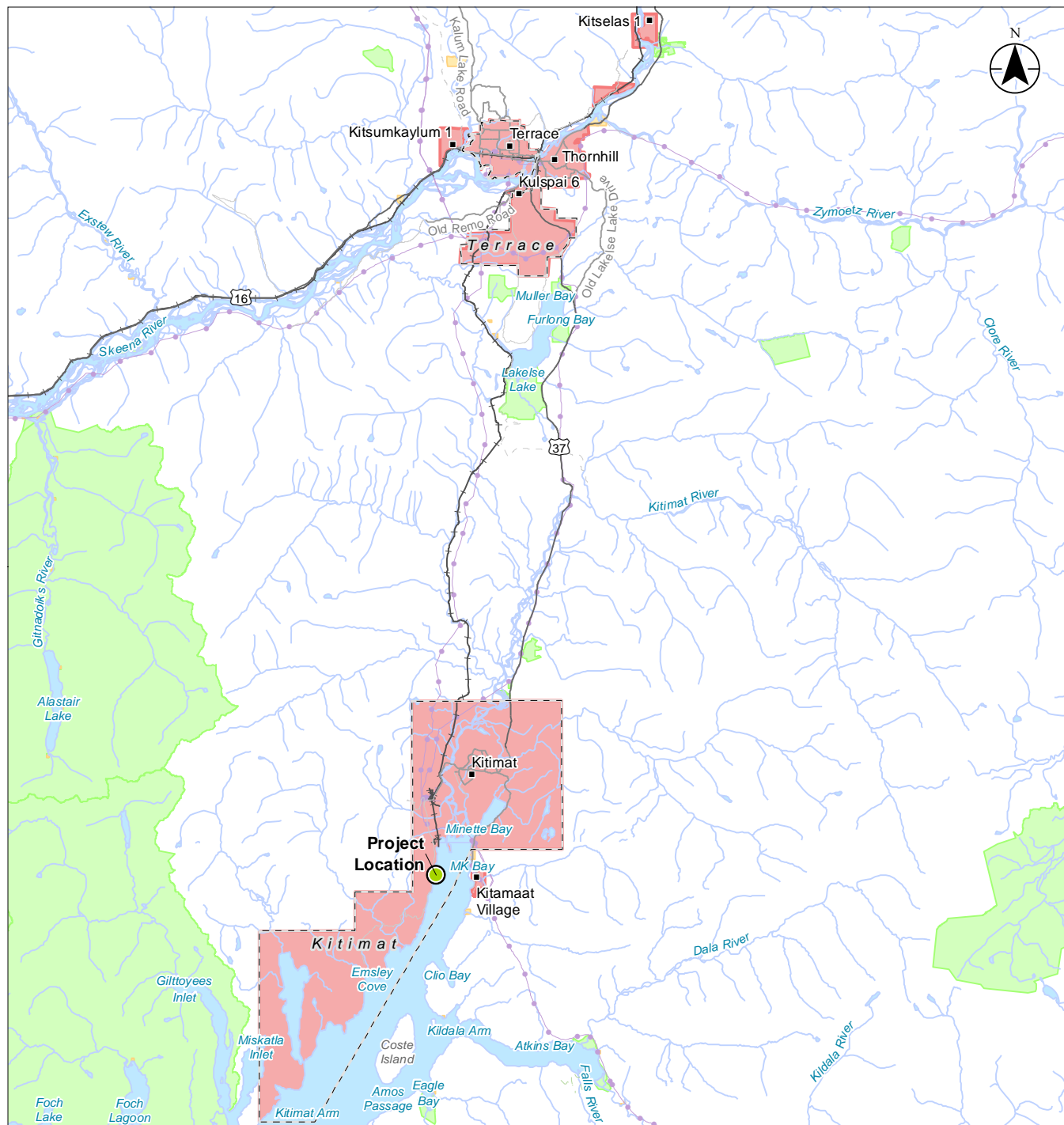
6.2.9

Title

**Marine Resources (Shipping)
 Local and Regional Assessment Areas**

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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Highway
 - Road
 - Local Street
 - - - Resource Road
 - - - Trail
 - Railway
 - Transmission Line
 - Watercourse
 - Waterbody
 - Reserve Land
 - Terrestrial Park, Ecological Reserve, Protected Area or Conservancy Area
 - Municipal Boundary
- Project Location
- Employment and Economy**
- Local Assessment Area

0 5 10 15
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Project Location: Kitimat, British Columbia
 Project Number 12321301
 Prepared by LTRUDELL on 20200129
 Discipline Review by JIMUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

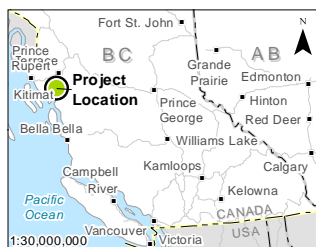
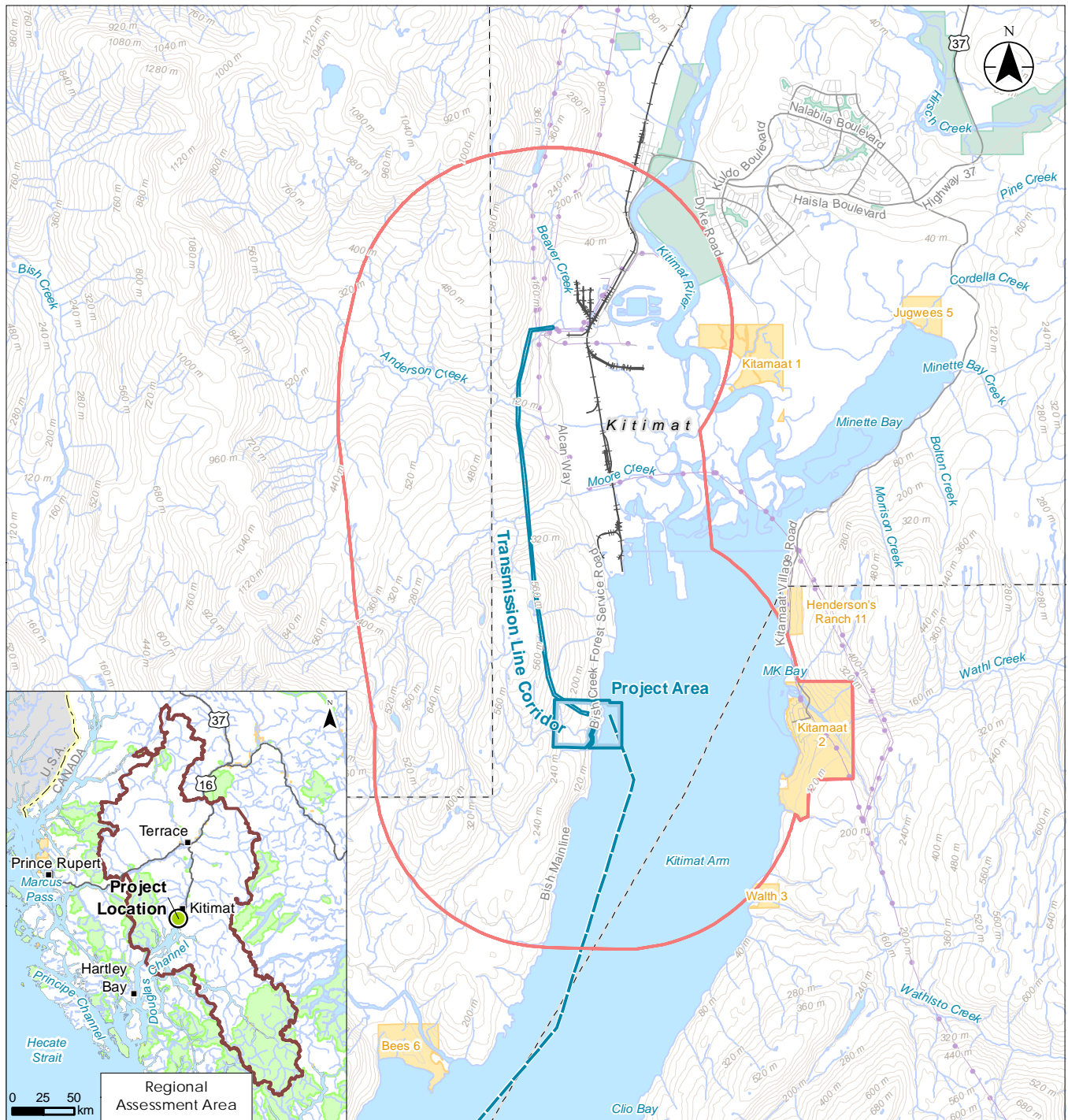
Figure No.

6.2.10

Title

**Employment and Economy
 Local Assessment Area**

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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Highway
 - Road
 - Local Street
 - Railway
 - Transmission Line
 - Topographic Contour
 - Watercourse
 - Waterbody
 - Reserve Land
 - Local Greenspace
 - Park or Protected Area
 - Municipal Boundary
- Project Area
 - Transmission Line Corridor
 - Marine Shipping Route (Approximate Location)
- Land and Resource Use**
- Local Assessment Area
 - Regional Assessment Area

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 1:100,000 (at original document size of 8.5x11)



Project Location: Kitimat, British Columbia
 Project Number 12321301
 Prepared by LTRUDELL on 20200129
 Discipline Review by JIMUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

Figure No.

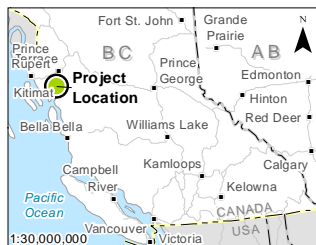
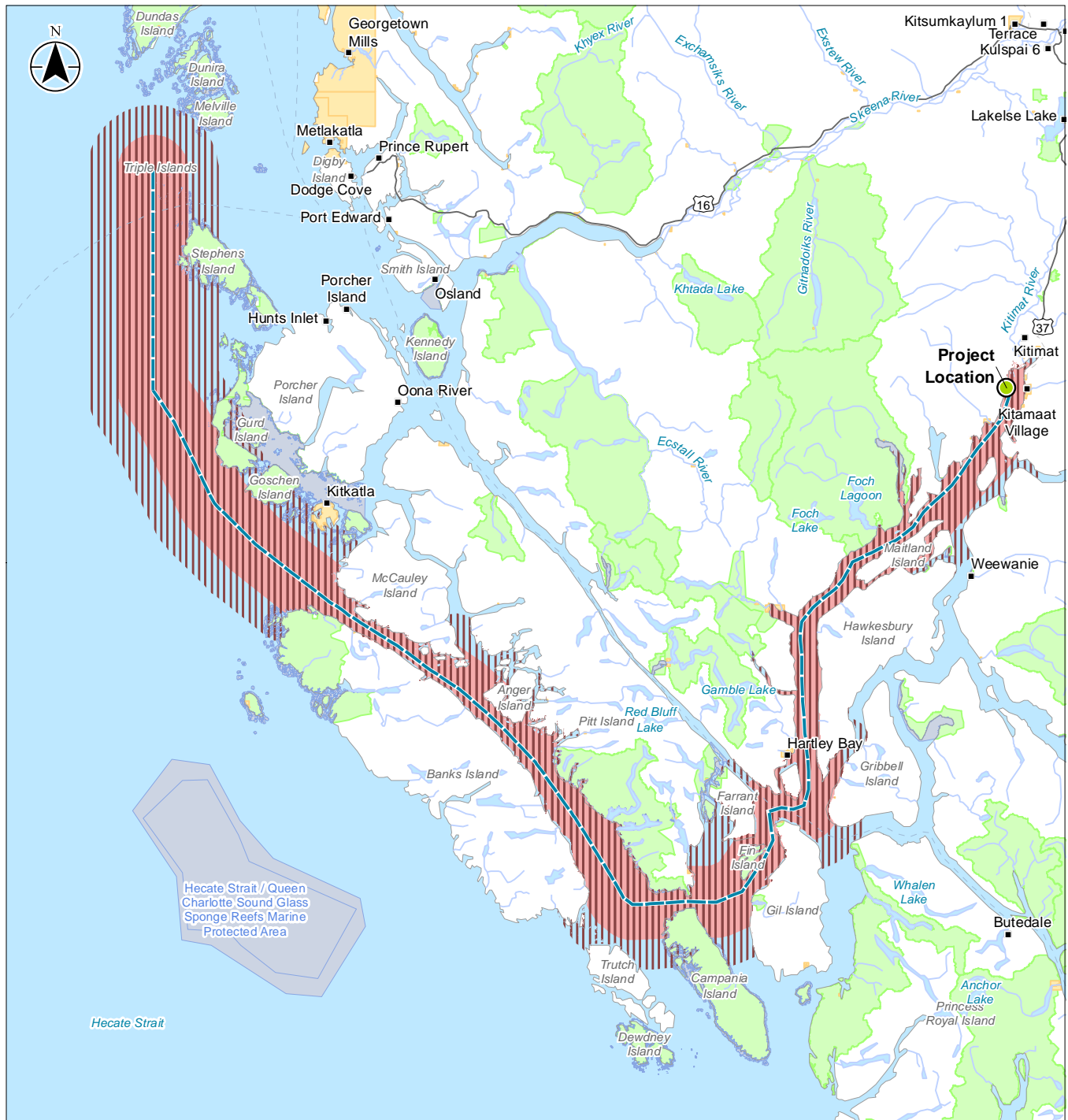
6.2.12

Title

Land and Resource Use Local and Regional Assessment Areas

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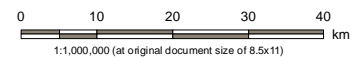
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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Highway
- - - Resource Road
- - - Ferry Route
- Watercourse
- Waterbody
- Reserve Land
- Park or Protected Area
- Marine Park, Ecological Reserve, Protected Area or Conservancy Area

- Project Location
- Marine Shipping Route (Approximate Location)
- Marine Use
- Local Assessment Area
- Regional Assessment Area



Project Location: Kitimat, British Columbia
 Project Number 12321301
 Prepared by LTRUDELL on 20200129
 Discipline Review by JMUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

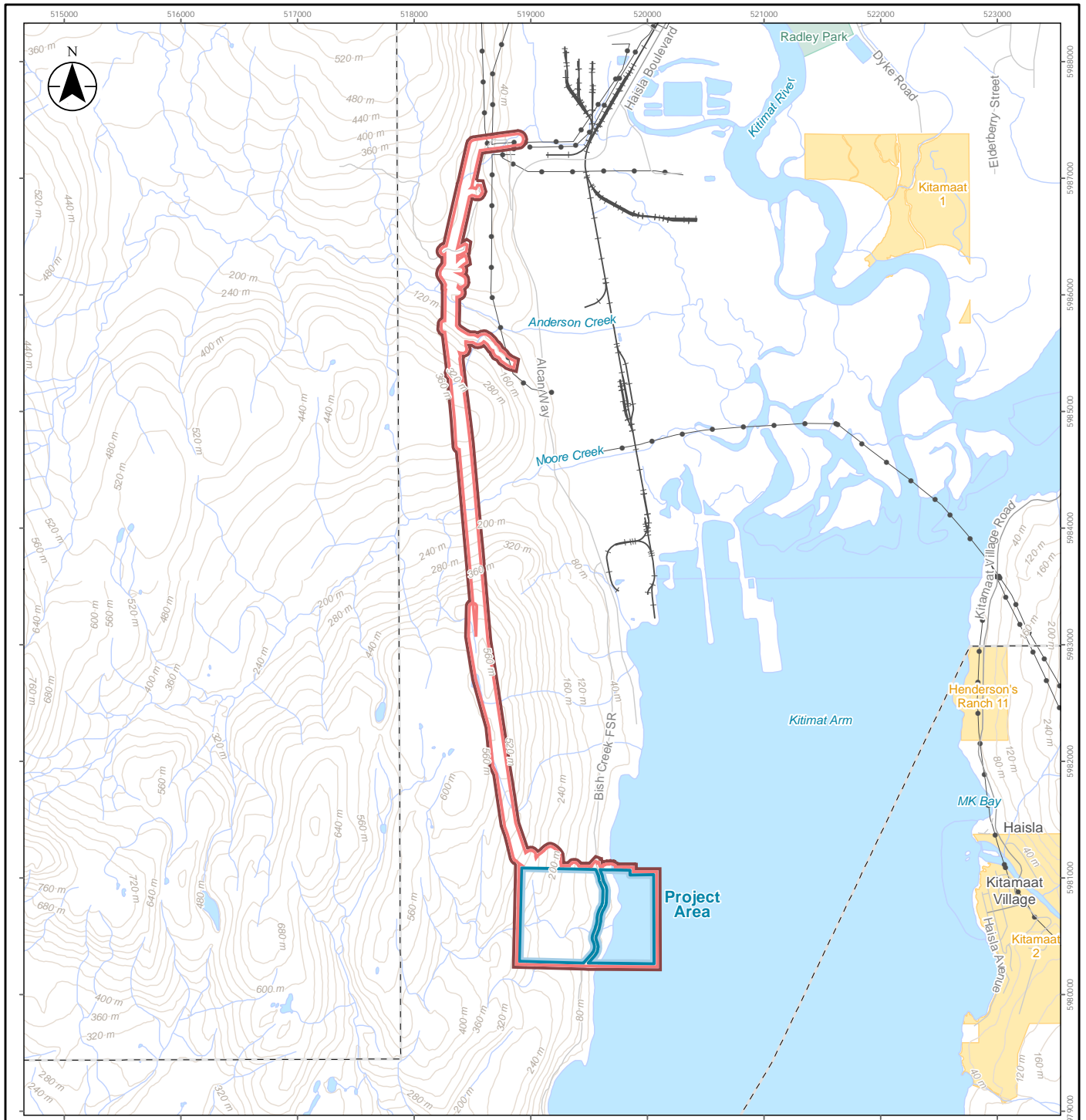
Client/Project/Report
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 Cedar LNG Project
 Application Information Requirements

Figure No.

6.2.13

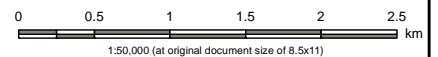
Title
Marine Use Local and Regional Assessment Areas

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Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- Road
 - Local Street
 - Resource Road
 - Railway
 - Transmission Line
 - Topographic Contour
 - Waterbody
 - Watercourse
 - Reserve Land
 - Local Greenspace
 - District of Kitimaat
 - Municipal Boundary
- Project Area**
Heritage and Archaeological Resources
 Local Assessment Area
 Regional Assessment Area



Project Location: Kitimaat, British Columbia
 Project Number 123221301
 Prepared by WWU on 20210707
 Discipline Review by SZABANI on 20210707

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 Application Information Requirements

Figure No.

6.2.16

Title
Heritage Local and Regional Assessment Areas

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

6.3 Existing Conditions

For each VC, the Application will describe the existing conditions (i.e., “baseline”) within the assessment areas in sufficient detail to enable potential Project-VC interactions to be identified, understood and assessed.

In general, the Application will include:

- A description of the quality and reliability of the existing data and its applicability for the purpose used, including any data gaps, insufficiencies and uncertainties, particularly for the purpose of monitoring activities.
- Reference to natural and/or human-caused trends that may alter the VC irrespective of the changes that may be caused by the Project or other projects and activities in the local area. For the biological VCs this includes consideration of variability due to potential future climate change.
- An explanation of if and how other past and present projects and activities in the assessment areas have affected or are affecting the VC.
- Documentation of the methods and information sources used to compile information on existing conditions, including any standards or guidelines followed.
- Where additional project- and VC-specific field studies are conducted, the scope and methods to be used will follow published documents pertaining to data collection and analysis methods, where these are available. These methods will be described in the Application. Where methods used for the assessment deviate from applicable published guidance, the rationale for the variance will be provided in the Application.
- Description of any local and/or Indigenous knowledge used in the assessment. Rationale will be provided when Indigenous knowledge is not provided.
- For VCs within the social pillar, include the application of GBA+, including Disproportionate Effects on Distinct Human Populations as described in provincial guidance related to the BCEAA, to these baseline descriptions to disaggregate and specify baseline conditions for diverse or distinct subgroups is necessary to support the GBA+ of effects. Both qualitative and quantitative data may be necessary to describe baseline conditions across diverse or distinct subgroups, where GBA+ factors have the potential to be relevant to the understanding of effects. Where the available information presents a limitation on the ability to characterize baseline conditions according to GBA+ approaches, this limitation will be articulated, and its implications for analysis described.

Some VCs will include reference to technical data reports (TDRs) that present data on existing conditions. These reports will be appended to the Application and their key findings will be summarized in the Application.

Table 6.3.1 identifies the potential sources of information on existing conditions collected for each VC and applicable standards and guidance that have been identified by Cedar to date.

Table 6.3.1: Potential Existing Conditions Sources and Applicable Standards and Guidance

VC	Technical Studies	Standards and Guidance
Air Quality	<ul style="list-style-type: none"> Project-specific air emissions modelling Results from studies completed for other projects, such as: <ul style="list-style-type: none"> Rio Tinto Alcan Sulphur Dioxide Technical Assessment Report (STAR) in Support of the 2013 Application to Amend the P2-00001 Multimedia Permit (RTA 2013) Kitimat Airshed Study (ESSA Technologies et al. 2014) LNG Canada Export Terminal Air Quality Technical Data Report (LNGC 2014h) Human Health Risk Assessment for Workers in the Workforce Accommodation Center (Cedar Valley Lodge): LNG Canada Export Terminal EAC E15-01 Condition 19 (LNGC 2019) 	<ul style="list-style-type: none"> British Columbia Ambient Air Quality Objectives (ENV 2019) Canadian Council of Ministers of the Environment – Canadian Ambient Air Quality Standards (CAAQS) British Columbia Air Quality Dispersion Modelling Guideline (ENV 2015) Existing data from publicly available databases, including: <ul style="list-style-type: none"> British Columbia Air Data Archive Annual ambient monitoring data summaries provided by British Columbia Ministry of Environment and Climate Change Strategy Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air Quality (Health Canada 2016)
Acoustic	<ul style="list-style-type: none"> Project-specific noise modelling Results from studies completed for other projects, such as: <ul style="list-style-type: none"> LNG Canada Export Terminal Acoustic Environment TDR (LNGC 2014a) Aurora LNG Project at Digby Island Acoustic Environment TDR (Aurora 2016a) (as it relates to noise from shipping) 	<ul style="list-style-type: none"> British Columbia Noise Control Best Practices Guideline (OGC 2021) Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise (Health Canada 2017) Liquefied Natural Gas Facility Permit Application and Operations Manual (OGC 2018b) <i>Oil and Gas Activities Act</i>: Liquefied Natural Gas Facility Regulation (B.C. Reg 146/2014).
Freshwater Fish	<ul style="list-style-type: none"> Site-specific freshwater surveys Monitoring program data Results from studies completed for other projects, such as: <ul style="list-style-type: none"> Kitimat LNG Terminal Project <i>Freshwater and Fish Habitat TDR</i> (KLNG 2005a) Enbridge Northern Gateway Project <i>Freshwater Fish and Fish Habitat TDR</i> (Enbridge 2010a). LNG Canada Export Terminal Freshwater and Estuarine Fish and Fish Habitat TDR (LNGC 2014b) Kitimat Propane Export Terminal <i>Freshwater Fish Baseline Report</i> (PTE 2018a) Available geochemistry data 	<ul style="list-style-type: none"> Applicant's Guide Supporting the "Authorizations Concerning Fish and Fish Habitat Protection Regulations" (DFO 2019a) Fish Habitat Assessment Procedures (Johnston and Slaney 1996) Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Reach Information Guide (RIC 2000) Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures (RIC 2001a) Assessment Methods for Aquatic Habitat and Instream Flow Characteristics in Support of Applications to Dam, Divert, or Extract Water from Streams in British Columbia (Lewis et al. 2004) British Columbia Approved Water Quality Guidelines for the Protection of Freshwater Aquatic Life

VC	Technical Studies	Standards and Guidance
Marine Resources	<ul style="list-style-type: none"> • Site-specific intertidal and subtidal studies • Site-specific water quality studies • Site-specific aquatic fish studies • Atlas of the Pacific North Coast Integrated Management Area • Publicly available marine mammal and underwater noise information from the Prince Rupert Port Authority • Results from publicly available marine resources, water quality and sediment quality studies completed for other projects, such as: <ul style="list-style-type: none"> o Kitimat LNG <i>Marine Environment TDR</i> (KLNG 2005b) o Enbridge Northern Gateway Project <i>Marine Fish and Fish Habitat TDR</i> (Enbridge 2010b) o LNG Canada Export Terminal <i>Marine Resources TDR</i> (LNGC 2014d) o Kitimat Propane Export Terminal <i>Marine Baseline Report</i> (PTE 2018b) o TERMPOL Fish and Fishery Resource studies for Kitimat LNG and Northern Gateway Project 	<ul style="list-style-type: none"> • Coastal/Estuarine Fish Habitat Description and Assessment Manual (Williams 1993) • British Columbia Marine Ecological Classification (RIC 2002) • DFO guidance documents (DFO 2004, 2011, 2019b, 2020, Hannah et al. 2020) • Herring Spawning Areas of British Columbia (Hay et al. 2019) • Existing data from publicly available databases, including: <ul style="list-style-type: none"> o British Columbia Parks and Ecological Reserves o DFO Pacific Fisheries Catch Statistics o DFO Rockfish Conservation Areas o GeoBC British Columbia Coastal Resource Information Management System (CRIMS) o Government of Canada Species at Risk Public Registry o Pacific Salmon Commission Test Fishing Results and Archives o British Columbia Cetacean Sighting Network • Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (CCME, multiple) • Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME, multiple) • British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. (MOE 2018) • Government of Canada Federal Environmental Quality Guidelines - Quinoline (CCME, multiple) • Protocols Manual for Water Quality Sampling in Canada (CCME 2011) • Guidance for Optimizing Water Quality Monitoring Program Design (CCME 2015), • Guidelines for Monitoring Fine Sediment Deposition in Streams (Resources Inventory Committee 2002) • Other publicly available academic and gray literature pertaining to marine resources in the Pacific northwest, including: <ul style="list-style-type: none"> o Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Assessment and Status Reports o DFO Integrated Fisheries Management Plans

VC	Technical Studies	Standards and Guidance
Vegetation Resources	<ul style="list-style-type: none"> Site-specific ecosystem classification surveys, Terrestrial Ecosystem Mapping (TEM), rare plant surveys, wetland survey and functions assessment Results from studies completed for other projects, such as: <ul style="list-style-type: none"> Kitimat LNG Terminal Project <i>Vegetation Resources TDR</i> (KLNG 2005c) LNG Canada Export Terminal <i>Vegetation Resources TDR</i> (LNGC 2014e) Existing data from publicly available databases, including: <ul style="list-style-type: none"> British Columbia Invasive Alien Plant Program Database & Map Display (Province of British Columbia 2019) British Columbia Conservation Data Centre (CDC 2019) 	<ul style="list-style-type: none"> Committee Standard for Terrestrial Ecosystem Mapping in British Columbia (RIC 1998a) Land Management Handbook 25- Field Manual for Describing Terrestrial Ecosystems, 2nd Ed. (MOFR and MOE 2012) Protocols for Rare Plant Surveys (Klinkenberg and Penny 2012) Wetlands of BC: A Guide to Identification (Mackenzie and Moran 2004) Wetland Ecological Functions Assessment: An Overview of Approaches (Hanson et al. 2008) The Federal Policy on Wetland Conservation (Government of Canada 1991)
Wildlife	<ul style="list-style-type: none"> Site-specific wildlife field surveys Results from studies completed for other projects, such as: <ul style="list-style-type: none"> Enbridge Northern Gateway Project Wildlife Data and Field Surveys (Enbridge 2010c) Kitimat LNG Terminal Project <i>Wildlife and Wildlife Habitat TDR</i> (KLNG 2005d) LNG Canada Export Terminal <i>Wildlife Resources TDR</i> (LNGC 2014f) Rio Tinto Terminal A Extension Project <i>Wildlife Baseline Study</i> (RTA 2015b) and <i>Wildlife Habitat Modelling Report</i> (RTA 2015c) Kitimat Propane Export Terminal <i>Terrestrial Wildlife Baseline Report</i> (PTE 2018c) Existing data from publicly available databases, including: <ul style="list-style-type: none"> British Columbia Wildlife Species Inventory British Columbia Conservation Data Centre (CDC 2019) eBird British Columbia Breeding Bird Atlas British Columbia Coastal Waterbird Survey 	<p>General Guidelines</p> <ul style="list-style-type: none"> Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia (FLNRO 2013) A Compendium of Wildlife Guidelines for Industrial Development Projects in the North Area, British Columbia (FLNRO 2014a) Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia (FLNRO 2014b) Guidelines for Amphibian and Reptile Conservation during Urban and Rural Land Development in British Columbia (FLNRO 2014c) Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia (MWLAP 2004) General Nesting Periods of Migratory Birds (ECCC 2018) Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods (Health Canada 2017) <p>Amphibian Surveys</p> <ul style="list-style-type: none"> Inventory Methods for Pond-breeding Amphibians and Painted Turtle, Version 2.0 (RIC 1998b) <p>Raptor Call-Playback Surveys</p> <ul style="list-style-type: none"> Inventory Methods for Raptors (Version 2.0) (RIC 2001b) Inventory Methods for Owl Surveys (RIC 2006)

VC	Technical Studies	Standards and Guidance
Wildlife (cont'd)		<p>Marine Bird Surveys</p> <ul style="list-style-type: none"> • Inventory Methods for Seabirds: cormorants, gulls, murres, storm-petrels, ancient murrelet, auks, puffins, and Pigeon Guillemot (RIC 1997a) • Shorebirds: Plovers, Oystercatchers, Stilts, Avocets, Sandpipers, Phalaropes and Allies (RIC 1997b) <p>Habitat Suitability Modelling and Wildlife Habitat Suitability Assessments</p> <ul style="list-style-type: none"> • British Columbia Wildlife Habitat Rating Standards (Version 2.0) (RIC 1999) • Land Management Handbook 25- Field Manual for Describing Terrestrial Ecosystems, 2nd Ed. (MOFR and MOE 2012)
Employment and Economy	<ul style="list-style-type: none"> • Project-specific economic modelling • Results from studies completed for other projects, such as: <ul style="list-style-type: none"> o LNG Canada Export Terminal <i>Socio-Economic Baseline TDR</i> (LNGC 2014g) o LNG Canada Quarterly Social Management Roundtable/CLISMP Updates • Existing data from publicly available databases administered by: <ul style="list-style-type: none"> o Statistics Canada o BC Stats o Ministry of Municipal Affairs o Indigenous Services Canada o First Nations Information Governance Center (FNIGC) • Review of publicly available secondary information not limited to reports, datasets and webpages of service providers, municipal and Indigenous governments, regional districts, as well as academic and industry literature. 	<ul style="list-style-type: none"> • Human and Community Well-being (Version 1.0): Guidelines for Assessing Social, Economic, Cultural and Health Effects in Environmental Assessments in British Columbia. (EAO 2020b)

VC	Technical Studies	Standards and Guidance
Infrastructure and Services	<ul style="list-style-type: none"> Results from studies completed for other projects, such as: <ul style="list-style-type: none"> LNG Canada Export Terminal <i>Socio-Economic Baseline TDR</i> (LNGC 2014g) LNG Canada Quarterly Social Management Roundtable/CLISMP Updates Existing data from publicly available databases administered by: <ul style="list-style-type: none"> Statistics Canada Indigenous Services Canada First Nations Information Governance Center (FNIGC) Review of publicly available secondary information not limited to reports, datasets and webpages of service providers, municipal and Indigenous governments, regional districts, as well as academic and industry literature. 	<ul style="list-style-type: none"> Human and Community Well-being (Version 1.0): Guidelines for Assessing Social, Economic, Cultural and Health Effects in Environmental Assessments in British Columbia (EAO 2020b).
Land and Resource Use	<ul style="list-style-type: none"> Results from studies completed for other projects, such as: <ul style="list-style-type: none"> LNG Canada Export Terminal Socio-Economic Baseline TDR (LNGC 2014g) Existing data from publicly available databases administered by: <ul style="list-style-type: none"> DataBC British Columbia Oil and Gas Commission Review of publicly available secondary information not limited to reports, datasets and webpages of service providers, municipal and Indigenous governments, regional districts, as well as academic and industry literature. 	<ul style="list-style-type: none"> Visual Landscape Inventory, Procedures and Standards Manual (FLNRO 1997) Light Control Best Practices Guideline Version 1.0 (OGC 2021) Guide on the Limitation of Effects on Obtrusive Light from Outdoor Lighting Installations (CIE 2017)
Marine Use	<ul style="list-style-type: none"> Results from studies completed for other projects, such as: <ul style="list-style-type: none"> LNG Canada Export Terminal <i>Socio-Economic Baseline Report</i> (TDR) (LNGC 2014g) Existing data from publicly available databases administered by: <ul style="list-style-type: none"> Fisheries and Oceans Canada (DFO) Pacific Pilotage Authority Canadian Coast Guard Review of publicly available secondary information not limited to reports, datasets and webpages of service providers, municipal and Indigenous governments, regional districts, as well as academic and industry literature. 	<ul style="list-style-type: none"> Transport Canada TERMPOL Review Process (TC 2001)

VC	Technical Studies	Standards and Guidance
Human Health	<ul style="list-style-type: none"> Project-specific inputs from air emissions modelling, as applicable Results from studies completed for other projects, such as: <ul style="list-style-type: none"> Human Health Risk Assessment for Workers in the Workforce Accommodation Center (Cedar Valley Lodge): LNG Canada Export Terminal EAC E15-01 Condition 19 (LNGC 2019) LNG Canada Export Terminal <i>Human Health Risk Assessment</i> (LNGC 2014c) Rio Tinto Terminal A Extension Project <i>Human Health Risk Assessment</i> (RTA 2015a) First Nations Health Authority (FNHA) 	<ul style="list-style-type: none"> Canadian Council of Ministers of the Environment Canadian Ambient Air Quality Standards (CAAQS) Canadian Council of Ministers of the Environment water, sediment and, soil quality, and tissue residue guidelines British Columbia Ambient Air Quality Objectives (ENV 2019) Federal Contaminated Site Risk Assessment in Canada, Guidance on Human Health Preliminary Quantitative Risk Assessment. Version 3.0 (Health Canada 2021a) Federal Contaminated Site Risk Assessment in Canada, Toxicological Reference Values. Version 3.0 (Health Canada 2021b) Federal Contaminated Site Risk Assessment in Canada, Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (Health Canada 2010) Health Canada Guidance for Evaluating Human Health Impacts in Environmental Assessments: Human Health Risk Assessment (Health Canada 2019) Health Canada Guidance for Evaluating Human Health Impacts in Environmental Assessments: Country Foods (Health Canada 2017) Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air Quality (Health Canada 2016a) Guidance for Evaluating Human Health Impacts in Environmental Assessment: Drinking and Recreational Water Quality (Health Canada 2016b) Human Health Risk Assessment for Coarse Particulate Matter (Health Canada 2016c) Human Health Risk Assessment for Diesel Exhaust (Health Canada 2016d) Human Health Risk Assessment for Ambient Nitrogen Dioxide (Health Canada 2016e) Human Health Risk Assessment for Ambient Sulphur Dioxide (Health Canada 2016f) Supplemental Guidance on Human Health Risk Assessment of Contaminated Sediments: Direct Contact Pathway (Health Canada 2016g) Standard working group comments for environmental assessments in Northern British Columbia (Northern Health 2015)

VC	Technical Studies	Standards and Guidance
Human Health (cont'd)		<ul style="list-style-type: none"> Northern Health emergency roles and responsibilities (Northern Health 2019) British Columbia Guidance for Prospective Human Health Risk Assessment. Version 1.0. (Ministry of Health 2021)
Heritage	<ul style="list-style-type: none"> Project-specific archaeological impact assessment Results from studies completed for other projects in the Kitimat area, such as: <ul style="list-style-type: none"> Enbridge Northern Gateway Project <i>Archaeological Impact Assessment</i> (AIA) (permit 2008-0349) (Enbridge 2013) Douglas Channel Energy Project AIA (permit 2011-0351) (Wharram 2013) Kitimat LNG Terminal Project AIA (permits 2011-0295, 2011-0370, 2013-0161) (KLNG 2016) LNG Canada Export Terminal AIA (permit 2013-0149) (LNGC 2015) Kitimat Propane Export Terminal Archaeological Overview Assessment and Preliminary Field Reconnaissance of Pacific Traverse Energy's Proposed Propane Export Facility, near Kitimat, British Columbia (permit 2019-0225) (PTE 2019a) Archaeological Impact Assessment of Pacific Traverse Energy's Proposed Kitimat LPG Export Project, near Kitimat, British Columbia (Heritage Inspection Permit 2019-0225). Prepared by Kleanza Consulting Ltd. (PTE 2019b) 	<ul style="list-style-type: none"> Archaeological Impact Assessment Guidelines (Archaeology Branch 1998) Culturally Modified Trees of British Columbia: A Handbook for the Identification and Recording of Culturally Modified Trees (Archaeology Branch 2001) Archaeology Branch policies, including: <ul style="list-style-type: none"> Recording of petroglyphs policy Recording of culturally modified trees policy Found human remains policy The management of heritage trails in provincial forests policies Interim Permit Reporting Procedures Archaeology Branch Bulletins (Archaeology Branch 2011–2020) British Columbia Fossil Management Framework

6.4 Project Interactions

Table 6.4.1 lists physical activities associated with the Project and indicates interactions with each selected VC. Potential interactions will be rated using the following criteria:

- 0 No effect expected; no further consideration warranted
- 1 Potential adverse effect requiring additional mitigation; warrants further consideration
- 2 Key interaction resulting in potential adverse effect of particular importance or concern; warrants further detailed consideration
- + Potential positive effect that can be enhanced; warrants further consideration

The Application will provide justification for non-interactions (ranked 0), including any input received from EAO, the Working Group, government agencies, Indigenous Nations and the public.

Based on input provided by regulators, Indigenous Nations, and community members (i.e., members of an affected Indigenous Nation), and current understanding of the conceptual project design, Cedar has ranked the following key interactions as 2 (i.e., resulting in potential adverse effects of particular importance or concern):

- Potential effects to air quality as a result of air emissions during project operations associated with the floating LNG facility. Air quality effects have been identified as a key concern by Indigenous Nations and community members.
- Potential acoustic effects associated with project operations, in consideration of the location of the Project across Douglas Channel from Kitamaat Village (Kitamaat 2). Cedar has heard from Haisla Nation that this is a key concern.
- Potential effects to marine resources associated with underwater noise from construction and operation of marine infrastructure. Underwater noise has been identified as a key concern by Indigenous Nations and community members.
- Potential effects to vegetation resources associated with site preparation and clearing, as well as air emissions during project operation associated with the FLNG facility.
- Potential effects to wildlife associated with site preparation and clearing.
- Potential effects to marine use, as this has been a key concern raised by Indigenous Nations along the marine shipping route during early consultation activities.
- Potential effects to human health as a result of air emissions during project operations associated with the floating LNG facility. Human health effects have been identified as a key concern by Indigenous Nations and regulatory agencies.

In all cases, Cedar believes that effective mitigation measures are available to reduce and manage these effects; however, Cedar recognizes that they are key areas of concern with Indigenous Nations, regulators and community members that must be given detailed consideration. All potential interactions with VCs will be carried forward and assessed in the applicable VC section. For each VC, the ranking of potential interactions between Project activities and the potential effects of the VC will be presented in a table following the format as shown in Table 6.4.2.

Table 6.4.1: Potential Project Interactions with Valued Components (VCs)

Project Activities and Physical Works	Air Quality	Acoustic	Freshwater Fish	Marine Resources	Vegetation Resources	Wildlife	Employment and Economy	Infrastructure and Services	Land and Resource Use	Marine Use	Human Health	Heritage
Construction												
Procurement of labour, goods, and services	0	0	0	0	0	0	1/+	1/+	1	0	0	0
Site preparation and clearing	1	1	1	2	2	2	0	0	1	0	1	1
Construction of land-based infrastructure	1	1	1	0	1	1	0	0	1	0	1	1
Construction of marine-based infrastructure	1	1	0	2	1	1	0	0	0	2	1	1
Marine transport of construction materials to the site	1	1	0	2	0	1	0	0	0	2	1	0
Vehicle traffic	1	1	0	0	1	1	0	1	1	0	1	0
Waste management	0	0	0	2	0	1	0	1	0	0	0	0
Operation												
Procurement of labour, goods, and services	0	0	0	0	0	0	1/+	1/+	1	0	0	0
Pre-treatment, liquefaction, storage and offloading of natural gas at the floating LNG facility	2	2	1	2	2	1	0	0	0	0	2	0
LNG carrier loading	1	1	0	1	0	1	0	0	0	1	1	0
Marine shipping and transportation	1	1	0	2	0	1	0	0	0	2	1	0
Facility and infrastructure maintenance	1	1	1	2	1	1	0	0	0	1	1	0
Vehicle traffic	1	1	0	0	1	1	0	1	1	0	1	0
Waste management	0	0	0	2	0	1	0	1	0	0	0	0

Project Activities and Physical Works	Air Quality	Acoustic	Freshwater Fish	Marine Resources	Vegetation Resources	Wildlife	Employment and Economy	Infrastructure and Services	Land and Resource Use	Marine Use	Human Health	Heritage
Decommissioning												
Procurement of labour, goods and services	0	0	0	0	0	0	1/+	1/+	1	0	0	0
Decommissioning of land-based infrastructure	1	1	1	0	1	1	0	0	1	0	1	0
Decommissioning of marine-based infrastructure	1	1	0	2	0	1	0	0	0	1	1	0
Marine transport of decommissioned infrastructure	1	1	0	2	0	1	0	0	0	1	1	0
Vehicle traffic	1	1	0	0	1	1	0	1	1	0	1	0
Waste management	0	0	0	2	0	1	0	1	0	0	0	0
<p>KEY:</p> <p>0 = No effect expected; no further consideration warranted.</p> <p>1 = Potential adverse effect requiring additional mitigation; warrants further consideration.</p> <p>2 = Key interaction resulting in potential adverse effect of particular importance or concern; warrants further detailed consideration</p> <p>+ = Potential positive effect that can be enhanced; warrants further consideration</p> <p>NOTE:</p> <p>Only activities with an interaction of 1, 2 or + for at least one interaction are shown.</p>												

Table 6.4.2: Potential Project Interactions and Effects on VC

Project Activities and Physical Works	Potential Project Effects			
	Effect 1	Effect 2	Effect 3	Effect 4
Construction				
Operation				
Decommissioning				
<p>Key:</p> <p>0 = No effect expected; no further consideration warranted.</p> <p>1 = Potential adverse effect requiring additional mitigation; warrants further consideration.</p> <p>2 = Key interaction resulting in potential adverse effect of particular importance or concern; warrants further detailed consideration</p> <p>+ = Potential positive effect that can be enhanced; warrants further consideration</p> <p>NOTE:</p> <p>Only activities with an interaction of 1, 2 or + for at least one effect are shown</p>				

6.4.1 *Influence of Consultation on the Identification of Issues and the Assessment Process*

The Application will describe information and concerns related to the VC raised through consultation with government agencies, stakeholders, Indigenous Nations and community members (i.e., members of an affected Indigenous Nation). This information will be used for the scoping of the assessment, and for informing the Application's analyses. It also summarizes the influence of this consultation and engagement on the assessment. Within each associated valued component section, a summary of the topics and key information and concerns that Cedar identified as part of its consultation and engagement efforts will be provided.

Where made available by Indigenous Nations, traditional knowledge and traditional use studies and information, Indigenous Nation land use plans, or other documents or sources of information will be included in the assessment.

6.4.2 *Selection of Potential Effects and Indicators*

Potential effects to be assessed will be selected with consideration of issues and concerns raised by government agencies, the public, stakeholders, Indigenous Nations and through evaluation of potential interactions between the Project and human and biophysical environment. This will include consideration of potential direct and indirect effects and positive and adverse effects on each VC, as applicable.

For each effect, one or more indicators will be identified to facilitate quantitative or qualitative measurement of change in project-specific and cumulative effects potentially caused by the Project.

Table 6.4.3 summarizes the proposed potential Project effects and associated indicators to facilitate the evaluation of those effects.

Table 6.4.3: Indicators and Parameters To Evaluate Potential Effects on VC

VC	Subcomponent for Selected VC	Potential Project Effect	Indicator and/or Parameter	Linkage to Other VCs
Air Quality	<ul style="list-style-type: none"> Criteria air contaminants Sulphur and Nitrogen Deposition Rates 	Increase in concentrations of ambient air pollutants	<p>Ambient concentrations of criteria air contaminants (CACs), including sulphur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), respirable particulate matter (PM_{2.5}) based on dispersion modelling.</p> <p>Deposition rates of sulphur (S), nitrogen (N), and sulphur plus nitrogen (N+S), based on dispersion modelling</p>	<ul style="list-style-type: none"> Vegetation Resources Freshwater Fish Human Health
Acoustic	<ul style="list-style-type: none"> Construction noise Operational noise Shipping noise (during operation) Noise sensitive receptors (e.g., residences) 	Increased noise levels causing nuisance, annoyance and sleep disturbance to people, as well as displacement and sensory disturbance to wildlife	<p>A-weighted sound pressure levels (dBA), including daytime L_d, nighttime L_n, and day-night average level L_{dn} as well as L_{max} and the frequency of night-time noise events.</p> <p>Change in percent highly annoyed.</p> <p>Low frequency noise effects (linear {dBL}, A-weighted {dBA}, and C-weighted {dBC} sound pressure level).</p>	<ul style="list-style-type: none"> Wildlife Land and Resource Use Marine Use Human Health
Vegetation Resources	<ul style="list-style-type: none"> Plant species at risk Traditional use plants Invasive plant species Ecological communities at risk Old forest Wetland functions Vegetation communities sensitive to high air concentrations of SO₂ and NO₂ and/or to eutrophication or soil acidification 	Change in the abundance of plant species of interest	<p>Abundance of:</p> <ul style="list-style-type: none"> Plant species at risk (federally or provincially listed) Traditional use plant species Invasive plant species (provincially or regionally listed) 	<ul style="list-style-type: none"> Air Quality Wildlife Freshwater Fish Land and Resource Use
		Change in the abundance of ecological communities of interest	<p>Areal extent (hectares [ha]) of direct loss and/or potential indirect effects to condition within 120 m of:</p> <ul style="list-style-type: none"> Ecological communities at risk (provincially listed) by structural stage Old forest 	
		Change in wetland functions	<p>Areal extent (ha) of wetland ecosystems by structural stage</p> <p>Characteristics of wetland functions (hydrological, biogeochemical, and habitat)</p>	

VC	Subcomponent for Selected VC	Potential Project Effect	Indicator and/or Parameter	Linkage to Other VCs
Vegetation Resources (cont'd)		Change in native vegetation health and diversity due to air emissions	Areal extent of sensitive vegetation communities where: <ul style="list-style-type: none"> Critical levels for SO₂ and NO₂ are exceeded Critical thresholds for eutrophication are exceeded Critical thresholds for soil acidification are exceeded 	
Wildlife	<ul style="list-style-type: none"> Mammals Migratory and non-migratory birds Amphibians Species of conservation concern (federally and provincially listed) Species of Indigenous cultural use and value 	Change in habitat	Change in availability of suitable effective habitat for key wildlife species will be assessed quantitatively or qualitatively, depending on the key species or species group (grizzly bear, moose, Pacific marten, bats, marbled murrelet, old forest songbird community, young forest songbird community, western toad, coastal tailed frog, marine birds)	<ul style="list-style-type: none"> Acoustic Vegetation Resources Freshwater Fish Marine Resources Land and Resource Use Marine Use
		Change in mortality risk	Mortality risk due to extent, duration, and timing of vegetation clearing, equipment and vehicle use, and presence of permanent project components	
		Change in movement	Habitat connectivity and spatial extent and duration of construction activities and permanent project components	
Freshwater Fish	<ul style="list-style-type: none"> Surface water quality Fish habitat Species of conservation concern Species of Indigenous cultural use and value 	Change in surface water quality	Changes in surface water quality parameters (e.g., temperature [°C], TSS [mg/L], pH) Acidification or eutrophication of surface waters	<ul style="list-style-type: none"> Air Quality Vegetation Resources Wildlife Marine Resources Land and Resource Use Human Health
		Change in habitat	Area of expected harmful alteration, disruption or destruction of fish habitat (HADD) of fish habitat (e.g., aerial extent of change (m ²))	
		Change in fish health or mortality risk	Risk of fish health changes or mortalities due to extent, duration, or timing of instream work, or modification of flows Risk of fish health changes or mortalities due to short term changes in water quality (e.g., temperature [°C], total suspended solids [mg/L], pH)	

VC	Subcomponent for Selected VC	Potential Project Effect	Indicator and/or Parameter	Linkage to Other VCs
Marine Resources	<ul style="list-style-type: none"> Marine habitat Marine fish Marine mammals Species of conservation concern (marine fish and marine mammals) Species of Indigenous cultural use and value Water quality 	Change in fish or marine mammal injury or mortality risk	Risk of fish or marine mammal injury or mortality due to extent, duration, or timing of land-based and in-water work or Project-related vessel movements	<ul style="list-style-type: none"> Wildlife Freshwater Fish Marine Use Human Health
		Change in habitat	Area of expected HADD of fish habitat, including loss of habitat forming marine vegetation (e.g., eelgrass, bull kelp)	
		Change in water quality	Short- and long-term changes in water quality (e.g., salinity, temperature, total suspended solids [TSS])	
		Change in behaviour of fish or marine mammals caused by sensory disturbances	Behavioural change or habitat avoidance by fish or marine mammals caused by sensory disturbances due to light and underwater noise	
Employment and Economy	<ul style="list-style-type: none"> Local and regional employment Economy 	Change in regional employment	Qualified labour supply, participation and unemployment rates, estimates of direct, indirect and induced employment with reference to affected industries and occupations where applicable	<ul style="list-style-type: none"> Infrastructure and Services Marine Use
		Change in regional business	Value of local and regional spending, existing wage levels, estimates of direct, indirect and induced labour income, income inequity	
		Change in regional economy	Municipal tax and gross domestic product contributions Cost of living	
Land and Resource Use	<ul style="list-style-type: none"> Private property Tenured land and resource use (includes industrial land uses and other tenured, permitted, or licensed land uses (e.g., trapping, guiding)) Public land and resource use (includes consumptive (e.g., fishing, trapping) and non-consumptive land uses (e.g., hiking, tourism)) 	Change in private property and tenured land use Change in non-tenured land use	<ul style="list-style-type: none"> Qualitative description of property and land use constraints based on plans and zoning Area of overlapping land use affected (ha) Attribute data on overlapping land uses Access to land use areas Visual quality (qualitative description, in consideration of provincial landscape inventory, visual quality class definitions, photographs, and project renderings, based on preliminary design) Light conditions (qualitative description) 	<ul style="list-style-type: none"> Acoustic Vegetation Resources Wildlife Freshwater Fish Infrastructure and Services Heritage

VC	Subcomponent for Selected VC	Potential Project Effect	Indicator and/or Parameter	Linkage to Other VCs
Land and Resource Use (cont'd)		Change in non-tenured land use (cont'd)	<ul style="list-style-type: none"> • Areas (ha) of current use (consumptive and non-consumptive) • Access to land use areas • Intensity of use • Visual quality (qualitative description in consideration of provincial landscape inventory, visual quality class definitions, photographs, and project renderings, based on preliminary design) • Light conditions (qualitative description) 	
Marine Use	<ul style="list-style-type: none"> • Marine navigation • Tenured marine use: permitted or licensed marine uses, commercial, recreational and Indigenous fisheries • Public marine use: consumptive marine uses, coastal tourism, and recreation 	Change in marine navigation	<ul style="list-style-type: none"> • Proportion of the navigable waterway affected by project infrastructure, including vessel safety zones • Shipping traffic along the shipping route (ships per year) 	<ul style="list-style-type: none"> • Acoustic • Wildlife • Marine Resources • Employment and Economy
		Change in marine fisheries and other uses	<ul style="list-style-type: none"> • Shipping traffic along the shipping route (ships per year) • Fisheries area affected (e.g., fishing area that is overlapped by the shipping route) • Attribute data on fisheries (e.g., target species, fishing gear types, harvest volume, frequency, and access) • Attribute data on other uses (e.g., recreational boating routes, marine park locations, visitor frequency, and access) • Changes in viewsapes, shipping related noise, and ambient light 	

VC	Subcomponent for Selected VC	Potential Project Effect	Indicator and/or Parameter	Linkage to Other VCs
Infrastructure and Services	<ul style="list-style-type: none"> Transportation infrastructure Housing and accommodations Community Infrastructure and services 	Change in infrastructure and services	<ul style="list-style-type: none"> Resident and transient population (number of persons) Number of workers for each phase Capacity, demand and supply of infrastructure and services (e.g., solid waste management/landfill capacity, health care and social services, emergency response services) 	<ul style="list-style-type: none"> Employment and Economy Land and Resource Use
		Change in accommodation availability	<ul style="list-style-type: none"> Availability of accommodations (vacancy rates, inventory levels) Cost of accommodation Measures of core housing needs (e.g., adequacy, affordability, and suitability) 	
		Change in transportation infrastructure	Daily road traffic volume, traffic incidents, air traffic volumes	
Human Health	<ul style="list-style-type: none"> Air quality (including diesel exhaust, ozone, polycyclic aromatic hydrocarbons, volatile organic compounds, and other air contaminants) Water quality Soil quality Harvested foods Noise sensitive receptors (e.g., residences) 	Change to human health	<p>Hazard quotient – the hazard quotient applies to non-carcinogenic effects, and it is the ratio between the dose (or exposure concentration) of a COPC to its toxicological reference value (i.e., the acceptable health-based dose or concentration)</p> <p>Incremental Lifetime Cancer Risk – the incremental lifetime cancer risk is a measurable parameter that applies to carcinogenic effects. It is the change in lifetime cancer risk associated with exposure to carcinogenic COPCs.</p> <p>Change in Percent Highly Annoyed (%HA) – the change in the percent of highly annoyed people between existing noise levels to Project-related noise levels.</p> <p>Change in electric and magnetic field exposure above background levels.</p>	<ul style="list-style-type: none"> Air Quality Acoustic Wildlife Freshwater Fish Marine Resources

VC	Subcomponent for Selected VC	Potential Project Effect	Indicator and/or Parameter	Linkage to Other VCs
Heritage	<ul style="list-style-type: none"> • Archaeological sites • Paleontological sites • Heritage sites • Culturally modified trees 	Loss of information about or alteration to site contents or context	Heritage value of heritage and archaeological resources being altered, removed or lost	<ul style="list-style-type: none"> • Land and Resource Use

6.4.3 Project Effects Assessment

The Application will follow the approach outlined below to assess positive and adverse effects of the Project on each VC. Any VC-specific deviations from these methods will be clearly described and justified. Where appropriate, information regarding residual effects on the human environment will be presented by sex, age, and other relevant identity factors, as determined through a gender-based analysis plus (GBA+¹) assessment prepared in consideration of federal GBA+ guidance, to identify disproportionate residual effects for diverse subgroups. Potential effects on biophysical factors that support ecosystem function will be clearly demonstrated.

Adverse effects may result from interactions between the Project and VCs, and may be avoided, reduced, restored, or offset through the application of mitigation and enhancement measures. Positive effects may occur as a result of Cedar's actions that maximize a wider range of direct and indirect positive, or desirable, effects from a project. Positive effects may occur as a result of mitigation measures that mitigate effects to the human or biophysical environment beyond the extent of effects predicted to be attributable to the Project.

For adverse effects, the Application will:

- Describe the analytical methods used to assess the adverse effect, including modelling approaches
- Identify assumptions used in the analytical methods
- Present the results of the analyses, including a detailed description of any potential residual effect (the description of the potential effect can be either qualitative or quantitative)
- Describe in qualitative terms the nature and degree of uncertainty or conservatism related to the data, modeling and methods used for the analysis, effectiveness of mitigation measures and proposed adaptive management measures, and prediction of potential residual effects (see Sections 6.5 and 6.7 for more details)

For positive effects, the Application will:

- Identify and assess key predicted positive effects
- Describe how long-term trends (e.g., changing environment, employment and technology) and market fluctuations have been considered

¹ Gender Based Analysis Plus (GBA+) provides a framework to describe the full scope of potential adverse and positive effects under the *Impact Assessment Act*. GBA+ is an analytical framework that guides practitioners, proponents, and participants to ask important questions about how designated projects may affect diverse or potentially vulnerable population groups (IAAC 2020). This is consistent with the BCEAA requirement for every assessment to consider disproportionate effects on distinct human populations, including populations identified by gender.

- Characterize the positive effect
- Describe how the positive effect may be monitored and/or adaptively managed

Details on methods are provided in Sections 6.4.4 to 6.8. Methods will be customized as appropriate to address positive and adverse effects, as applicable.

6.4.4 *Project Effects Mechanisms*

The Application will describe how effects on VCs could occur as a result of activities associated with the Project (project-effect pathways). The VC sections will describe the project effects mechanisms for each phase applicable to that VC (i.e., construction, operation, and decommissioning). Descriptions may be based on such resources as existing knowledge of potential effects identified through literature review and knowledge of previous projects in a similar geographical and cultural context.

6.4.5 *Analytical Methods*

This section of the Application will describe the VC-specific analytical methods applied in each VC assessment. The VC section will describe the analytical techniques applied in the assessment of project effects and a discussion of the conservative assumptions—assumptions that err on the side of overstating expected effects—to accommodate uncertainties arising from such sources as limitations in modelling results or the availability or quality of data. Making conservative assumptions that lead to an overstatement of expected effects increases confidence that the characterization of residual effects on a VC is not understated.

6.5 **Mitigation and Enhancement Measures**

This section of the Application will describe the proposed mitigation and enhancement measures. For each VC section, the Application will:

- Apply the mitigation hierarchy of avoid, minimize, restore onsite, and offset.
- Describe the best practices and avoidance measures incorporated into the project design to reduce potential effects, including site and route selection, project scheduling, design measures (e.g., equipment selection, placement, emissions abatement measures), and construction and operation procedures and practices.
- Describe any standard mitigation to be implemented, including consideration of best management practices, environmental management plans, environmental protection plans, contingency plans, emergency response plans, and other general practices.
- Describe the approach used to identify and select additional mitigation measures to be implemented to address potential adverse effects (including any offset plans).

- Describe measures that are specific to each identified effect and clearly indicate how the mitigation measures will reduce the potential adverse effects or how the enhancement measures will increase the positive effects on the VC.
- If applicable, describe how disproportionate effects to distinct human populations were used to inform mitigation and enhancement measures.
- If there is little relevant or applicable experience with a proposed mitigation measure and there is uncertainty as to its effectiveness, then the Application will describe the potential risks associated with use of the mitigation should those measures not be effective.
- Include the anticipated time required for mitigation measures to become effective, to enable understanding of the duration of residual effects and the temporal characteristics of reversibility.
- Summarize the mitigation measures for potential project effects by project phase and identify any mitigation measures that will be included in management or offset plans.
- If implementation of a mitigation measure would result in a material adverse environmental effect itself, include those effects in the environmental effects assessment.

The efficacy of mitigation measures implemented for other similar projects in the region, where this information is publicly available, will be considered in selecting mitigation measures for the Project.

For any proposed offsetting or compensation, the Application will provide conceptual offsetting or compensation plans that:

- Describe the existing conditions
- Describe mitigation measures and the application of principles of mitigation hierarchy
- Identify and describe residual effects
- Describe the proposed offsetting or compensation and provide a rationale
- Describe how the proposed offsetting or compensation aligns with published recovery, management, or action plans and strategies.
- Identify the location and timing of implementation of offsetting or compensation
- Describe the success criteria
- Identify the parties responsible for implementation, including monitoring and reporting

6.6 Assessing Positive Effects

For each potential positive effect, the Application will:

- Identify and assess key predicted positive effects
- Describe how long-term trends (e.g., changing environment, employment and technology) and market fluctuations have been considered
- Describe the positive effect quantitatively if possible, or qualitatively if quantification is not feasible or appropriate
- Describe how the positive effect may be monitored and/or adaptively managed

6.7 Assessing Adverse Effects

For each potential adverse effect, the section of the Application will:

- Present the results of the analyses, including a detailed description of any potential residual effect (the description of the potential effect can be either qualitative or quantitative).
- Describe in qualitative terms the nature and degree of uncertainty or conservatism related to the data, modelling and methods used for the analysis.
- Describe the effectiveness of mitigation measures and proposed adaptive management measures and describe the prediction of potential residual effects.

If additional risk analysis is required to fully characterize the potential risk where there is high uncertainty about the mitigation effectiveness (for example, where mitigation measures are proposed to be implemented for which there is little experience or questions about their effectiveness), a range of likely, plausible and possible outcomes will be assessed and additional studies, mitigation or contingency plans may be required. Where appropriate and disaggregated data are available, information regarding residual effects on the human environment will be presented by sex, age and other relevant identity factors, as determined through a GBA+ assessment prepared in consideration of federal GBA+ guidance, to identify disproportionate residual effects for diverse subgroups.

Where appropriate and feasible, adverse effects will be described quantitatively. Where a quantitative description is not possible, effects will be described qualitatively.

Where offsetting measures are proposed to directly or indirectly address a potential effect, the Application will first describe, either quantitatively or qualitatively, as applicable, any potential effects following the implementation of measures to avoid, minimize, and restore onsite but prior to the implementation of offsetting. The change to the VC prior to the implementation of offsetting will be clearly identified and described to fully understand the consequences of the proposed Project prior to the implementation of

offsetting. The Application will provide context by describing the proposed suite of mitigation, the extent of anticipated change, the need for and scope of offsetting or compensation, and the residual effect.

6.8 Summary of Residual Project Effects

The Application will provide a characterization of residual effects following the implementation of mitigation and enhancement measures. Where best practice- or evidence-based thresholds exist, residual effects will be compared to those criteria.

For every residual effect, the context needs to be described using qualitative and/or quantitative information, including:

- Effects of past and present projects and activities
- Potential trends in the condition of the VC
- Vulnerability and resiliency of the VC

For each residual effect, the Application will:

- Use the following criteria in characterizing adverse residual effects:
 - Direction
 - Magnitude
 - Extent
 - Duration
 - Reversibility
 - Frequency
 - Affected populations
 - Risk and uncertainty
- Define the criteria used to characterize the residual effect
- Where applicable, consider importance in characterizing the residual effect
- Describe the likelihood of the residual effect occurring and key residual effect thresholds using appropriate quantitative or qualitative terms and sufficient description to understand how the conclusions were reached

For each VC, the characterization of residual Project effects will be presented in a summary table following the format shown in Table 6.8.1.

When residual effects on a VC are predicted and the VC is also considered a “pathway” for other potential effects on other VCs, the Application will identify the linkages between the VCs.

Table 6.8.1: Summary of Residual Project Effects

Project Phase	Direction	Residual Effects Characterization Criteria							Likelihood of Residual Effects
		Magnitude	Extent	Duration	Reversibility	Frequency	Affected Populations	Risk and Uncertainty	
Effect #1									
Construction									
Operation									
Decommissioning									
Residual Project effect for all phases									
Effect #2									
Construction									
Operation									
Decommissioning									
Residual Project effect for all phases									

6.9 Cumulative Effects Assessment

The assessment of cumulative effects is initiated with a determination of whether two conditions are met:

- Project is assessed as having residual effects on the VC
- Residual effects could act cumulatively with residual effects of other past, present, or reasonably foreseeable future physical activities

If either condition is not met, the assessment of cumulative effects concludes with a statement that further assessment of cumulative effects is not warranted because the Project does not interact cumulatively with other projects or activities.

When both conditions are met, the Application will identify the project residual effects likely to interact cumulatively with the residual effects of other projects or physical activities. The cumulative effects assessment will include consideration of potential adverse effects requiring additional mitigation as well as those of particular importance or concern (i.e., interactions rated 1 and 2 as per Section 6.4). This will be followed by an analysis of the Project's contribution to the cumulative effects.

6.9.1 Project and Physical Activities Inclusion List

The Application will identify past, present and reasonably foreseeable future projects and activities that have been or that are likely to be carried out that may potentially interact cumulatively with the effects of the Project. Future projects and activities considered in the cumulative effects assessment will be those that are reasonably foreseeable—those that (a) have been publicly announced with a defined project execution period and with sufficient project details to allow for a meaningful assessment, and (b) are currently undergoing an environmental assessment and/or impact assessment or (c) are in a permitting process.

Table 6.9.1 provides a preliminary list of projects and physical activities that will be considered in the cumulative effects assessment. The list will be updated as needed until the AIR is finalized. The Application will include a map showing the locations of the activities included in the cumulative effects assessment and a general description of the information sources used to identify reasonably foreseeable future developments and activities.

The Application will identify and justify the spatial and temporal boundaries for the cumulative effect assessment for each VC included in the cumulative effects assessment.

Table 6.9.1: Preliminary Project and Physical Activities Inclusion List

Project or Physical Activity	Description
Past	
Former Eurocan Pulp and Paper Mill	The former Eurocan pulp and paper mill site. The site became a location for a work camp associated with the initial stages of the Kitimat LNG Project. As it is no longer operational, only the footprint will be assessed.
Former Moon Bay Marina	Former recreational marina, now owned by Rio Tinto. As it is no longer operational, only the footprint will be assessed.
Present or In Progress	
Coastal GasLink Pipeline (TransCanada Corp)	Approximately 670 km natural gas pipeline from Dawson Creek to Kitimat. Currently under construction and expected to be in-service to provide the feed gas for the LNG Canada Export Terminal in 2025.
Fairview Container Terminal Phase 1 and 2A* (DP World/Prince Rupert Port Authority)	A 24 ha intermodal (ship-to-rail) container terminal in Prince Rupert, with an operational capacity to move 1.35 million twenty-foot equivalent units (TEUs) per year.
LNG Canada Export Terminal	LNG export facility including an LNG processing and storage site and marine terminal expected to export up to 38.056 10 ⁹ m ³ (as natural gas equivalent) per year of LNG over 25 years. Currently under construction and expected to begin operation in 2025. The project incorporates the footprint of the former Methanex industrial site.

Project or Physical Activity	Description
LNG Canada Load Interconnection Project (BC Hydro)	A 287 kilovolt (kV) double circuit transmission line from BC Hydro's Minette Substation to the LNG Canada facility. The line is expected to be in service in 2021.
MK Bay Marina	A full-service marina with 140 berths located at the head of Douglas Channel.
Northland Cruise Terminal* (Prince Rupert Port Authority)	Cruise ships travelling to this terminal located in Prince Rupert use the inside passage route, typically transiting to Alaska from Vancouver or Seattle.
Northwest Transmission Line	An operating 344 km long 287 kV transmission line that extends north from the Skeena Substation near Terrace to near Bob Quinn Lake.
Pacific Northern Gas Pipeline	An operating 1,180 km natural gas pipeline distribution system connecting the Western system transmission pipeline with the Enbridge Inc. pipeline system near Summit Lake and extending 587 km to Kitimat.
Prince Rupert Ferry Terminal*	An operating ferry terminal for the Alaska Marine Highway and BC Ferries in Prince Rupert. BC Ferries offers year-round vehicle and passenger service between Prince Rupert, Port Hardy, and Skidegate. Alaska Marine offers service along the Inside Passage and to the Alaska Peninsula.
Prince Rupert Grain Terminal* (Prince Rupert Grain Ltd.)	A grain storage and handling terminal in Prince Rupert. The terminal can accommodate vessels up to 145,000 dead weight tonnes, and the facility is involved in cleaning and exporting over 6 million tonnes of Canada Wheat Board grains (e.g., wheat and barley) annually.
Prince Rupert LPG Export Terminal* (Pembina Pipeline Corp.)	LPG export terminal on Watson Island in Prince Rupert with the capacity of 25,000 barrels per day of LPG. Construction of the facility began in 2018. The facility is expected to begin operating in 2020.
Prince Rupert Marine Fuels Project* (Wolverine Terminals ULC)	Marine fueling service for cargo vessels located near the Westview Terminal in the Port of Prince Rupert. The fueling service is expected to be operational in mid-2020.
Rail activities	Commercial rail activities.
Ridley Terminals* (Ridley Terminals Inc.)	A marine bulk handling terminal for coal and related products in Prince Rupert. Updates to the facility, as part of a capacity realization project, were completed in 2014. The capacity realization project was expected to increase the terminals shipping capacity from 12 million tonnes per year to 25 million tonnes per year.
Ridley Island Propane Export Terminal* (AltaGas Ltd.)	A propane export terminal, opened in 2019, with the capacity to ship up to 1.2 million tonnes of propane per year. Propane is delivered to the facility via the existing CN rail network. The facility offloads approximately 50 to 60 rail cars per day and is expected to deliver by 20 to 30 cargos of propane per year to market via marine shipping. This facility is a tenant of Ridley Terminals in Prince Rupert.
Rio Tinto Aluminum Smelter	A smelter with the production capacity of approximately 420,000 tonnes of aluminum per year. A large modernization and expansion project was completed in 2015 which increased the smelter's capacity by 48%. The site includes an existing 287 kV BC Hydro transmission line and a 230 kV transmission line from the Kemano powerhouse.
Rio Tinto Terminal A Extension	Extension of the existing Terminal A wharf by up to 250 m to accommodate bulk carriers. The project includes a barge ramp, tug dock, and laydown area. It involves dredging (over three years), a dredge disposal site for contaminated dredged sediments and laydown soils and disposal at sea for other sediments. Construction is currently underway.
Sandhill Materials quarry	An operating 267-hectare sand, gravel and rock quarry located in southwest Kitimat.
Various forestry activities	Forestry activities including existing and future cut blocks.
Various fishing and aquaculture activities	Commercial, recreational, and aboriginal fishing, traditional harvesting, and aquaculture.

Project or Physical Activity	Description
Westview Wood Pellet Terminal* (Pinnacle Renewable Energy Inc.)	An operating wood pellet transfer and storage facility on Kaien Island in Prince Rupert that houses pellets brought in from Houston, B.C. that are exported to Asian markets.
Reasonably Foreseeable	
Cedar Feed Gas Connector Pipeline	An approximately 8 km long natural gas pipeline to deliver feed gas from a metering station near Kitimat to the Cedar LNG Project. The pipeline will follow a shared multi-use utilities corridor identified by the Ministry of Transportation and Infrastructure.
Fairview Container Terminal Expansion – Phase 2 B* (DP World/Prince Rupert Port Authority)	Proposed expansion of the Fairview Container Terminal in Prince Rupert. Expected to quadruple operation capacity to move 2 million TEUs per year. Project components include increasing the dock area from 24 to 56 ha, and thereby expanding on-site storage capacity.
Kinskuch Lake Hydro* (WindRiver Power Corporation)	Proposed 80 megawatt capacity hydroelectric project on Kinskuch Lake near Alice Arm. Major components include a small concrete dam, tunnel, penstocks, powerhouse and tailrace, and a 39 km 138 kV transmission line connecting with the existing transmission line along Highway 37. The provincial environmental assessment process is currently underway for this project.
Kitimat LNG Project (Chevron Canada Limited/Woodside Energy Ltd.)	The project includes an LNG plant, marine terminal, power line, connecting natural gas pipeline, condensate return pipeline, access road, and use of existing shipping routes in B.C. coastal waters. The project received an Environmental Assessment Certificate in 2006 and is currently approved for a 10 MTPA production capacity. An amendment process to increase the facility's capacity to 18 MPTA was initiated in July 2019 but this was withdrawn in July 2021.
Kitimat LPG Export Project (Pacific Traverse Energy)	A proposed 1.25 million tonne per year liquefied petroleum gas (LPG) export project to be located in Kitimat. The project is to include a new marine terminal with a floating storage vessel and supporting equipment, a new railyard, a new 15 km LPG pipeline from the railyard to the marine terminal. This project is currently in the pre-FID phase.
Pacific Northern Gas Pipeline Looping Project (Pacific Northern Gas Ltd.)	Proposed upgrade to an existing natural gas pipeline between Summit Lake and Kitimat. The proposed project involves construction of a new 524 km long pipeline parallel to the existing pipeline. The project started the environmental assessment process in 2013 but has been on hold until recently due to lack of demand. Pacific Northern Gas may revive the project as new industrial projects (such as small-scale LNG projects) are proposed in the Terrace and Kitimat region.
Port Edward Small Scale LNG (Port Edward LNG)	Proposed small scale LNG facility in Port Edward that will export 300,000 tonnes of LNG per year via ISO containers shipped out of the Port of Prince Rupert. The first phase (150,000 tonnes/year) is planned to be operational in December 2022 and the second train is planned to be operational in July 2024. The project will have 64 employees for operation of the first phase.
Prince Rupert Gas Transmission Project* (TransCanada Corp.)	Proposed 750 km natural gas pipeline system from northeastern British Columbia to Prince Rupert. The project was granted an EAC in 2017 but has yet to proceed. In 2019, the EAO granted an extension to the deadline in the EAC to substantially start the project.
Pacific Trail Pipelines (Chevron Canada Limited/Woodside Energy Ltd.)	A proposed 471 km natural gas pipeline from northeastern British Columbia via Summit Lake to the Kitimat LNG Terminal that will be located at Bish Cove in Kitimat. The FID is expected along with the Kitimat LNG Project.
Ridley Island Export Logistics Platform Project* (Prince Rupert Port Authority)	Proposed construction and operation of an export logistics platform on Ridley Island in Prince Rupert including new rail, a container yard, bulk transload facility, and break bulk facility. The Project will have an annual transload capacity of 400,000 TEUs, the potential for expansion to 700,000 TEUs over a ten-year period.

Project or Physical Activity	Description
Ridley Terminals Berth Expansion Project* (Ridley Terminals Inc.)	Terminal expansion project involving dredging, construction of a new berth and trestle, and widening of an existing trestle at the existing Ridley Terminals facility in Prince Rupert. An Environmental Effects Evaluation was completed and a Notice of Determination pursuant to section 67 of the <i>Canadian Environmental Assessment Act, 2012</i> was issued in August 2019.
Skeena LNG (Top Speed Energy)	Small scale LNG facility proposed for the Skeena Industrial Development Park near Terrace. The facility would liquefy natural gas and ship the LNG via truck to Prince Rupert for delivery to domestic or international markets via Fairview Container Terminal.
Terrace to Kitimat Transmission Project (BC Hydro)	Refurbishment of the existing 287 kilovolt transmission line between Terrace and Kitimat to meet current and confirmed future electricity demand. BC Hydro is rebuilding and reframing 26 structures and installing taller structure to increase the capacity of the lines by 2023. Some access upgrades and vegetation clearing may also be required to support the refurbishment.
Vopak Pacific Canada Storage and Export Facility* (Vopak Development Canada Inc.)	A proposed bulk liquid (LPG and clean petroleum products) storage and export facility near Prince Rupert. The project components including a bulk liquids tank storage facility, a jetty with two berths for vessels up to 85,000 m ³ capacity, and supporting infrastructure. Bulk liquids will arrive by rail, be transferred into storage tanks through a refrigeration system, and ultimately loaded into vessels. The facility expects to load approximately 150 vessels per year at full capacity. Operations are expected to commence in 2022.
Westcoast Connector Gas Transmission Project* (Enbridge Inc.)	Proposed 850 km natural gas pipeline system consisting of two adjacent pipelines from northeastern B.C. to Prince Rupert. The project was granted an EAC in 2014 but has yet to proceed. In 2019, the EAO granted an extension to the deadline in the EAC to substantially start the project.
Ksi Lisims LNG Facility*	A proposed floating LNG facility at the north end of Pearse Island on Portland Canal. Shipping activities may interact cumulatively near the Triple Island marine pilot boarding station.
NOTE: * These projects will be included in the cumulative assessment of economic and social VCs and applicable biological interactions with shipping.	

6.9.2 Identification of Project Effects Likely to Interact Cumulatively

Using the format of Table 6.9.2, the Application will identify the interactions between the Project's residual effects and those of other projects and activities. A conservative approach will be taken in identifying such interactions; if there is reasonable doubt about whether a cumulative interaction might occur, the interaction will be considered. If it is determined that the Project does not act cumulatively with other physical activities, then the assessment ends at this point because the Project will not contribute to cumulative effects.

Table 6.9.2: Potential Project Interactions and Effects on VC

Other Projects and Physical Activities with Potential for Cumulative Effects	Potential Cumulative Effects			
	Effect 1	Effect 2	Effect 3	Effect 4
Past and Present Physical Activities				
Project/Physical Activity 1				
Project/Physical Activity 2				
Project/Physical Activity 3				
Project/Physical Activity 4				
Reasonably Foreseeable Physical Activities				
Project/Physical Activity 5				
Project/Physical Activity 6				
KEY: ✓ = Those “other projects and physical activities” whose effects are likely to interact cumulatively with the Project’s residual effects. – = Interactions between the residual effects of other projects and residual effects of the Project are not expected.				

6.9.3 Cumulative Effects Mechanisms

The Application will describe the mechanisms by which the cumulative effects identified above may occur and the geographic and temporal scope of any identified effects.

6.9.4 Analytical Methods to Determine Cumulative Effects

The Application will describe methods to be used for the cumulative effects assessments (e.g., data sources, analysis).

6.9.5 Mitigation and Enhancement Measures for Cumulative Effects

The Application will identify mitigation and enhancement measures that will be implemented, in addition to the previously described project-specific mitigation and enhancement measures, to reduce or manage cumulative effects. There may not be additional measures that can be implemented by Cedar. If so, there will be a clear discussion of this. Given that cumulative effects that may occur would likely result from interactions of physical activities outside of Cedar’s control, consideration will be given to collaborative initiatives that may involve the proponents of other projects or physical activities and other third parties (e.g., governments, Indigenous Nations, other stakeholders, and non-governmental organizations).

6.9.6 Summary of Cumulative Effects

After application of any applicable additional mitigation measures, the Application will describe the resulting residual cumulative effects using the relevant indicators and appropriate criteria described in Section 6.9.6, and any known thresholds from provincial or federal cumulative effects initiatives or regional strategies. Tabular summaries may be used to summarize the changes to the VC, such as the format shown in Table 6.9.3.

Table 6.9.3: Summary of Cumulative Effects

Residual Cumulative Effect	Cumulative Effects Rating Criteria							Likelihood of Residual Effects
	Magnitude	Extent	Duration	Reversibility	Frequency	Affected Populations	Risk and Uncertainty	
Effect #1								
Residual Cumulative Effect with the Project								
Project Contribution to Residual Cumulative Effects								
Effect #2								
Residual Cumulative Effect with the Project								
Project Contribution to Residual Cumulative Effects								

6.10 Follow-up Strategy

Where a positive or adverse residual effect and/or cumulative effect has been identified for a VC, the Application will include a description of a follow-up strategy, where appropriate, that:

- Identifies the measures to ensure that mitigation measures are implemented as planned.
- Identifies the measures to evaluate the effectiveness of proposed mitigation measures to meet the intended mitigation commitments and goals.
- Identifies the regulatory instruments that include a monitoring requirement for the VC.
- Identifies any large or complex monitoring program that is not linked to a regulatory instrument.
- Identifies a follow-up program for environmental, health, social, or economic effects, as applicable, include disproportionate effects highlighted by GBA+.
- Proposes an appropriate strategy (e.g., adaptive management) to apply if predicted effects and mitigation effectiveness are not as expected. This includes reference to further mitigation, involvement of key stakeholders, Indigenous Nations, government agencies and any other measures deemed necessary to manage the issue.
- Identifies a mechanism to disseminate follow-up results among interested parties.

- Identifies the duration and timing of the follow-up strategy.
- Identifies involvement of Indigenous Nations in the follow-up strategy design and implementation, evaluation of the follow-up results, as well as any updates, including a communication mechanism between the Indigenous Nations and Cedar.

7.0 VALUED COMPONENTS EFFECTS ASSESSMENT

This section of the Application will include the headings and information identified in the following subsections. The assessment approach will generally follow the methods outlined in Section 6.0. Any VC-specific deviations will be described. The results of the VC assessments will set the stage for the discussion of biophysical factors that support ecosystem function (in Section 21.0) and factors that support community well-being (in Section 22.0).

7.1 Environmental and Community Context

This section of the Application will provide a landscape-level overview of the region where the Project is to be located, to set the context for the assessment and allow a comprehensive understanding of the current level of ecosystem functions and community well-being.

7.2 Air Quality

The Application will provide an assessment of potential residual and cumulative effects of the Project on air quality. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.2.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on air quality from the Project (during all project phases) including vessels at berth for loading. A description of potential effects on air quality from shipping traffic along the marine shipping route will be provided. This will include results of other completed assessments in the area, a discussion of distance to the nearest sensitive receptors, and a description of these potential effects.

The assessment will include a description of statutes, policies and frameworks that are relevant to air quality management. Policies and frameworks relevant to the air quality VC include:

- *Canadian Environmental Protection Act, 1999* (including the 2020 and 2025 Canadian Ambient Air Quality Standards)
- *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air Quality* (Health Canada 2016)
- Government of Canada National Pollutant Release Inventory

- *Environmental Management Act*
- British Columbia Air Quality Objectives (ENV 2019)
- *British Columbia Air Quality Dispersion Modelling Guideline* (ENV 2015)

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The air quality assessment will focus on emissions of CACs, namely SO₂, NO₂, CO, and PM_{2.5}, emitted by the construction, operation and decommissioning of the LNG facility, including vessels at berth for loading.

The Application will define potential effects to air quality and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Table 7.2.1 presents the potential project effect to air quality and the indicators that will be used in the Application to evaluate the potential project effect.

Table 7.2.1: Indicators to Evaluate Potential Effects to Air Quality

Potential Project Effect	Indicator
Increase in concentrations of ambient air pollutants.	Ambient concentrations of CACs, including SO ₂ , NO ₂ , CO, PM _{2.5} , based on dispersion modelling. Deposition rates of sulphur (S), nitrogen (N), and sulphur plus nitrogen (N+S), based on dispersion modelling

The Application will identify and justify the spatial and temporal boundaries for the air quality assessment. An air dispersion model for the FLNG facility will be prepared in accordance with the current *British Columbia Air Quality Dispersion Modelling Guideline* (ENV 2015). The air quality assessment will describe four dispersion model scenarios:

- Base Case—existing and approved regional source emissions
- Project-Alone Case—Project-alone emissions
- Application Case—Project and regional source emissions
- Cumulative Case—Application case and emissions from reasonably foreseeable projects

Based on feedback from Indigenous Nations and other stakeholders, a plume behaviour study of emissions from LNG carriers and associated tugboats will be prepared using dispersion modelling. Locations along the shipping route that represent open terrain in Hecate Strait and confined terrain along Douglas Channel will be assessed for the entire shipping route.

Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (and Figure 6.2.1). The LAA and RAA are the same and will be used to assess both project-specific effects on air quality and cumulative effects of regional and foreseeable future projects. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.2.2 Existing Conditions

Air quality in the Kitimat area is generally very good due to prevailing winds. Air quality in Kitimat is influenced by nearby industrial facilities. Due to the industrial history of Kitimat, local air quality and meteorological data have been extensively monitored for more than 20 years. There are currently four active monitoring stations in or near the Kitimat townsite and Kitimaat Village (Kitimaat 2). At one location near the Rio Tinto site, SO₂, NO₂, PM₁₀, PM_{2.5}, H₂S, and ozone are monitored on a continuous basis.

The Application will:

- Describe major direct and indirect sources of baseline air emissions in the assessment areas, including mobile, stationary and fugitive emissions.
- Characterize ambient concentrations of criteria air contaminants (e.g., PM_{2.5}, PM₁₀, CO, SO₂, and NO₂) using monitoring data with appropriate duration, representativeness, data completeness, data validation and quality control.
- Predict Base Case using air dispersion modelling developed in accordance with the British Columbia Dispersion Modelling Guideline (ENV 2015), to determine the spatial distribution of pollutants in the assessment area.
- Describe the local and regional climate including historical records of relevant meteorological information (e.g., precipitation, air temperature, wind).
- Describe available Indigenous or local knowledge related to current air quality conditions.

7.2.3 Project Interactions

The Application will include a description of project interactions with air quality, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.2.4 *Project Effects Assessment*

The assessment of Project residual effects on air quality will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.2.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to air quality, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.2.6 *Follow-up Strategy*

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of air quality, following the procedure described in Section 6.10.

7.3 **Acoustic**

The Application will provide an assessment of potential residual and cumulative effects of the Project on the acoustic environment. Underwater noise effects will be considered in the marine resources VC. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.3.1 *Scope of Assessment*

The Application will define and describe the scope of the assessment of potential effects on the acoustic environment from the Project (during all project phases). This includes a quantitative assessment of potential effects on the acoustic environment from shipping traffic along the marine shipping route.

The assessment will include a description of statutes, policies and frameworks that are relevant to noise management. Policies and frameworks relevant to the noise VC include:

- *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise* (Health Canada 2017)
- *British Columbia Noise Control Best Practices Guideline* (OGC 2021)

District of Kitimat noise bylaws regulate noise generated by typical residential activities (e.g., musical instruments, pets, power tools) and do not provide quantitative sound level limits for industrial activities; therefore, the assessment will focus on provincial and federal noise guidance.

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The acoustic assessment will focus on potential noise effects on nearby noise sensitive receptors during the construction and operation phases. Noise during the decommissioning phase is expected to be the same or lower than during the construction phase.

The Application will define potential effects to the acoustic environment and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

The Project is expected to contribute to an increase in noise during each project phase, as a result of the activities described below:

- Construction: operation of equipment and vehicles during earthworks and construction, installation of piles (if required), blasting (if required)
- Operation: operation of the LNG facility, loading of carriers
- Decommissioning: operation of equipment

Table 7.3.1 presents the potential project effects to the acoustic environment, and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.3.1: Indicators to Evaluate Potential Effects to the Acoustic Environment

Potential Project Effect	Indicator
Increased noise levels causing nuisance, annoyance and sleep disturbance to people, as well as displacement and sensory disturbance to wildlife	<p>A-weighted sound pressure levels (dBA), including daytime L_d, nighttime L_n, and day-night average level L_{dn} as well as L_{max} and the frequency of night-time noise events</p> <p>Change in percent highly annoyed</p> <p>Low frequency noise effects (linear {dBL}, A-weighted {dBA}, and C-weighted {dBC} sound pressure level)</p>

The Application will identify and justify the spatial and temporal boundaries for the acoustic assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.2). The LAA and RAA are the same and will be used to assess both project-specific effects on the acoustic environment and cumulative effects of regional and reasonably foreseeable future projects. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.3.2 Existing Conditions

The existing acoustic environment in the area of the Project is characterized by variable sound from the natural environment such as wind, waves, marine and terrestrial wildlife, as well as anthropogenic sound. Sources of anthropogenic sound include marine traffic, air traffic, and other human activity. The closest residential houses are approximately 3 km east of the Project Area, in Kitamaat Village (Kitamaat 2). Noise levels in the area are generally consistent with rural areas. However, noise levels to the north, near Kitimat, are influenced by nearby industrial facilities.

The Application will:

- Provide information on receptors in the assessment areas and distances of receptors from the Project
- Describe estimated baseline sound levels at key receptor points based on information available in similar assessments within the region and regulatory noise guidelines
- Describe typical sound sources, geographic extent and temporal variations
- Describe current conditions related to noise for occupants or resource users
- Describe available Indigenous or local knowledge related to the current condition of the acoustic environment

7.3.3 Project Interactions

The Application will include a description of the project interactions with the acoustic environment, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.3.4 *Project Effects Assessment*

The assessment of project residual effects on the acoustic environment will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.3.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to the acoustic environment, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.3.6 *Follow-up Strategy*

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of the acoustic environment, following the procedure described in Section 6.10.

7.4 **Vegetation Resources**

The Application will provide an assessment of potential residual and cumulative effects of the Project on vegetation resources. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.4.1 *Scope of Assessment*

The Application will define and describe the scope of the assessment of potential effects on vegetation resources from the Project (during all project phases). The assessment will include a description of statutes, policies and frameworks that are relevant to vegetation and wetland management. Policies and frameworks relevant to the vegetation resources VC include:

- *Species at Risk Act (SARA)*
- *The Federal Policy on Wetland Conservation (Government of Canada 1991)*
- *Oil and Gas Activities Act*, including Environmental Protection and Management Regulation and Environmental Protection and Management Guideline

- *Forest and Range Practices Act*
- *Forest Act*
- *Weed Control Act*
- *Water Sustainability Act*
- British Columbia Conservation Framework
- Environmental Mitigation Policy for British Columbia
- Ministry of Environment and Climate Change Strategy Critical Load Screening Guidance for Acidification and Eutrophication of Terrestrial Ecosystems

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to vegetation resources and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Table 7.4.1 presents the potential project effects to vegetation resources and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.4.1: Indicators to Evaluate Potential Effects to Vegetation Resources

Potential Project Effect	Indicator
Change in the abundance of plant species of interest	Abundance of: <ul style="list-style-type: none"> • Plant species at risk (federally or provincially listed) • Traditional use plant species • Invasive plant species (provincially or regionally listed)
Change in abundance or condition of ecological communities of interest	Areal extent (ha) of direct loss and/or potential indirect effects to condition within 120 m of: <ul style="list-style-type: none"> • Ecological communities at risk (provincially listed) by structural stage • Old forest
Change in wetland functions	Areal extent (ha) of wetland ecosystems by structural stage Characteristics of wetland functions (hydrological, biogeochemical, and habitat)
Change in native vegetation health and diversity due to air emissions	Areal extent (ha) of sensitive vegetation communities where: <ul style="list-style-type: none"> • Critical levels for SO₂ and NO₂ are exceeded • Critical thresholds for eutrophication are exceeded • Critical thresholds for soil acidification are exceeded

The Application will identify and justify the spatial and temporal boundaries for the vegetation assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.4). Project-specific effects on vegetation resources will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.4.2 Existing Conditions

The western shore of Kitimat Arm is a wet, humid, mild, oceanic climate in the sub-montane variant of the Coastal Western Hemlock Very Wet Maritime Subzone. Zonal forests in this subzone are dominated by western hemlock (*Tsuga heterophylla*), amabilis fir (*Abies amabilis*), and western redcedar (*Thuja plicata*) with a thick shrub understory of conifer regeneration and blueberries (*Vaccinium*), with a sparse herb layer of bunchberry (*Cornus canadensis*), deer fern (*Struthiopteris spicant*), and spiny wood fern (*Dryopteris expansa*), carpeted with feather and leafy mosses (Banner et al. 2003). Wetter forested site units dominate the landscape in the Coastal Western Hemlock Very Wet Maritime Subzone, even on sloping terrain. Wetter forests are dominated by amabilis fir, western redcedar, western hemlock, Sitka spruce (*Picea sitchensis*), and yellow cedar (*Cupressus nootkatensis*). Understory vegetation includes devil's club (*Oplopanax horridus*), foamflower (*Tiarella*), salmonberry (*Rubus spectabilis*), and oak fern (*Gymnocarpium dryopteris*). Lanky (*Rhytidiadelphus loreus*) and leafy mosses and green sphagnum are common (Banner et al. 2003). Wetlands in the vicinity of the Project are limited by steep, well-drained slopes.

For the LAA, the Application will:

- Identify and classify terrestrial ecosystems according to *A Field Guide to Site Identification and Interpretation for the Prince Rupert Forest Region* (Banner et al. 1993) and Terrestrial Ecosystem Mapping (TEM), which will be completed to survey intensity level 3 standards (RIC 1998a) and a scale of 1:5,000
- Describe the location, extent and condition of ecological communities of conservation concern.
- Identify and classify wetland associations following *Wetlands of British Columbia: A Guide to Identification* (Mackenzie and Moran 2004) and characterize wetland functions.
- Identify the location and extent of old forest ecosystems.
- Identify the location and abundance of plant species at risk, based on targeted field surveys as applicable.
- Describe the presence and abundance of invasive and non-native species.
- Provide information on the presence of traditional use plants, integrating available Indigenous and local knowledge as applicable.

7.4.3 *Project Interactions*

The Application will include a description of the project interactions with vegetation resources, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.4.4 *Project Effects Assessment*

The assessment of project residual effects on vegetation resources will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment
- A description of the project mechanisms with potential to result in effects to the VC
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects

7.4.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to vegetation resources, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.4.6 *Follow-up Strategy*

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of vegetation resources, following the procedure described in Section 6.10.

7.5 **Wildlife**

The Application will provide an assessment of residual and cumulative effects of the Project on wildlife. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.5.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on wildlife from the Project (during all project phases) and from marine shipping and transportation. The assessment will include a description of statutes, policies and frameworks that are relevant to wildlife management. Policies and frameworks relevant to the wildlife VC include:

- *Species at Risk Act*
- *Oil and Gas Activities Act*, including Environmental Protection and Management Regulation and Environmental Protection and Management Guideline
- *Forest and Range Practices Act*
- *Wildlife Act*
- *Migratory Birds Convention Act*
- British Columbia Conservation Framework
- Policy for Mitigating Impacts on Environmental Values (Environmental Mitigation Policy) and Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures)

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to wildlife and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Project activities have potential to affect migratory and non-migratory birds and terrestrial wildlife. Construction of Project components will remove habitat and alter habitat suitability for some wildlife species. Mortality risk for wildlife may increase during construction due to increased human presence, use of heavy equipment, vegetation clearing, and collision with vehicles or infrastructure. Movement of wildlife may change during construction in response to perceived barriers or increased sensory disturbance.

Construction and operation of the floating LNG facility and small craft jetty are likely to alter shoreline and nearshore habitat and may change habitat availability and suitability for marine birds. Mortality risk and movement patterns of marine birds may also change due to use of artificial lighting and increased vessel traffic. Decommissioning activities are expected to result in similar effects pathways to wildlife as are anticipated during construction.

Table 7.5.1 presents the potential project effects to wildlife and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.5.1: Indicators to Evaluate Potential Effects to Wildlife

Potential Project Effect	Indicator
Change in habitat	Change in availability of suitable effective habitat ¹ for key wildlife species will be assessed quantitatively or qualitatively, depending on the key species or species groups (grizzly bear, moose, Pacific marten, bats, marbled murrelet, old forest songbird community, young forest songbird community, western toad, coastal tailed frog, marine birds)
Change in mortality risk	Mortality risk due to extent, duration, and timing of vegetation clearing, equipment and vehicle use, and presence of permanent project components
Change in movement	Habitat connectivity and spatial extent and duration of construction activities and permanent project components
<p>NOTE:</p> <p>¹ Suitable habitat will be estimated using habitat suitability models based on TEM for grizzly bear (spring and fall feeding), moose (winter feeding and shelter), Pacific marten (year-round living), and marbled murrelet (breeding season) because there is adequate knowledge of these species' seasonal habitat requirements in the Project Area and there are existing TEM models that overlap the marine terminal LAA. Suitable breeding habitat for western toad will be estimated based on TEM. A qualitative assessment of suitable habitat for bats, western toad (overwintering), and coastal tailed frog will be supported by TEM, existing data, or results from project-specific surveys in the marine terminal LAA. A qualitative assessment of suitable habitat will be undertaken for marine birds in the shipping LAA supported by existing data and knowledge of species-habitat associations.</p>	

The Application will identify and justify the spatial and temporal boundaries for the wildlife assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.5 and Figure 6.2.6). Project-specific effects on wildlife will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.5.2 Existing Conditions

Terrestrial ecosystems in the Kitimat area support a wide variety of wildlife species, including mammals (e.g., grizzly bear [*Ursus arctos*], black bear [*Ursus americanus*], Pacific marten [*Martes caurina*]), raptors (e.g., bald eagle [*Haliaeetus leucocephalus*], osprey [*Pandion haliaetus*]), forest birds (e.g., marbled murrelet [*Brachyramphus marmoratus*], olive-sided flycatcher [*Contopus cooperi*], western screech-owl [*Megascops kennicottii kennicottii*]), and amphibians (e.g., western toad [*Anaxyrus boreas*], coastal tailed frog [*Ascaphus truei*]). Nearshore marine ecosystems support many species of shorebirds, wading birds, waterfowl, and marine birds (e.g., great blue heron [*Ardea herodias fannini*], surf scoter [*Melanitta perspicillata*]).

Several wildlife species that are known to occur in the Kitimat area are species of conservation concern and are listed federally on Schedule 1 of the SARA or on the provincial red or blue lists. Species of conservation concern that have previously been documented in the area include grizzly bear, little brown myotis (*Myotis lucifugus*), marbled murrelet, northern goshawk (*Accipiter gentilis laingi*), olive-sided flycatcher, western screech-owl, and coastal tailed frog. Habitat in the Project Area and transmission line corridor may support one or more of these species of conservation concern.

The Application will:

- Include a current list of species of conservation concern expected to occur in the assessment areas.
- For each species, provide federal (COSEWIC and SARA) and provincial (CDC List and Conservation Framework Rank) conservation status, expected occurrence timing (e.g., months; seasons), and general habitat associations (e.g., old forest; wetlands).
- Describe the occurrence, distribution, population status, threats, and conservation goals for the following key wildlife species: grizzly bear, moose, Pacific marten, marbled murrelet, bats, western toad, and coastal tailed frog. Since it is not feasible to assess all wildlife species that may occur in the assessment areas, key wildlife species were selected because they represent a range of habitat types (e.g., old coniferous forest, wetlands) over various spatial and temporal scales (e.g., summer, winter) in the assessment areas. Key wildlife species also represent other wildlife species with overlapping habitat requirements and can be used as a proxy for assessing other species or species groups.
- Describe project-specific baseline surveys completed for the marine terminal LAA, including a detailed description of the methods used and how the results helped to characterize existing conditions (e.g., filled an information gap; confirmed or refuted older information).
- Describe the location, distribution, condition, and amount of suitable habitat that provides the seasonal and/or annual life requisites, using habitat suitability models based on TEM for grizzly bear (spring and fall feeding), moose (winter feeding and shelter), Pacific marten (year-round living), and marbled murrelet (breeding season). Describe the location, distribution, condition, and amount of suitable habitat for western toad (breeding) using TEM.
- Include an assessment for bats (summer roosting and winter hibernation), old forest songbird community (summer breeding), young forest songbird community (summer breeding), western toad (breeding and overwintering), and coastal tailed frog (year-round living) using a combination of quantitative and qualitative methods supported by TEM, existing data, and/or results from project-specific surveys in the marine terminal LAA.
- Include a qualitative assessment of marine birds using five categories of marine birds that use similar habitat types (i.e., shorebirds, diving ducks, dabbling ducks, loons and cormorants, and alcids) that will be supported by existing data and results from project-specific surveys in the shipping RAA.
- Describe the location, distribution, condition, and amount of “critical habitat” (e.g., as defined in a recovery strategy, conservation plan, or similar document).
- Include a list of Ungulate Winter Ranges, Wildlife Habitat Areas, Wildlife Management Units, Grizzly Bear Population Units, Important Bird Areas, Bird Conservation Regions, or sanctuaries and the extent to which these overlap with the wildlife VC spatial boundaries.

- Include a list or description of relevant wildlife and wildlife habitat management objectives as defined in Land and Resource Management Plans or Sustainable Resource Management Plans.
- Describe the location and relative importance or significance of wildlife habitat features (e.g., breeding colonies; travel corridors; mineral licks; protected nests; dens; roosts).
- Describe any established conservation thresholds (e.g., as defined in a recovery strategy, conservation plan, or similar document) and whether these are exceeded at baseline (e.g., linear feature density; core security habitat; critical habitat).
- Describe any relevant existing conditions from British Columbia Cumulative Effects Framework reports.
- Provide reference to species of Indigenous cultural use and value.
- Describe available Indigenous or local knowledge related to wildlife.

7.5.3 *Project Interactions*

The Application will include a description of the project interactions with wildlife, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.5.4 *Project Effects Assessment*

The assessment of project residual effects on wildlife will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment
- A description of the project mechanisms with potential to result in effects to the VC
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects

7.5.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to wildlife, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.5.6 Follow-up Strategy

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of wildlife, following the procedure described in Section 6.10.

7.6 Freshwater Fish

The Application will provide an assessment of potential residual and cumulative effects of the Project on freshwater fish. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.6.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on freshwater fish from the Project (during all project phases). Freshwater fish in the Application are defined as fish present in the freshwater environment. Potential Project effects on freshwater life stages of anadromous fish (e.g., salmon) will be discussed in this section and potential effects during their marine life stages will be included in Section 7.7. The assessment will include a description of statutes, policies and frameworks that are relevant to freshwater fish management.

Policies and frameworks relevant to the freshwater fish VC include:

- *Fisheries Act*
- Fisheries and Oceans Canada policies, including Framework for Assessing the Ecological Flow Requirements to Support Fisheries in Canada
- *Species at Risk Act*
- *Oil and Gas Activities Act*, including Environmental Protection and Management Regulation and Environmental Protection and Management Guideline
- *Wildlife Act*
- *Water Sustainability Act*
- *Environmental Management Act*
- British Columbia Environmental Flow Needs Policy (FLNRO 2016)

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The construction of the marine terminal and transmission line has the potential to alter instream and riparian habitat quality for freshwater fish, including through changes to water quality and quantity. Decommissioning may have similar impacts as those during construction. The *Fisheries Act* prohibits works, undertakings, or activities that result in HADD of fish habitat or the death of fish by means other than fishing, unless authorized by DFO. The freshwater fish assessment will focus on risk of fish mortalities and potential areas of HADD of fish habitat.

The Application will define potential effects to freshwater fish and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Table 7.6.1 presents the potential project effects to freshwater fish, and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.6.1: Indicators to Evaluate Potential Effects to Freshwater Fish

Potential Project Effect	Indicator
Change in surface water quality	Changes in surface water quality parameters (e.g., temperature [°C], TSS [mg/L], pH) Acidification or eutrophication of surface waters
Change in habitat	Area of expected harmful alteration, disruption or destruction of fish habitat (HADD) of fish habitat (e.g., aerial extent of change (m ²))
Change in fish health or mortality risk	Risk of fish health changes or mortalities due to extent, duration, or timing of instream work, or modification of flows Risk of fish health changes or mortalities due to short term changes in water quality (e.g., total suspended solids [mg/L], pH)

The Application will identify and justify the spatial and temporal boundaries for the freshwater fish assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.7). Project-specific effects on freshwater fish will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.6.2 Existing Conditions

Several watercourses are present in the vicinity of the Project, including Moore Creek, Anderson Creek and Beaver Creek. These streams and their tributaries flow into the Kitimat River estuary and Kitimat Arm. Unnamed tributaries to Douglas Channel also have potential to interact with the Project. Salmonids supported in these watercourses include coho salmon (*Oncorhynchus kisutch*), chinook salmon (*O. tshawytscha*), chum salmon (*O. keta*), pink salmon (*O. gorbuscha*), coastal cutthroat trout (*O. clarkii clarkii*), rainbow trout (*O. mykiss*), and Dolly Varden (*Salvelinus malma*). Although few eulachon (*Thaleichthys pacificus*) have been reported in the area in the past 30 years, historically, eulachon spawned in the lower Kitimat River. None of these species are listed under the *Species at Risk Act*, but coastal cutthroat trout are provincially blue-listed.

The Central Pacific Coast population of eulachon (which includes the Kitimat River runs) are considered endangered by the Committee of the Status of Wildlife in Canada and are currently under consideration for status change under the *Species at Risk Act* by DFO. Habitat at the watercourse crossings may provide spawning, rearing or overwintering habitat that support the productivity of relevant fisheries. However, the watercourse crossings are further upstream than most records of fish presence, in areas with steep gradients and natural barriers to fish passage, such as cascades and waterfalls. The presence of fish and consequent utilization of the habitat will be evaluated at each crossing of a fish bearing watercourse.

The Application will:

- Provide maps of the watershed(s) in the vicinity of the Project showing potentially impacted watercourses and waterbodies, including known watercourse crossings.
- Describe and provide maps of relevant fish habitats, including characteristics that directly and indirectly support fish in carrying out their life processes.
- Describe the historical occurrence, distribution, and conservation status of freshwater fish in the watercourses and waterbodies.
- Describe and provide project-specific baseline surveys, including the methods used and how the results helped to characterize existing conditions (e.g., filled an information gap, confirmed or refuted older information).
- Describe the fish species present and an estimate of the relative abundance of those species.
- Describe the location of important fish habitats and their relative significance.
- Describe habitat use, including seasonal variability in habitat use.
- Provide reference to species of Indigenous cultural use and value.
- Describe of available Indigenous or local knowledge related to freshwater fish.

7.6.3 Project Interactions

The Application will include a description of the project interactions with freshwater fish, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.6.4 *Project Effects Assessment*

The assessment of project residual effects on freshwater fish will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.6.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to freshwater fish, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.6.6 *Follow-up Strategy*

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of freshwater fish, following the procedure described in Section 6.10.

7.7 **Marine Resources**

The Application will provide an assessment of potential residual and cumulative effects of the Project on marine resources. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.7.1 *Scope of Assessment*

The Application will define and describe the scope of the assessment of potential effects on marine resources from the Project (during all project phases) and from marine shipping and transportation. The marine resources VC includes marine fish and fish habitat as defined by the *Fisheries Act* and marine aquatic species as defined by the *Species at Risk Act*. The definition of fish in the *Fisheries Act* includes marine animals such as marine mammals. Marine birds will be discussed in Section 7.5.

The *Fisheries Act* defines fish as “(a) parts of fish, (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals,” and it defines fish habitat as “water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas.”

The assessment will include a description of statutes, policies and frameworks that are relevant to marine resources management. Policies and frameworks relevant to the marine resources VC include:

- *Canadian Environmental Protection Act, 1999*
- *Fisheries Act*
- *Species at Risk Act*
- *Oceans Act*
- *Canada Shipping Act, 2001* including Ballast Water Regulations and Vessel Pollution and Dangerous Chemicals Regulations
- Fish and Fish Habitat Protection Policy Statement (DFO 2019a)
- *Oil and Gas Activities Act*, including Environmental Protection and Management Regulation and Environmental Protection and Management Guideline
- *Environmental Management Act*
- International Convention for the Control and Management of Ships' Ballast Water and Sediments (IMO 2017)
- International Convention for the Prevention of Pollution from Ships (MARPOL) (IMO 1983)
- Relevant DFO Canadian Science Advisory Reports (DFO 2015, Hannah et al. 2020)
- Relevant industry white papers such as Pathways of Effects Conceptual Models for Marine Commercial Shipping in Canada: Biological and Ecological Effects (CSAS 2020)

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to marine resources and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Table 7.7.1 presents the potential project effects to marine resources and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.7.1: Indicators to Evaluate Potential Effects to Marine Resources

Potential Project Effect	Indicator
Change in fish or marine mammal injury or mortality risk	Risk of fish or marine mammal injury or mortality due to extent, duration, or timing of land-based and in-water work, or Project-related vessel movements
Change in habitat	Area of expected HADD of fish habitat, including loss of habitat forming marine vegetation (e.g., eelgrass, bull kelp)
Change in behaviour of fish or marine mammals caused by sensory disturbances	Behavioural change or habitat avoidance by fish or marine mammals caused by sensory disturbances due to light and underwater noise
Change in water quality	Short- and long-term changes in water quality (e.g., salinity, temperature, total suspended solids [TSS])

The Application will identify and justify the spatial and temporal boundaries for the marine resources assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.8 and Figure 6.2.9). Project-specific effects on marine resources will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.7.2 Existing Conditions

The Project is located in Kitimat Arm, within British Columbia's North Coast Fjord ecosection (RIC 2002), an area that typically has turbid surface waters and hypoxic (low oxygen) deep water. Sediment loading occurs from major watercourses in the area such as the Kitimat River. The foreshore environment in the Project Area is a mixture of bedrock, boulder, cobble and gravel, beyond which steep and rocky walls lead to approximately 100 m depth where the substrate changes to soft sediment.

During subtidal surveys completed in August 2020, one species of kelp was observed (sugar wrack kelp [*Saccharina latissima*]) in rare abundance, no canopy forming kelps (e.g., bull kelp [*Nereocystis luetkeana*], giant kelp [*Macrocystis pyrifera*]) or eelgrass (*Zostera spp*) were observed (Stantec 2020).

However, kelp beds are found in more exposed and less brackish coastal areas of Douglas Channel and westward (i.e., along the proposed shipping route), and eelgrass is known to be established closer to the head of Kitimat Arm and in sheltered bays and estuaries throughout the north coast. These species form important seasonal habitat for fish and invertebrates.

Important estuarine and saltmarsh habitat occurs north of the Project Area and migratory fish species such as Pacific salmon (*Oncorhynchus spp.*), eulachon (*Thaleichthys pacificus*), and Pacific herring (*Clupea pallasii*) rear, stage, and transit Kitimat Arm during annual spring and summer/fall migrations to spawn. Pacific herring are also known to use Kitimat Arm for spawning, although in relatively low volumes near the Project Area compared to other coastal areas of Kitimat Arm and Douglas Channel (DFO 2016).

No northern abalone (*Haliotis kamtschatkana*) were observed by divers or towed camera in the Project Area during subtidal surveys conducted August 2020. Habitats observed throughout the subtidal survey were evaluated for their suitability to support northern abalone, as per DFO guidelines (Lessard et al. 2007). The suitability of the Project Area to support northern abalone was deemed to be low based on the lack of food (i.e., kelp and coralline algae), the very low salinity in the top four metres of the water column, and the lack of associated organisms that may indicate northern abalone presence (Stantec 2020).

Two species of glass sponge (Class *Hexactinellida*) were observed on rocky substrate during subtidal surveys conducted in August 2020: cloud sponge (*Aphrocallistes vastus*) and fingered goblet sponge (*Heterochone calyx*) (Stantec 2020). These solitary sponges were found in water depths greater than -15 m chart datum (CD). Several other organisms were observed sheltering with the lobes of these sponges: squat lobster (*Munida quadrispina*), hairy-spined crab (*Acantholithodes hispidus*), grunt sculpin (*Rhamphocottus richardsonii*), and sailfin sculpin (*Nautichthys oculofasciatus*). Glass sponge reefs are limited to the open, deep waters of Hecate Strait and Queen Charlotte Sound, and not within the confined channels (e.g., Douglas Channel, Kitimat Arm) of the proposed Project-associated shipping route.

Marine mammals such as resident and Bigg's killer whales (*Orcinus orca*); humpback whales (*Megaptera novaeangliae*); Steller sea lion (*Eumetopias jubatus*); Dall's porpoise (*Phocoenoides dalli*); harbor porpoise (*Phocoena phocoena*); harbour seal (*Phoca vitulina*); Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) are also common in Douglas Channel and Kitimat Arm, with seasonal densities changing as a function of food availability (i.e., fish migrations). Other marine mammals such as fin whale (*Balaenoptera physalus*) also use waters along the shipping route.

The Application will:

- Provide maps of the marine environment in the vicinity of the Project (i.e., marine terminal and along marine shipping route) showing proximity to marine protected areas and important watercourses supporting fisheries.
- Describe and provide maps of relevant habitats, including characteristics that directly and indirectly support marine resources in carrying out their life processes.
- Describe the historical occurrence, distribution, and conservation status of marine fish, marine mammals and marine invertebrates that are (a) likely to inhabit the assessment areas, and (b) at risk of potentially adverse interactions with project-related activities.
- Describe and provide any project-specific baseline intertidal and subtidal surveys of the Project Area, including the methods used and how the results helped to characterize existing conditions (e.g., filled an information gap, confirmed or refuted older information). All species observed during intertidal and subtidal surveys will be listed and abundance estimated in surveyed areas.
- Describe the biological marine resources observed directly within the assessment areas and an estimate of the abundance of those species.

- Describe the location, distribution, condition, and amount of fish habitat (i.e., marine riparian, intertidal, subtidal, seagrass and marine vegetation) that supports seasonal and/or annual life history processes and that may reasonably be affected by the Project.
- Describe the location and characteristics of any relevant “critical habitat” (as defined in a recovery strategy, conservation plan, or similar document).
- Describe habitat use by fish, including seasonal variability in habitat use.
- Summarize available data and information to describe ambient underwater noise levels in the assessment area and at the Project Area from various sources based on acoustic measurements in the Project assessment areas.
- Summarize available data and information on sound sources including geographic extent.
- Provide reference to species of Indigenous cultural use and value.
- Describe available Indigenous or local knowledge related to marine resources.

7.7.3 *Project Interactions*

The Application will include a description of the project interactions with marine resources, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.7.4 *Project Effects Assessment*

The assessment of project residual effects on marine resources will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.7.5 Cumulative Effects

The Application will provide an assessment of the cumulative effects to marine resources, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.7.6 Follow-up Strategy

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of marine resources, following the procedure described in Section 6.10.

7.8 Employment and Economy

The Application will provide an assessment of potential residual and cumulative effects of the Project on employment and economy. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.8.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on employment and economy from the Project (during all project phases). The assessment will include a description of statutes, policies and frameworks that are relevant to employment and economy. Policies and frameworks relevant to the employment and economy VC include national, provincial, regional and/or local economic development plans, strategies and action plans.

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to employment and economy and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Project expenditures and employment during construction, operation, and decommissioning could result in changes to the regional labour force and business activity as well as the provincial economy.

Table 7.8.1 presents the potential project effects to employment and economy and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.8.1: Indicators to Evaluate Potential Effects to Employment and Economy

Potential Project Effect	Indicator
Change in regional employment	Qualified labour supply, participation and unemployment rates, estimates of direct, indirect and induced employment with reference to affected industries and occupations where applicable
Change in regional business	Value of local and regional spending, existing wage levels, estimates of direct, indirect and induced labour income, and income inequity
Change in regional economy	Municipal tax and gross domestic product contributions Cost of living

The Application will identify and justify the spatial and temporal boundaries for the employment and economy assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.10 and Figure 6.2.11). Project-specific effects on employment and economy will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.8.2 Existing Conditions

The Project is located in the Regional District of Kitimat-Stikine (RDKS), in Haisla Nation traditional territory, and within the boundaries of the District of Kitimat. The Project is approximately 70 km southwest of the City of Terrace. In 2016, unemployment rates in the RDKS (13.8%), Haisla Nation (19.4%), District of Kitimat (12.5%), and City of Terrace (8.8%) were greater than the provincial average (6.7%; Statistics Canada 2017). At that time, employment in the RDKS, including Haisla Nation and the City of Terrace (the District of Kitimat being the exception) was greatest in non-basic industries such as retail trade, accommodation and food services and public administration. The unemployment rate for the North Coast and Nechako Region was 8.5% for February 2021 (Statistics Canada Monthly Labour Force Survey, 3-month moving average).

Since 2018, the positive final investment decision by joint venture participants (Shell, Petronas, PetroChina Company Limited, Mitsubishi Corporation, and Korea Gas Corporation) in the LNG Canada Export Terminal Project and commencement of that project's construction has resulted in increased economic activity in Kitimat and the region.

Capital spending and direct labour associated with the Project will contribute to economic activity within the region.

The Application will:

- Describe the local and regional economy
- Describe trends in labour force and employment statistics for residents in the local and regional assessment areas, including Indigenous Nations.

- Describe how the Project interacts differently with distinct human populations (GBA+).
- Consider how certain subgroups may be differentially affected due to variety of factors including gender. Intersectionality (multiple identity factors that influence their experiences) will be considered.
- Describe wage and income information
- Describe government revenues and expenditures
- Discuss trends and factors influencing cost of living (e.g., housing, food, goods and services)
- Describe, where possible, land and natural resource valuations
- Describe available Indigenous or local knowledge related to employment and economy

To support the analysis of potential effects to distinct human populations, disaggregated data will be used to the extent that it is publicly available.

7.8.3 Project Interactions

The Application will include a description of the project interactions with employment and economy, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.8.4 Project Effects Assessment

The assessment of project residual effects on employment and economy will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.8.5 Cumulative Effects

The Application will provide an assessment of the cumulative effects to employment and economy, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.8.6 Follow-up Strategy

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of employment and economy, following the procedure described in Section 6.10.

7.9 Land and Resource Use

The Application will provide an assessment of potential residual and cumulative effects of the Project on land and resource use. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.9.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on land and resource use from the Project (during all project phases). The assessment will include a description of statutes, policies and frameworks that are relevant to land and resource management. Policies and frameworks relevant to the land and resource use VC include:

- *Fisheries Act*
- *Forest Act*
- *Land Act*
- *Local Government Act*
- *Mineral Tenure Act*
- *Mines Act*
- *Oil and Gas Activities Act*, including Environmental Protection and Management Regulation and Environmental Protection and Management Guideline
- *Wildlife Act*
- District of Kitimat's Official Community Plan and the Kitimat Municipal Code Bylaw Part 9 (Planning)
- Kalum Land and Resource Management Plan

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to land and resource use and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Project use of lands may not be compatible with overlapping occurrences and uses of private property and Crown land (tenured and non-tenured use). The presence of construction and operational workforces and mobile equipment (including associated noise and emissions) may result in short-term changes in the quality of experience of engaging in existing land uses near the Project.

Table 7.9.1 presents the potential project effects to land and resource and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.9.1: Indicators to Evaluate Potential Effects to Land and Resource Use

Potential Project Effect	Indicator
Change in private property and tenured land and resource use. Tenured land and resource use includes industrial land uses and other tenured, permitted, or licensed land uses such as trapping, guiding.	<ul style="list-style-type: none"> • Qualitative description of property and land use constraints based on plans and zoning • Area of overlapping land-use affected (ha) • Attribute data on overlapping land-uses • Access to land use areas • Visual quality (qualitative description, in consideration of provincial landscape inventory, visual quality class definitions, photographs, and project renderings, based on preliminary design) • Light conditions (qualitative description)
Change in non-tenured (public) land and resource use. Non-tenured land and resource use includes consumptive (e.g., fishing, trapping) and non-consumptive land uses (e.g., hiking, tourism).	<ul style="list-style-type: none"> • Area of current use (consumptive and non-consumptive) • Intensity of use • Visual quality (qualitative description in consideration of provincial landscape inventory, visual quality class definitions, photographs, and project renderings, based on preliminary design) • Light conditions (qualitative description in consideration of provincial landscape inventory, visual quality class definitions, photographs, and project renderings, based on preliminary design) • Access to land use areas • Noise disturbance (quantitative assessment)

The Application will identify and justify the spatial and temporal boundaries for the land and resource use assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.12). Project-specific effects on land and resource use will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.9.2 Existing Conditions

The Project Area is located within District Lot 99 and the portion of the Water Lot A DL 5469 fronting the property. The land and water lot are within the asserted traditional territory of Haisla Nation and are owned in fee simple by an affiliate of Haisla Nation. The proposed transmission line corridor is located on private and Crown lands. These lands are within the municipal boundaries of the District of Kitimat and zoned for industrial and port development by the District of Kitimat's Official Community Plan. No federal land is proposed for use in carrying out the Project.

The Application will:

- Describe any regional Land and Resource Management Plans and official community plans, as well as associated zoning or land use policies.
- Identify sub-groups within the study area and their vulnerability to land and resource use effects (e.g., Indigenous community members).
- Describe the following types of land or resource uses in the assessment areas and provide maps, as applicable:
 - Private property and residential areas
 - Industrial land uses (e.g., mining, oil and gas)
 - Other tenured, permitted, or licensed land uses (e.g., trapping, guiding)
 - Consumptive land uses (e.g., hunting, freshwater fishing, trapping, vegetation gathering)
 - Outdoor recreation areas (e.g., camping, hiking, off-road vehicle operation)
 - Tourism
 - Parks and protected areas
- Describe current conditions related to noise, or night-time light nuisance for occupants or resource users

- Describe the existing visual landscape from key public use areas in the assessment areas
- Describe available Indigenous or local knowledge related to land and resource use

To support the analysis of potential effects to distinct human populations, disaggregated data will be used to the extent that it is publicly available.

7.9.3 *Project Interactions*

The Application will include a description of the project interactions with land and resource use, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.9.4 *Project Effects Assessment*

The assessment of project residual effects on land and resource use will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.9.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to land and resource use, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.9.6 *Follow-up Strategy*

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of land and resource use, following the procedure described in Section 6.10.

7.10 Marine Use

The Application will provide an assessment of potential residual and cumulative effects of the Project on marine use. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.10.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on marine use from the Project, including potential effects from marine shipping and transportation (during all project phases). The assessment will include a description of statutes, policies and frameworks that are relevant to marine use management. Policies and frameworks relevant to the marine use VC include:

- *Canadian Navigable Waters Act*
- *Canada Marine Act* and regulations
- *Canada Shipping Act, 2001*
- *Pilotage Act*
- *Fisheries Act*
- Pacific North Coast Integrated Management Area
- Marine Plan Partnership for the North Pacific Coast
- Indigenous Nation Marine Plans:
 - Haisla Community Marine Use Plan
 - Interim Land and Marine Resource Plan of the Allied Tsimshian Tribes of Lax Kw'alaams Band
 - Metlakatla Draft Marine Use Plan
 - Kitsumkalum Marine Use Plan
 - Gitxaala Marine Use Plan
 - Gitga'at Marine Use Plan

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to marine use and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Table 7.10.1 presents the potential project effects to marine use and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.10.1: Indicators to Evaluate Potential Effects to Marine Use

Potential Project Effect	Indicator
Change in marine navigation	Proportion of navigable waters affected by project infrastructure including vessel safety zones Shipping traffic along the shipping route (ships per year)
Change in marine fisheries and other uses	Shipping traffic along the shipping route (ships per year) Fisheries area affected (e.g. fishing area that is overlapped by the shipping route) Attribute data on fisheries (e.g., target species, fishing gear types, harvest volume, frequency, and access) Attribute data on other uses (e.g., recreational boating routes, marine park locations, visitor frequency, and access) Changes in viewsapes, shipping-related noise and ambient light

The Application will identify and justify the spatial and temporal boundaries for the marine use assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (and Figure 6.2.13). Project-specific effects on marine use will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.10.2 Existing Conditions

Numerous marine uses occur within confined channels (e.g., Kitimat Arm, Douglas Channel, Principe Channel) and waters along the shipping route between the Project location and the Pilot Boarding Station near Triple Island. Supporting marinas and moorage facilities are also located throughout the area.

Stewardship and use of marine areas, including the harvesting of marine resources for cultural purposes and for food security, are important values for Indigenous Nations using the waters along the shipping route.

In terms of commercial fisheries, Fisheries Management Areas (FMAs) 4, 5, and 6 are intersected by Project's shipping route. Commercial fisheries occurring within these FMAs include salmon, pacific herring, geoduck clams, red sea urchins, pacific halibut, Dungeness crab, sea cucumbers, prawns and shrimp, groundfish, and octopus. Harvesting seasons, gear and methods (e.g., seine, gill nets, drift nets, hand rigs, diving) are dependent on the target species.

The Application will:

- Identify and describe navigable waters
- Describe relevant marine use plans
- Identify any marine protected areas
- Summarize marine operations, management plans, policies and objectives
- Review existing TERMPOL studies for the Project shipping route
- Summarize Canadian Coast Guard services in the area
- Identify and describe marine infrastructure, and navigation aids
- Summarize applicable marine communication policies and procedures
- Summarize marine shipping lighting requirements mandated by specific codes and technical standards
- Describe and quantify shipping and other marine traffic (e.g., cruise ships, ferries, fishers, recreational boaters, commercial tour operators, military, coast guard, tugboats, and barges)
- Describe and quantify commercial fisheries
- Describe other tenured, permitted, or licensed marine uses (e.g., aquaculture, moorage)
- Describe recreational fishing
- Identify and describe Indigenous fisheries and boating routes
- Describe other marine harvesting uses and activities
- Describe marine recreation and tourism in the area
- Describe the visual landscape from key use areas
- Describe available Indigenous or local knowledge related to marine use

To support the analysis of potential effects to distinct human populations, disaggregated data will be used to the extent that it is publicly available.

7.10.3 Project Interactions

The Application will include a description of the project interactions with marine use, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.10.4 Project Effects Assessment

The assessment of project residual effects on marine use will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.10.5 Cumulative Effects

The Application will provide an assessment of the cumulative effects to marine use, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.10.6 Follow-up Strategy

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of marine use, following the procedure described in Section 6.10.

7.11 Infrastructure and Services

The Application will provide an assessment of potential residual and cumulative effects of the Project on infrastructure and services. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region and contemporary data collected from primary and secondary sources.

7.11.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on infrastructure and services from the Project (during all project phases). The assessment will include a list of statutes, policies and frameworks that are relevant to infrastructure and services management. Policies and frameworks relevant to the infrastructure and services VC include:

- *Transportation Act*
- *Local Government Act*
- Regional Land and Resource Management Plans
- Airport Master Plan
- Relevant guidance from Northern Health:
 - *Northern Health's recommendations for industrial camps*
 - *Communicable disease control plan - Best management guide for industrial camps June 2017*
 - *Standard working group comments for environmental assessments*
 - *Northern Health emergency roles and responsibilities*
 - *Health and medical services plan best management guide for industrial camps*

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to infrastructure and services and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Construction, operation, and decommissioning of the Project could increase demand for accommodations, infrastructure and services, and transportation infrastructure in the region. The infrastructure and services assessment will focus on the potential for change in community infrastructure and services, accommodation availability, and transportation infrastructure as a result of the Project.

Table 7.11.1 presents the potential project effects to infrastructure and services and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.11.1: Indicators to Evaluate Potential Effects to Infrastructure and Services

Potential Project Effect	Indicator
Change in infrastructure and services	Resident and transient population (number of persons) Number of workers for each phase Capacity, demand and supply of infrastructure and services (e.g., solid waste management/landfill capacity, health care and social services, emergency response services)
Change in accommodation availability	Availability of accommodations (vacancy rates, inventory levels) Cost of accommodation Measures of core housing need (i.e. adequacy, affordability, suitability)
Change in transportation infrastructure	Daily road traffic volume, traffic incidents, air traffic volumes

The Application will identify and justify the spatial and temporal boundaries for the infrastructure and services assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (Figure 6.2.14 and Figure 6.2.15). Project-specific effects on infrastructure and services will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.11.2 Existing Conditions

The Project is located in the RDKS, in Haisla Nation traditional territory, and within the boundaries of the District of Kitimat. The Project is approximately 9 km southwest of the Kitimat town centre. In 2016, the population of the RDKS was estimated at 37,367 persons (less than a 1% increase from 2011), of whom roughly 36% identified themselves as Indigenous (Statistics Canada 2017). As of January 2020, Haisla Nation had a total registered population of 1,953 people of whom 32.0% lived on Haisla Nation reserve lands (INAC 2020).

Within Haisla Nation, Kitamaat Village (Statistics Canada Census Subdivision Kitamaat 2 IR) is the most populated area. In 2016, Kitamaat Village (Kitamaat 2 IR) had an estimated population of 525 persons, up 2.1% from 2011 (Statistics Canada 2017). Approximately 98% of the population self-identified as Indigenous in 2016 (Statistics Canada 2017). In 2016, the housing stock of Kitamaat Village (Kitamaat 2 IR) was primarily comprised of single-detached houses (92%; Statistics Canada 2017). Other attached dwellings accounted for the remaining 8% of the housing stock (Statistics Canada 2017). The average household size was 2.8 persons (Statistics Canada 2017). Approximately 96% of households occupied housing considered by the CMHC as 'suitable'. Information on housing affordability and median monthly shelter costs have been suppressed by Statistics Canada.

Within the RDKS, the City of Terrace followed by the District of Kitimat are the most populated centres. In 2016 the population of Terrace was 11,643 persons, up 1.4% from 2011, with roughly 24% of the population self-identified as Indigenous (Statistics Canada 2017). The population of the District of Kitimat was 8,131 persons, down 2.5% from 2011, with roughly 12% of the population self-identified as Indigenous (Statistics Canada 2017).

The application will describe how the Project interacts differently with distinct human populations (GBA+). It will describe how certain subgroups may be differentially affected due to variety of factors including gender. Intersectionality (multiple identity factors that influence their experiences) will be considered.

In 2016, the housing stock of the City of Terrace and District of Kitimat was primarily comprised of single-detached houses (62% in the City of Terrace and 66% in the District of Kitimat; Statistics Canada 2017). The average household size in the City of Terrace was 2.5 persons, while the average household size in the District of Kitimat was slightly less at 2.3 persons (Statistics Canada 2017). Approximately 97% of households in both locations occupied dwellings considered by the CMHC as 'suitable'. Owner-occupied housing outnumbered tenant-occupied housing by a ratio of almost 4:1 in the City of Terrace and by a ratio of 2:1 in the District of Kitimat (Statistics Canada 2017). Roughly 91% of owner households in the City of Terrace and 99% of owner households in the District of Kitimat occupied dwellings considered to be 'affordable' by the CMHC. Rates were slightly lower among tenant households with 83% living in affordable dwellings in the City of Terrace and District of Kitimat. Median monthly shelter costs for owned dwellings (\$743/month) were lower than tenant occupied dwellings (\$1,001/month) in the City of Terrace but were higher (\$1,012/month vs. \$900/month) in the District of Kitimat (Statistics Canada 2017).

Various community services not limited to health care, policing, water and wastewater treatment, garbage collection and transportation are available to residents within the RDKS, Haisla Nation, District of Kitimat and City of Terrace. In some cases (e.g., health care), the capacity of these services to accommodate additional demand is a known constraint. Following the October 1, 2018 positive final investment decision by joint venture participants in the LNG Canada Export Terminal Project and commencement of that project's construction, the capacity of local and regional infrastructure and services to accommodate additional demand from the Project could be constrained.

The Application will:

- Identify and describe relevant administrative boundaries (e.g., regional districts, municipalities, treaty areas, reserves).
- Describe relevant population demographics and trends, including:
 - Population size
 - Gender
 - Age
 - Education
 - Permanent and temporary populations

- Identify and describe the capacity of the following:
 - Health care and social services and facilities
 - Emergency response services
 - Domestic water supply
 - Sewage and water treatment facilities
 - Solid waste collection services, landfills and recycling facilities
 - Community recreational infrastructure, facilities and services
 - Educational services, facilities and day care
 - Any other relevant public or private sector infrastructure and services
- Describe the capacity of local and regional transportation infrastructure.
- Describe the capacity of housing and accommodation.
- Describe available Indigenous or local knowledge related to infrastructure and services.

To support the analysis of potential effects to distinct human populations, disaggregated data will be used to the extent that it is publicly available.

7.11.3 Project Interactions

The Application will include a description of the project interactions with infrastructure and services, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.11.4 Project Effects Assessment

The assessment of project residual effects on infrastructure and services will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.11.5 Cumulative Effects

The Application will provide an assessment of the cumulative effects to infrastructure and services, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.11.6 Follow-up Strategy

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of infrastructure and services, following the procedure described in Section 6.10.

7.12 Human Health

The Application will provide an assessment of potential residual and cumulative effects of the Project on human health. In the context of this assessment, human health refers to physiological health that may be attributable to a person's exposure to contaminants in the environment. Physiological health may be linked to a person's exposure to contaminants in the air, water, soil, sediment, and biota. The subsequent effect to human health can then be characterized based upon known dose-response relationships associated with the contaminant.

Broader definitions of health (e.g., social determinants of health, including employment, and community well-being) are described in Section 22.0, and may be summarized in the human health VC where appropriate.

The Application will incorporate information and results of previous environmental assessments completed in the region.

7.12.1 Scope of Assessment

The Application will define and describe the scope of the assessment of potential effects on human health from the Project (during all project phases). The assessment will include a description of statutes, policies and frameworks that are relevant to human health management. Policies and frameworks relevant to the human health VC include:

- *Public Health Act*
- *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment* (Health Canada 2019)
- *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air Quality* (Health Canada 2016)
- Relevant statutes, policies and frameworks for the other "pathway" VCs with linkages to human health (e.g., air quality, drinking and recreational water quality, country foods)

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to human health and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Construction, operation, and decommissioning activities may release chemicals of concern into the environment. People who are exposed to chemicals of concern through air inhalation, food and water ingestion, incidental soil ingestion, and dermal contact with contaminated media may experience a change in their health risk. Exposure to construction and operation noise may also increase levels of annoyance, or result in nighttime sleep disturbance to nearby residents. Exposure to electric and magnetic fields along the transmission line may also affect human health.

Table 7.12.1 presents the potential project effects to human health and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.12.1: Indicators to Evaluate Potential Effects to Human Health

Potential Project Effect	Indicator
Change to human health	<p>Hazard quotient – the hazard quotient applies to non-carcinogenic effects, and it is the ratio between the dose (or exposure concentration) of a COPC to its toxicological reference value (i.e., the acceptable health-based dose or concentration)</p> <p>Incremental Lifetime Cancer Risk – the incremental lifetime cancer risk is a measurable parameter that applies to carcinogenic effects. It is the change in lifetime cancer risk associated with exposure to carcinogenic COPCs.</p> <p>Change in Percent Highly Annoyed (%HA) – the change in the %HA people between existing noise levels to Project-related noise levels.</p> <p>Change in electric and magnetic field exposure above background levels.</p>

The hazard quotient is the indicator metric used to quantify human health risks from exposure to chemicals in the environment. The hazard quotient is listed for each chemical of concern and each exposure pathway, and if applicable, they may be added if scientific evidence suggests that different chemicals of concern act upon the same target organ, elicits the same biological effect, with the same mechanism of action. The incremental lifetime cancer risk is the indicator metric used to quantify the incremental increase in cancer risk from Project conditions relative to existing conditions. The change in percent highly annoyed is the metric used to identify Project-related increases in annoyance rates from noise. The Application will identify and justify the spatial and temporal boundaries for the human health assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (and Figure 6.2.1). The LAA and RAA are the same and will be used to assess both Project-specific effects on human health and cumulative effects of regional and reasonably foreseeable future projects. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.12.2 Existing Conditions

The health status of people in the Kitimat area is typical of suburban regions in British Columbia. The overall health status in the Kitimat area is lower than the average for British Columbians, which is influenced by lower levels of access to health care services typically experienced in suburban regions of the province (e.g., shortage of doctors and related professions).

The air quality in the Kitimat region is generally characterized as very good, with industrial facilities located away from major population centers. The Kitimat River serves as the potable water source for the District of Kitimat. There is limited development upstream from the water intake, and the water is generally considered to be very good quality and low in chemical contaminants. However, the water system is characterized as high-risk due to the regular presence of waterborne pathogens. Raw water is disinfected with chlorine prior to being pumped into the municipal water distribution system.

The seafood harvested from Kitimat Arm is an important local food source for residents and the local Haisla Nation, particularly for people living on reserve in Kitimaat Village (Kitimaat 2 IR), located on the eastern shoreline of Kitimat Arm. Salmon, Dungeness crab, halibut and eulachon (oolichan) are all important traditional marine country foods that help to maintain food security among those who live off the land.

The Application will:

- Summarize baseline conditions that are linked to human health, including air quality, surface and groundwater (for potable use), and marine country food.
- Summarize baseline conditions regarding country food harvesting practices and important species of country food for Indigenous Nations. Information may be obtained from relevant VCs, such as freshwater fish, vegetation resources, wildlife, and marine resources.
- Describe available Indigenous or local knowledge related to human health.

To support the analysis of potential effects to distinct human populations, disaggregated data will be used to the extent that it is publicly available.

7.12.3 Project Interactions

The Application will include a description of the project interactions with human health, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.12.4 *Project Effects Assessment*

The assessment of project residual effects on human health will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.12.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to human health, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.12.6 *Follow-up Strategy*

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of human health, following the procedure described in Section 6.10.

7.13 **Heritage**

The Application will provide an assessment of potential residual and cumulative effects of the Project on heritage resources. As appropriate, the Application will incorporate information and results of previous environmental assessments completed in the region.

7.13.1 *Scope of Assessment*

The Application will define and describe the scope of the assessment of potential effects on heritage resources from the Project (during construction). The assessment will include a description of statutes, policies and frameworks that are relevant to heritage resources management. Statutes, policies and frameworks relevant to the heritage VC include:

- *Heritage Conservation Act (HCA)*
- Methods described in the application for HCA inspection permit 2020-0007
- *Archaeological Impact Assessment Guidelines (Archaeology Branch 1998)*

- *Culturally Modified Trees of British Columbia: A Handbook for the Identification and Recording of Culturally Modified Trees* (Archaeology Branch 2001)
- Archaeology Branch policies, including:
 - Recording petroglyphs policy
 - Found human remains policy
 - Interim Permit Reporting Procedures
 - Archaeology Branch bulletins (Archaeology Branch 2011-2020)
 - British Columbia Fossil Management Framework

The Application will describe how information obtained through consultation with regulators, stakeholders, community members and Indigenous Nations was used in the assessment. Where information on traditional knowledge and traditional use is obtained from Indigenous Nations through consultation, information gathering, and voluntary information sharing, the Application will describe how it was integrated into the assessment.

The Application will define potential effects to heritage and outline indicators that will be used to measure these effects, following the methods outlined in Section 6.4.2.

Construction will involve tree clearing and ground disturbing activities that could adversely affect heritage resources, if present. The heritage assessment will focus on the heritage value of the archaeological or heritage resources being altered, removed, or lost.

Marine shipping is not anticipated to result in effects on the heritage valued component. Results from publicly available wake effects studies indicate that wake generated by large liquid bulk carriers will be less severe than waves created naturally by weather. Coastal archaeological and heritage sites potentially exposed to wakes from LNG carriers and their escort tugs are currently exposed to natural wave action, including storm waves. Project-related shipping traffic will not introduce any new, previously unassessed, wave effects. As a result, wake from LNG carriers and tugs are not anticipated to affect shoreline heritage sites.

Table 7.13.1 presents the potential project effects to heritage resources and the indicators that will be used in the Application to evaluate the potential project effects.

Table 7.13.1: Indicators to Evaluate Potential Effects to Heritage

Potential Project Effect	Indicator
Loss of information about or alteration to site contents or context	Heritage value of heritage and archaeological resources being altered, removed or lost

The Application will identify and justify the spatial and temporal boundaries for the heritage assessment. Anticipated spatial boundaries are presented in Table 6.2.1 and Table 6.2.2 (and Figure 6.2.16). Project-specific effects on heritage resources will be assessed within the LAA while cumulative effects of regional and reasonably foreseeable future projects will be assessed within the RAA. The Application will also define any administrative or technical boundaries that may constrain the assessment of potential project effects.

7.13.2 Existing Conditions

The Project is in the traditional territory of the Haisla Nation within the Northwest Coast culture area defined by the Province's Archaeology Branch. Heritage resources listed on the Provincial Heritage Register near the Project encompass a range of sites defined under the HCA as having "heritage value to British Columbia, a community or an Aboriginal people". The HCA defines heritage value as "the historical, cultural, aesthetic, scientific or educational worth or usefulness of a site or object". The HCA automatically extends legal protection to archaeological sites with evidence of human habitation or use before AD 1846, burial places with historical or archaeological value, Aboriginal rock art, and heritage ship and aircraft wrecks. This protection applies to sites on provincial Crown and private land. Sites that are not protected under the HCA, such as historic places post-dating 1846 AD, may still have heritage value to communities or Indigenous Nations.

BCEAA and IAA require assessment of heritage resources. This includes physical and cultural heritage, such as prehistoric archaeological sites, historical heritage sites and paleontological sites. The IAA defines this as including "... with respect to the Indigenous peoples of Canada, an impact—occurring in Canada and resulting from any change to the environment—on ... any structure, site or thing that is of historical, archaeological, paleontological or architectural significance" (IAA 2019).

According to the Provincial Heritage Register, there are numerous archaeological sites recorded along the west side of Kitimat Arm in the general vicinity of the Project. Most of these sites are culturally modified tree sites, with lithic scatters, rock art, shell middens, fish weirs (wet sites) and human burials also represented in the archaeological record. The HCA permit in place for the Project (2020-0222) includes methods to inspect for, and assess impacts to, potential wet sites. Any wet sites identified during the archaeological impact assessment for the Project will be reported on in accordance with permit conditions and will be considered in heritage effects assessment. Portions of the Project Area and transmission line corridor have been subject to archaeological impact assessments as part of other projects and any outstanding areas will be subject to an assessment as part of the regulatory process.

The Application will:

- Describe archaeological studies completed in the local and regional assessment areas and any archaeological and heritage sites found within the Project Area and transmission line corridor
- Describe the archaeological potential in the Project Area and transmission line corridor

- Describe recorded archaeological and heritage sites in the Project Area and transmission line corridor
- Describe the potential for paleontological sites in the Project Area and transmission line corridor
- Describe available Indigenous or local knowledge related to archaeological and heritage resources

To support the analysis of potential effects to distinct human populations, disaggregated data will be used to the extent that it is publicly available.

7.13.3 *Project Interactions*

The Application will include a description of the project interactions with heritage resources, as identified in Table 6.4.1, following the methods outlined in Section 6.4.

7.13.4 *Project Effects Assessment*

The assessment of project residual effects on heritage resources will follow the methods outlined in Sections 6.4 through 6.8. The Application will include:

- A description of the approach and analytical methods, including any assumptions incorporated into the assessment.
- A description of the project mechanisms with potential to result in effects to the VC.
- A description of mitigation measures to manage adverse effects and enhancement measures to augment positive effects.
- An assessment of positive and adverse effects of the Project and a characterization of project-specific residual effects.

7.13.5 *Cumulative Effects*

The Application will provide an assessment of the cumulative effects to heritage resources, following the procedure described in Section 6.9. The Application will describe the likelihood of adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

7.13.6 *Follow-up Strategy*

The Application will provide a follow-up strategy if a positive or adverse residual effect and/or cumulative effect has been identified in the assessment of heritage resources following the procedure described in Section 6.10.

8.0 GREENHOUSE GAS EMISSIONS

The Application will provide information on GHG emissions, impact of the Project on carbon sinks, the impact of the Project on provincial and federal emissions reduction efforts and on global GHG emissions, GHG mitigation measures, climate resiliency and a credible net-zero plan as described in the Strategic Assessment of Climate Change (ECCC 2020).

In terms of quantification of GHG emissions from the Project, the assessment will address the following:

- Describe each of the Project's main sources of GHG emissions, by GHG type and their estimated GHG emissions over the lifetime of the project. This includes the Project's potential positive or adverse impacts on carbon sinks, as well as emissions from stationary combustion, mobile equipment, flaring, emissions from marine shipping (e.g., LNG carriers and tugboats between the marine terminal and Triple Island) and indirect emissions from acquired energy.
- Update the estimate of annual GHG emissions (calculated as net GHG emissions) previously provided in the Project Description (Cedar 2019), by project phase, based on the Project's maximum throughput or capacity.
- Provide each term of Equation 1 (direct GHG emissions, acquired energy GHG emissions, CO₂ captured and stored, avoided domestic GHG emissions and offset credits, if applicable) per year for each phase of the project (Section 3.1.1 of the Strategic Assessment of Climate Change [ECCC 2020]).
- Provide methodology, data, emission factors and assumptions used to quantify the net GHG emissions.
- Provide emission intensity (Equation 2 as per Section 3.1.2 of the Strategic Assessment of Climate Change [ECCC 2020]) for each year of the operation phase of the project.
- Provide the quantity and a description of the "units produced" (in tonnes of LNG) used in Equation 2 for each year of the operation phase of the project.
- Provide an assessment of upstream GHG emissions.
- Describe large sources of GHG emissions that may be the consequence of accidents or malfunctions. This requirement will be addressed in the Malfunctions and Accidents section (Section 9.0).
- Provide a qualitative description of uncertainty associated with the GHG emissions estimates, including uncertainty related to data as well as uncertainty related to methods and models.

Information required to address Environment and Climate Change Canada's (ECCC) Strategic Assessment of Climate Change (2020) will also be provided as an appendix to the Application.

9.0 MALFUNCTIONS AND ACCIDENTS

The Application will provide a risk-based approach for the assessment of malfunctions and accidents during all phases of the Project.

The assessment approach will evaluate malfunctions and accidents risk (including scenarios) by examining the likelihood of an incident and the consequences of the incident to each relevant VC, and Indigenous interests. The results of the risk-based assessment will be used to develop plans to reduce or eliminate the likelihood of an incident (i.e., prevent an accident or malfunction) or reduce the consequence of incidents.

The Application will:

- Describe potential events that may occur in all phases of the Project, including:
 - An explanation of how those potential events were identified.
 - The circumstances under which the events could occur.
 - A summary of design standards and/or mitigation measures that are assumed to apply to the Project and potential incidents and would be considered in the risk ratings.
- Describe the methods for assessing the potential risk of each incident, including definitions for classifications of likelihood, consequence and risk, and identification of threshold for incidents that will be carried forward for detailed analysis (e.g., incidents determined to be moderate or high-risk).
- Provide an assessment of the likelihood of each incident occurring, based on, for example, historical trends or predictive models.
- Provide a high-level assessment of the consequence of each incident (considering potential environmental, economic, social, heritage and health effects and effects to Indigenous interests).
- Provide a classification of the risk of each incident based on its likelihood and consequence.
- Identify the incidents that will be carried forward for further assessment based on the criteria identified in the methods.
- Provide information on proposed mitigation measures to reduce the likelihood and consequence to VCs and Indigenous interests for incidents carried forward including:
 - Emergency response organizations that may be involved in an incident
 - Safety protocols and mitigation measures to reduce the likelihood of incidents
 - Contingency and emergency response procedures if such events do occur

- Monitoring, evaluation, and/or adaptive management systems to identify, proactively avoid, and rectify the malfunction and/or accident.
 - Likelihood of mitigation being successful and the time lag for mitigation to become effective.
- Provide detailed information on the potential effects of each incident carried forward including:
 - Most likely and worst-case scenarios of the effects of incidents on VCs and Indigenous interests within spatial boundaries² described for the scenario.
 - Information from historical incidents from similar operations and conditions, where applicable.
 - If applicable, the quantity and characteristics of the contaminants and other materials likely to be released into the environment from an incident.
 - Cumulative effects assessment for those events most likely to occur
- Provide conclusions on the potential risks of the incidents carried forward

The specific malfunctions or accidents to be considered in the Application are as follows:

- Spills of hazardous materials (not including LNG)
- Loss of containment of LNG from the FLNG facility
- Emergency LNG production unit shutdown (including emergency flaring)
- Fires or explosions
- Marine vessel grounding, collisions and allisions
- FLNG allisions

Consideration of potential malfunctions and accidents will also include specific reference to effects as they are identified in section 7 of the IAA.

² The spatial boundaries for the assessment of malfunctions and accidents may be different than those in the assessment for each VC.

10.0 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

The Application will:

- Describe the environmental factors deemed to have possible consequences on the Project over its operational lifetime, specifically:
 - Climate change
 - Extreme weather (i.e., temperature, precipitation, flooding, wind, and waves)
 - Seismic events and tsunamis
 - Geohazards (i.e., slope failure and underwater slope failure)
 - Forest fires
- Describe how climate change may affect the Project and how the Project is resilient to and at risk from both current and future impacts of changing climate.
- Describe any changes or effects on the Project that may be caused by the above-mentioned environmental factors.
- Provide the likelihood (based on future climate change projections) and consequence of the changes or effects to the Project.
- Provide practical mitigation measures, including design strategies, environmental contingency plans, and climate risk plans to avoid or minimize the likelihood and consequence of the adverse effects of the environment on the Project.
- Provide a conclusion about the potential risk of an effect of the environment on the Project.
- Describe how climate change has been incorporated into the project design (e.g., disaster management, stormwater management systems, water requirements) and planning over the lifetime of the project and a description of the climate data and projections used.

The information provided in this section will align with the requirements of ECCC's Strategic Assessment of Climate Change (2020).

11.0 HAISLA NATION

The Application will include an assessment of the effects of the Project on Haisla Nation interests as described in Section 6.0, or following other assessment methods developed in consultation with Haisla Nation. The assessment in the Application will be informed by engagement with Haisla Nation.

Based on initial correspondence and discussions with Haisla Nation to date and review of the Project activities, Cedar understands that key areas of concern for Haisla Nation are as follows:

- *Potential effects on the biophysical environment as assessed in Section 7.0, with a particular focus on air quality, noise, and marine resources*
- *Potential effects on social and economic conditions as assessed in Section 7.0, with a particular focus on employment, land and resource use, and marine use*

Based on feedback provided to date and review of the key areas of concern for Haisla Nation, Cedar has developed a preliminary list of potential effects on Indigenous interests to be included in the assessment, as a starting point for discussion on the structure of this assessment. It is expected that this list will be further developed through ongoing consultation with Haisla Nation during the assessment process. The approach to the assessment will consider incorporation of Nation-specific VCs, if provided by Haisla Nation. The preliminary list of potential effects on Indigenous interests is as follows:

- *Aboriginal title and rights*
- *Changes in Indigenous interests related to consumption and harvest*
- *Changes in the use and integrity of sacred and culturally important sites and landscape features*
- *Changes that affect Indigenous governance*

Each Indigenous interest will be assessed under its own section, unless analysis and supporting information is similar, in which case two or more may be combined in the same sub-section.

11.1 Overview and Context

The Application will include background information on each Indigenous Nation including ethnography, language, governance, economy, population, communities, Reserves, Indigenous land use plans (with reference to Section 2.3 as applicable), health and social conditions and other contextual information the Nation provides to Cedar and identifies as important to understanding the impacts of the Project on their Nation.

The assessment for each Indigenous Nation will include an overview of the understanding of Indigenous interests in the area that could be affected by the Project. Indigenous interests will include impacts to Aboriginal or treaty rights recognized and affirmed by section 35 of the *Constitution Act, 1982* as well as any other interests identified by the Nation. Information in this section will be developed through engagement with the Nation and include:

- An overview of the Nation's governance context of the area affected by the Project including information regarding:
 - How Indigenous laws, governance or customs apply to this area, including how those processes may have evolved over time, and how they should be used to review the potential impacts of the Project on Indigenous interests.
 - Indigenous laws, customs, or requirements for the area including any existing Indigenous land use plans.
 - Agreements with other Nations regarding governance of areas of territory overlap, as relevant to the Project.
- A list of the Indigenous interests that may be impacted by the Project.
- A summary of historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects, and practices in the vicinity of the Project with regard to the Indigenous interests. This summary will include any site-specific use values present in the vicinity of the Project, which are areas identified and/or mapped by Indigenous Nations as having environmental, cultural, spiritual, transportation, subsistence and habitation value.

11.2 Existing Conditions

As applicable and to the extent that information is available, the Application will:

- Describe historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects.
- Describe practices in the vicinity of the Project with regard to Indigenous interests (including reference to specific sites and species of interests, where applicable).
- Describe the relative importance of the Project Area, transmission line corridor and surroundings, including any special characteristics or unique features, to Indigenous interests.

11.3 Summary of Engagement

The Application will include:

- A summary of past and planned engagement activities that describes the efforts taken to seek the views of each Indigenous Nation with respect to the Project including:
 - Engagement activities undertaken with the Nation including the timeframe, means, and results of engagement.
 - Efforts to engage diverse populations of the Nation community in culturally appropriate ways, including Indigenous local group/sub-group (e.g., clan, family) areas within the broader traditional territory, and groups identified by gender, age, or other community relevant factors.
 - How engagement activities conducted by Cedar support the Nation to understand the Project and its effects on the Nation and its interests.
 - The Nation's views on Cedar's consultation approach and resolution of issues raised when provided.
- An analysis of the input received from the Nation with respect to the Project including:
 - A description of how Cedar responded to questions, comments and issues raised by the Nation, the Nation's perspective on the resolution of issues, how unresolved input has been addressed in the Application, and/or how unresolved input will be addressed through the assessment.
 - Where and how the Nation's perspectives were integrated into or contributed to decisions regarding the Project, including:
 - Development and collection of baseline information
 - Plans for construction, operation, or decommissioning
 - Identification of VCs
- Information regarding any arrangement or agreement between Cedar and the Nation for collaboration on the development of the Application or delivery of the Project, subject to confidentiality terms. This includes agreements related to the delivery of studies, capacity funding agreements and agreements regarding the use of Indigenous knowledge.

11.4 Information Sources

The sources of information used in preparing the assessment of effects on the Indigenous Nation will be clearly identified, noting where information represents the views of the Nation, Cedar or otherwise. Information sources that include Indigenous knowledge will be clearly labeled as such.

Regarding the collection and use of Indigenous knowledge, the Application will include:

- An outline of the steps taken by Cedar to work with the Indigenous Nation to incorporate Indigenous knowledge including a summary of any agreement with the Nation regarding the use, application and interpretation of Indigenous knowledge (e.g., Memorandum of Understanding).
- Identification of how and when Indigenous Nation were provided the opportunity to confirm that the information sources were appropriate for public disclosure.
- A description of how Indigenous knowledge informed the Project design, the assessment, proposed mitigation measures or any other aspect of the assessment.
- If applicable, a plan for future cooperation between Cedar and the Nation to further consider Indigenous knowledge in project implementation, for example monitoring and management plans.

11.5 Assessing Effects on Indigenous Interests

11.5.1 *Scope of the Assessment*

The Application will:

- Identify the potential effects of the proposed Project on Indigenous interests that will be assessed.
- Describe how the Indigenous interest was identified, through engagement with the Indigenous Nation or otherwise.
- Summarize the VCs used in the assessment of effects on the Indigenous interest and whether they were carried forward from Section 6.1 or developed specifically for the assessment of the Indigenous interest.
- Describe linkages with other Indigenous interests

11.5.2 *Assessment Boundaries*

The Application will define the assessment boundaries for assessing the effects on the Indigenous interest, including spatial and temporal boundaries, with reference to the spatial and temporal boundaries used for the VC assessments in Section 7.0, as applicable. Where relevant, administrative and technical boundaries will also be identified.

11.5.3 *Effects Assessment*

The Application will include an assessment of the effects of the Project on Indigenous interests. This will include:

- Description of the potential pathways by which the Project components and activities could impact the Indigenous interest. Effects may occur through multiple pathways including but not limited to the following:
 - Biophysical (e.g., effects to wildlife and habitat)
 - Related to the ability to use and access Crown lands and waters
 - Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Identification of effects to be carried forward from pathways determined to be consequential or requiring mitigation.
- Description of VCs and indicators used to assess effects carried forward.
- Description of any assessment methods and analysis used to undertake the assessment of effects to the Indigenous interest.

11.5.4 *Mitigation and Enhancement Measures*

The Application will include information regarding:

- Project design and mitigations identified for the relevant VCs that are proposed to mitigate effects on Indigenous interests.
- Additional mitigations and enhancement measures that are specific to the Indigenous Nation or Indigenous interest.
- Proposed monitoring initiatives or review processes related to the effect on the Indigenous interest, as applicable.

Perspectives on the effectiveness of the mitigation options will be presented as well as the relative level of uncertainty or risk associated with the mitigation option(s).

11.5.5 Assessing Adverse Effects

The Application will provide a detailed description of the assessment of adverse effects to Indigenous interests that are anticipated as a result of the Project, and present the results of this assessment, after taking mitigation into account. It will describe proposed monitoring initiatives or review processes related to the effect on Indigenous interest.

11.5.6 Characterization of Residual Effects

The Application will provide a characterization of residual effects of the Project to the Indigenous interest. This will include information on the socio-cultural context of the Indigenous interest and the potential for effects on the broader social, economic, health status of the Nation from residual effects to Indigenous interest.

11.5.7 Cumulative Effects

The Application will include an assessment of the Project's contribution to cumulative effects on the Indigenous interest and identify any additional mitigation measures. The Application will describe the likelihood of any adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

11.6 Assessing Positive Effects

The Application will describe any positive effects to Indigenous interests or the Nation overall that are anticipated as a result of the Project and its associated effects management approaches.

11.7 Haisla Nation Views

The Application will describe how Cedar engaged with the Indigenous Nation, including any collaboration with the Indigenous Nation, or integrated the Nation's perspectives into, the assessment of effects on Indigenous interests, including both positive and adverse effects. The Application will clearly state any views of the Nation on the potential positive and/or adverse effects identified, approach to effects management, residual effects, and conclusions.

11.8 Summary

The Application will include a summary of the assessment for the Indigenous Nation outlining the residual effects on Indigenous interests for the EAO to consider when determining the overall seriousness of impact to the Indigenous interests, outline any major points of agreement or disagreement with the Nation, and describe efforts taken to address any points of disagreement.

12.0 GITGA'AT FIRST NATION

The Application will include an assessment of the effects of the Project on Gitga'at First Nation interests as described in Section 6.0, or following other assessment methods developed in consultation with Gitga'at First Nation. The assessment in the Application will be informed by engagement with Gitga'at First Nation.

Based on initial correspondence and discussions with Gitga'at First Nation to date and review of the Project activities, Cedar understands that key areas of concern for Gitga'at First Nation are as follows:

- *Potential effects on the biophysical and human environment as assessed in Section 7.0, with a particular focus on air quality, marine resources (marine mammals and marine fish), wildlife (marine birds), water quality, human health, GHG emissions, and shipping related malfunctions and accidents.*
- *Potential effects on social and economic conditions as assessed in Section 7.0, with a particular focus on land and resource use and marine use.*
- *Potential cumulative effects of the Project combined with past, present and future projects and activities, as assessed in Section 7.0, with a particular focus on fully and meaningfully assessing cumulative effects as part of the assessment process.*

Based on feedback provided to date and review of the key areas of concern for Gitga'at First Nation, Cedar has developed a preliminary list of potential effects on Indigenous interests to be included in the assessment, as a starting point for discussion on the structure of this assessment. It is expected that this list will be further developed through ongoing consultation with Gitga'at First Nation during the assessment process. Approach to the assessment will consider incorporation of Nation-specific VCs, if provided by Gitga'at Nation. The preliminary list of potential effects on Indigenous interests is as follows:

- *Aboriginal title and rights*
- *Changes in Indigenous interests related to consumption and harvest*
- *Changes in the use and integrity of sacred and culturally important sites and landscape features*
- *Changes that affect aspects of traditional Indigenous governance*

Each Indigenous interest will be assessed under its own section, unless analysis and supporting information is similar, in which case two or more may be combined in the same sub-section.

12.1 Overview and Context

The Application will include background information on each Indigenous Nation including ethnography, language, governance, economy, population, communities, Reserves, Indigenous land use plans (with reference to Section 2.3 as applicable), health and social conditions and other contextual information the Nation provides to Cedar and identifies as important to understanding the impacts of the Project on their Nation.

The assessment for each Indigenous Nation will include an overview of the understanding of Indigenous interests in the area that could be affected by the Project. Indigenous interests will include impacts to Aboriginal or treaty rights recognized and affirmed by section 35 of the *Constitution Act, 1982* as well as any other interests identified by the Nation. Information in this section will be developed through engagement with the Nation and include:

- An overview of the Nation's governance context of the area affected by the Project including information regarding:
 - How Indigenous laws, governance or customs apply to this area, including how those processes may have evolved over time, and how they should be used to review the potential impacts of the Project on Indigenous interests.
 - Indigenous laws, customs, or requirements for the area including any existing Indigenous land use plans.
 - Agreements with other Nations regarding governance of areas of territory overlap, as relevant to the Project.
- A list of the Indigenous interests that may be impacted by the Project.
- A summary of historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects, and practices in the vicinity of the Project with regard to the Indigenous interests. This summary will include any site-specific use values present in the vicinity of the Project, which are areas identified and/or mapped by Indigenous Nations as having environmental, cultural, spiritual, transportation, subsistence and habitation value.

12.2 Existing Conditions

As applicable and to the extent that information is available, the Application will:

- Describe historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects.
- Describe practices in the vicinity of the Project with regard to Indigenous interests (including reference to specific sites and species of interests, where applicable).
- Describe the relative importance of the Project Area, transmission line corridor and surroundings, including any special characteristics or unique features, to Indigenous interests.

12.3 Summary of Engagement

The Application will include:

- A summary of past and planned engagement activities that describes the efforts taken to seek the views of each Indigenous Nation with respect to the Project including:
 - Engagement activities undertaken with the Nation including the timeframe, means, and results of engagement.
 - Efforts to engage diverse populations of the Nation community in culturally appropriate ways, including Indigenous local group/sub-group (e.g., clan, family) areas within the broader traditional territory, and groups identified by gender, age, or other community relevant factors.
 - How engagement activities conducted by Cedar support the Nation to understand the Project and its effects on the Nation and its interests.
 - The Nation's views on Cedar's consultation approach and resolution of issues raised when provided.
- An analysis of the input received from the Nation with respect to the Project including:
 - A description of how Cedar responded to questions, comments and issues raised by the Nation, the Nation's perspective on the resolution of issues, how unresolved input has been addressed in the Application, and/or how unresolved input will be addressed through the assessment.

- Where and how the Nation's perspectives were integrated into or contributed to decisions regarding the Project, including:
 - Development and collection of baseline information
 - Plans for construction, operation, or decommissioning
 - Identification of VCs
- Information regarding any arrangement or agreement between Cedar and the Nation for collaboration on the development of the Application or delivery of the Project, subject to confidentiality terms. This includes agreements related to the delivery of studies, capacity funding agreements and agreements regarding the use of Indigenous knowledge.

12.4 Information Sources

The sources of information used in preparing the assessment of effects on the Indigenous Nation will be clearly identified, noting where information represents the views of the Nation, Cedar or otherwise. Information sources that include Indigenous knowledge will be clearly labeled as such.

Regarding the collection and use of Indigenous knowledge, the Application will include:

- An outline of the steps taken by Cedar to work with the Indigenous Nation to incorporate Indigenous knowledge including a summary of any agreement with the Nation regarding the use, application and interpretation of Indigenous knowledge (e.g., Memorandum of Understanding).
- Identification of how and when Indigenous Nation were provided the opportunity to confirm that the information sources were appropriate for public disclosure.
- A description of how Indigenous knowledge informed the Project design, the assessment, proposed mitigation measures or any other aspect of the assessment.
- If applicable, a plan for future cooperation between Cedar and the Nation to further consider Indigenous knowledge in project implementation, for example monitoring and management plans.

12.5 Assessing Effects on Indigenous Interests

12.5.1 *Scope of the Assessment*

The Application will:

- Identify the potential effects of the proposed Project on Indigenous interests that will be assessed.
- Describe how the Indigenous interest was identified, through engagement with the Indigenous Nation or otherwise.
- Summarize the VCs used in the assessment of effects on the Indigenous interest and whether they were carried forward from Section 6.1 or developed specifically for the assessment of the Indigenous interest.
- Describe linkages with other Indigenous interests

12.5.2 *Assessment Boundaries*

The Application will define the assessment boundaries for assessing the effects on the Indigenous interest, including spatial and temporal boundaries, with reference to the spatial and temporal boundaries used for the VC assessments in Section 7.0, as applicable. Where relevant, administrative and technical boundaries will also be identified.

12.5.3 *Effects Assessment*

The Application will include an assessment of the effects of the Project on Indigenous interests. This will include:

- Description of the potential pathways by which the Project components and activities could impact the Indigenous interest. Effects may occur through multiple pathways including but not limited to the following:
 - Biophysical (e.g., effects to wildlife and habitat)
 - Related to the ability to use and access Crown lands and waters
 - Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Identification of effects to be carried forward from pathways determined to be consequential or requiring mitigation.
- Description of VCs and indicators used to assess effects carried forward.
- Description of any assessment methods and analysis used to undertake the assessment of effects to the Indigenous interest.

12.5.4 *Mitigation and Enhancement Measures*

The Application will include information regarding:

- Project design and mitigations identified for the relevant VCs that are proposed to mitigate effects on Indigenous interests.
- Additional mitigations and enhancement measures that are specific to the Indigenous Nation or Indigenous interest.
- Proposed monitoring initiatives or review processes related to the effect on the Indigenous interest, as applicable.

Perspectives on the effectiveness of the mitigation options will be presented as well as the relative level of uncertainty or risk associated with the mitigation option(s).

12.5.5 *Assessing Adverse Effects*

The Application will provide a detailed description of the assessment of adverse effects to Indigenous interests that are anticipated as a result of the Project, and present the results of this assessment, after taking mitigation into account. It will describe proposed monitoring initiatives or review processes related to the effect on Indigenous interest.

12.5.6 *Characterization of Residual Effects*

The Application will provide a characterization of residual effects of the Project to the Indigenous interest. This will include information on the socio-cultural context of the Indigenous interest and the potential for effects on the broader social, economic, health status of the Nation from residual effects to Indigenous interest.

12.5.7 *Cumulative Effects*

The Application will include an assessment of the Project's contribution to cumulative effects on the Indigenous interest and identify any additional mitigation measures. The Application will describe the likelihood of any adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

12.6 **Assessing Positive Effects**

The Application will describe any positive effects to Indigenous interests or the Nation overall that are anticipated as a result of the Project and its associated effects management approaches.

12.7 Gitga'at First Nation Views

The Application will describe how Cedar engaged with the Indigenous Nation, including any collaboration with the Indigenous Nation, or integrated the Nation's perspectives into, the assessment of effects on Indigenous interests, including both positive and adverse effects. The Application will clearly state any views of the Nation on the potential positive and/or adverse effects identified, approach to effects management, residual effects, and conclusions.

12.8 Summary

The Application will include a summary of the assessment for the Indigenous Nation outlining the residual effects on Indigenous interests for the EAO to consider when determining the overall seriousness of impact to the Indigenous interests, outline any major points of agreement or disagreement with the Nation, and describe efforts taken to address any points of disagreement.

13.0 GITXAAŁA NATION

The Application will include an assessment of the effects of the Project on Gitxaala Nation interests as described in Section 6.0 or following other assessment methods developed in consultation with Gitxaala Nation. The assessment in the Application will be informed by engagement with Gitxaala Nation.

Based on initial correspondence from Gitxaala Nation to date and review of the Project activities, Cedar understands that key areas of concern for Gitxaala Nation are as follows:

- *Potential effects on the biophysical and human environment as assessed in Section 7.0, with a particular focus on air quality, marine resources, human health, GHG emissions, and malfunctions and accidents.*
- *Potential effects on social and economic conditions as assessed in Section 7.0, with a particular focus marine navigation and use and community health and well-being.*

Based on feedback provided to date and review of the key areas of concern for Gitxaala Nation, Cedar has developed a preliminary list of potential effects on Indigenous interests to be included in the assessment, as a starting point for discussion on the structure of this assessment. It is expected that this list will be further developed through ongoing consultation with Gitxaala Nation during the assessment process. Approach to the assessment will consider input provided by Gitxaala Nation on incorporation of Nation-specific VCs, when provided. The preliminary list of potential effects on Indigenous interests are as follows:

- *Aboriginal title and rights*
- *Changes in Indigenous interests related to consumption and harvest*

- *Changes in the use and integrity of sacred and culturally important sites and landscape features*
- *Changes that affect aspects of traditional Indigenous governance*

Each Indigenous interest will be assessed under its own section, unless analysis and supporting information is similar, in which case two or more may be combined in the same sub-section.

13.1 Overview and Context

The Application will include background information on each Indigenous Nation including ethnography, language, governance, economy, population, communities, Reserves, Indigenous land use plans (with reference to Section 2.3 as applicable), health and social conditions and other contextual information the Nation provides to Cedar and identifies as important to understanding the impacts of the Project on their Nation.

The assessment for each Indigenous Nation will include an overview of the understanding of Indigenous interests in the area that could be affected by the Project. Indigenous interests will include impacts to Aboriginal or treaty rights recognized and affirmed by section 35 of the *Constitution Act, 1982* as well as any other interests identified by the Nation. Information in this section will be developed through engagement with the Nation and include:

- An overview of the Nation's governance context of the area affected by the Project including information regarding:
 - How Indigenous laws, governance or customs apply to this area, including how those processes may have evolved over time, and how they should be used to review the potential impacts of the Project on Indigenous interests.
 - Indigenous laws, customs, or requirements for the area including any existing Indigenous land use plans.
 - Agreements with other Nations regarding governance of areas of territory overlap, as relevant to the Project.
- A list of the Indigenous interests that may be impacted by the Project.
- A summary of historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects, and practices in the vicinity of the Project with regard to the Indigenous interests. This summary will include any site-specific use values present in the vicinity of the Project, which are areas identified and/or mapped by Indigenous Nations as having environmental, cultural, spiritual, transportation, subsistence and habitation value.

13.2 Existing Conditions

As applicable and to the extent that information is available, the Application will:

- Describe historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects.
- Describe practices in the vicinity of the Project with regard to Indigenous interests (including reference to specific sites and species of interests, where applicable).
- Describe the relative importance of the Project Area, transmission line corridor and surroundings, including any special characteristics or unique features, to Indigenous interests.

13.3 Summary of Engagement

The Application will include:

- A summary of past and planned engagement activities that describes the efforts taken to seek the views of each Indigenous Nation with respect to the Project including:
 - Engagement activities undertaken with the Nation including the timeframe, means, and results of engagement.
 - Efforts to engage diverse populations of the Nation community in culturally appropriate ways, including Indigenous local group/sub-group (e.g., clan, family) areas within the broader traditional territory, and groups identified by gender, age, or other community relevant factors.
 - How engagement activities conducted by Cedar support the Nation to understand the Project and its effects on the Nation and its interests.
 - The Nation's views on Cedar's consultation approach and resolution of issues raised when provided.
- An analysis of the input received from the Nation with respect to the Project including:
 - A description of how Cedar responded to questions, comments and issues raised by the Nation, the Nation's perspective on the resolution of issues, how unresolved input has been addressed in the Application, and/or how unresolved input will be addressed through the assessment.

- Where and how the Nation's perspectives were integrated into or contributed to decisions regarding the Project, including:
 - Development and collection of baseline information
 - Plans for construction, operation, or decommissioning
 - Identification of VCs
- Information regarding any arrangement or agreement between Cedar and the Nation for collaboration on the development of the Application or delivery of the Project, subject to confidentiality terms. This includes agreements related to the delivery of studies, capacity funding agreements and agreements regarding the use of Indigenous knowledge.

13.4 Information Sources

The sources of information used in preparing the assessment of effects on the Indigenous Nation will be clearly identified, noting where information represents the views of the Nation, Cedar or otherwise. Information sources that include Indigenous knowledge will be clearly labeled as such.

Regarding the collection and use of Indigenous knowledge, the Application will include:

- An outline of the steps taken by Cedar to work with the Indigenous Nation to incorporate Indigenous knowledge including a summary of any agreement with the Nation regarding the use, application and interpretation of Indigenous knowledge (e.g., Memorandum of Understanding).
- Identification of how and when Indigenous Nation were provided the opportunity to confirm that the information sources were appropriate for public disclosure.
- A description of how Indigenous knowledge informed the Project design, the assessment, proposed mitigation measures or any other aspect of the assessment.
- If applicable, a plan for future cooperation between Cedar and the Nation to further consider Indigenous knowledge in project implementation, for example monitoring and management plans.

13.5 Assessing Effects on Indigenous Interests

13.5.1 *Scope of the Assessment*

The Application will:

- Identify the potential effects of the proposed Project on Indigenous interests that will be assessed.
- Describe how the Indigenous interest was identified, through engagement with the Indigenous Nation or otherwise.
- Summarize the VCs used in the assessment of effects on the Indigenous interest and whether they were carried forward from Section 6.1 or developed specifically for the assessment of the Indigenous interest.
- Describe linkages with other Indigenous interests

13.5.2 *Assessment Boundaries*

The Application will define the assessment boundaries for assessing the effects on the Indigenous interest, including spatial and temporal boundaries, with reference to the spatial and temporal boundaries used for the VC assessments in Section 7.0, as applicable. Where relevant, administrative and technical boundaries will also be identified.

13.5.3 *Effects Assessment*

The Application will include an assessment of the effects of the Project on Indigenous interests. This will include:

- Description of the potential pathways by which the Project components and activities could impact the Indigenous interest. Effects may occur through multiple pathways including but not limited to the following:
 - Biophysical (e.g., effects to wildlife and habitat)
 - Related to the ability to use and access Crown lands and waters
 - Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Identification of effects to be carried forward from pathways determined to be consequential or requiring mitigation.
- Description of VCs and indicators used to assess effects carried forward
- Description of any assessment methods and analysis used to undertake the assessment of effects to the Indigenous interest.

13.5.4 Mitigation and Enhancement Measures

The Application will include information regarding:

- Project design and mitigations identified for the relevant VCs that are proposed to mitigate effects on Indigenous interests.
- Additional mitigations and enhancement measures that are specific to the Indigenous Nation or Indigenous interest.
- Proposed monitoring initiatives or review processes related to the effect on the Indigenous interest, as applicable.

Perspectives on the effectiveness of the mitigation options will be presented as well as the relative level of uncertainty or risk associated with the mitigation option(s).

13.5.5 Assessing Adverse Effects

The Application will provide a detailed description of the assessment of adverse effects to Indigenous interests that are anticipated as a result of the Project, and present the results of this assessment, after taking mitigation into account. It will describe proposed monitoring initiatives or review processes related to the effect on Indigenous interest.

13.5.6 Characterization of Residual Effects

The Application will provide a characterization of residual effects of the Project to the Indigenous interest. This will include information on the socio-cultural context of the Indigenous interest and the potential for effects on the broader social, economic, health status of the Nation from residual effects to Indigenous interest.

13.5.7 Cumulative Effects

The Application will include an assessment of the Project's contribution to cumulative effects on the Indigenous interest and identify any additional mitigation measures. The Application will describe the likelihood of any adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

13.6 Assessing Positive Effects

The Application will describe any positive effects to Indigenous interests or the Nation overall that are anticipated as a result of the Project and its associated effects management approaches.

13.7 Gitxaʼa Nation Views

The Application will describe how Cedar engaged with the Indigenous Nation, including any collaboration with the Indigenous Nation, or integrated the Nation's perspectives into, the assessment of effects on Indigenous interests, including both positive and adverse effects. The Application will clearly state any views of the Nation on the potential positive and/or adverse effects identified, approach to effects management, residual effects, and conclusions.

13.8 Summary

The Application will include a summary of the assessment for the Indigenous Nation outlining the residual effects on Indigenous interests for the EAO to consider when determining the overall seriousness of impact to the Indigenous interests, outline any major points of agreement or disagreement with the Nation, and describe efforts taken to address any points of disagreement.

14.0 KITSELAS FIRST NATION

The Application will include an assessment of the effects of the Project on Kitselas First Nation interests as described in Section 6.0, or following other assessment methods developed in consultation with Kitselas First Nation. The assessment in the Application will be informed by engagement with Kitselas First Nation.

Based on initial correspondence and discussions with Kitselas First Nation to date and review of the Project activities, Cedar understands that key areas of concern for Kitselas First Nation are as follows:

- *Potential effects on the biophysical and human environment as assessed in Section 7.0, with a particular focus on human health.*
- *Potential effects on social and economic conditions as assessed in Section 7.0, with a particular focus on community health and safety.*

Based on feedback provided to date and review of the key areas of concern for Kitselas First Nation, Cedar has developed a preliminary list of potential effects on Indigenous interests to be included in the assessment, as a starting point for discussion on the structure of this assessment. It is expected that this list will be further developed through ongoing consultation with Kitselas First Nation during the assessment process. Approach to the assessment will consider input provided by Kitselas First Nation on the incorporation of Nation-specific VCs, when provided. The preliminary list of potential effects on Indigenous interests are as follows:

- *Aboriginal title and rights*
- *Changes in Indigenous interests related to consumption and harvest*

- *Changes in the use and integrity of sacred and culturally important sites and landscape features*
- *Changes that affect aspects of traditional Indigenous governance*

Each Indigenous interest will be assessed under its own section, unless analysis and supporting information is similar, in which case two or more may be combined in the same sub-section.

14.1 Overview and Context

The Application will include background information on each Indigenous Nation including ethnography, language, governance, economy, population, communities, Reserves, Indigenous land use plans (with reference to Section 2.3 as applicable), health and social conditions and other contextual information the Nation provides to Cedar and identifies as important to understanding the impacts of the Project on their Nation.

The assessment for each Indigenous Nation will include an overview of the understanding of Indigenous interests in the area that could be affected by the Project. Indigenous interests will include impacts to Aboriginal or treaty rights recognized and affirmed by section 35 of the *Constitution Act, 1982* as well as any other interests identified by the Nation. Information in this section will be developed through engagement with the Nation and include:

- An overview of the Nation's governance context of the area affected by the Project including information regarding:
 - How Indigenous laws, governance or customs apply to this area, including how those processes may have evolved over time, and how they should be used to review the potential impacts of the Project on Indigenous interests.
 - Indigenous laws, customs, or requirements for the area including any existing Indigenous land use plans.
 - Agreements with other Nations regarding governance of areas of territory overlap, as relevant to the Project.
- A list of the Indigenous interests that may be impacted by the Project.
- A summary of historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects, and practices in the vicinity of the Project with regard to the Indigenous interests. This summary will include any site-specific use values present in the vicinity of the Project, which are areas identified and/or mapped by Indigenous Nations as having environmental, cultural, spiritual, transportation, subsistence and habitation value.

14.2 Existing Conditions

As applicable and to the extent that information is available, the Application will:

- Describe historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects.
- Describe practices in the vicinity of the Project with regard to Indigenous interests (including reference to specific sites and species of interests, where applicable).
- Describe the relative importance of the Project Area, transmission line corridor and surroundings, including any special characteristics or unique features, to Indigenous interests.

14.3 Summary of Engagement

The Application will include:

- A summary of past and planned engagement activities that describes the efforts taken to seek the views of each Indigenous Nation with respect to the Project including:
 - Engagement activities undertaken with the Nation including the timeframe, means, and results of engagement.
 - Efforts to engage diverse populations of the Nation community in culturally appropriate ways, including Indigenous local group/sub-group (e.g., clan, family) areas within the broader traditional territory, and groups identified by gender, age, or other community relevant factors.
 - How engagement activities conducted by Cedar support the Nation to understand the Project and its effects on the Nation and its interests.
 - The Nation's views on Cedar's consultation approach and resolution of issues raised when provided.
- An analysis of the input received from the Nation with respect to the Project including:
 - A description of how Cedar responded to questions, comments and issues raised by the Nation, the Nation's perspective on the resolution of issues, how unresolved input has been addressed in the Application, and/or how unresolved input will be addressed through the assessment.

- Where and how the Nation's perspectives were integrated into or contributed to decisions regarding the Project, including:
 - Development and collection of baseline information
 - Plans for construction, operation, or decommissioning
 - Identification of VCs
- Information regarding any arrangement or agreement between Cedar and the Nation for collaboration on the development of the Application or delivery of the Project, subject to confidentiality terms. This includes agreements related to the delivery of studies, capacity funding agreements and agreements regarding the use of Indigenous knowledge.

14.4 Information Sources

The sources of information used in preparing the assessment of effects on the Indigenous Nation will be clearly identified, noting where information represents the views of the Nation, Cedar or otherwise. Information sources that include Indigenous knowledge will be clearly labeled as such.

Regarding the collection and use of Indigenous knowledge, the Application will include:

- An outline of the steps taken by Cedar to work with the Indigenous Nation to incorporate Indigenous knowledge including a summary of any agreement with the Nation regarding the use, application and interpretation of Indigenous knowledge (e.g., Memorandum of Understanding).
- Identification of how and when Indigenous Nation were provided the opportunity to confirm that the information sources were appropriate for public disclosure.
- A description of how Indigenous knowledge informed the Project design, the assessment, proposed mitigation measures or any other aspect of the assessment.
- If applicable, a plan for future cooperation between Cedar and the Nation to further consider Indigenous knowledge in project implementation, for example monitoring and management plans.

14.5 Assessing Effects on Indigenous Interests

14.5.1 *Scope of the Assessment*

The Application will:

- Identify the potential effects of the proposed Project on Indigenous interests that will be assessed.
- Describe how the Indigenous interest was identified, through engagement with the Indigenous Nation or otherwise.
- Summarize the VCs used in the assessment of effects on the Indigenous interest and whether they were carried forward from Section 6.1 or developed specifically for the assessment of the Indigenous interest.
- Describe linkages with other Indigenous interests.

14.5.2 *Assessment Boundaries*

The Application will define the assessment boundaries for assessing the effects on the Indigenous interest, including spatial and temporal boundaries, with reference to the spatial and temporal boundaries used for the VC assessments in Section 7.0, as applicable. Where relevant, administrative and technical boundaries will also be identified.

14.5.3 *Effects Assessment*

The Application will include an assessment of the effects of the Project on Indigenous interests. This will include:

- Description of the potential pathways by which the Project components and activities could impact the Indigenous interest. Effects may occur through multiple pathways including but not limited to the following:
 - Biophysical (e.g., effects to wildlife and habitat)
 - Related to the ability to use and access Crown lands and waters
 - Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Identification of effects to be carried forward from pathways determined to be consequential or requiring mitigation.
- Description of VCs and indicators used to assess effects carried forward.
- Description of any assessment methods and analysis used to undertake the assessment of effects to the Indigenous interest.

14.5.4 Mitigation and Enhancement Measures

The Application will include information regarding:

- Project design and mitigations identified for the relevant VCs that are proposed to mitigate effects on Indigenous interests.
- Additional mitigations and enhancement measures that are specific to the Indigenous Nation or Indigenous interest.
- Proposed monitoring initiatives or review processes related to the effect on the Indigenous interest, as applicable.

Perspectives on the effectiveness of the mitigation options will be presented as well as the relative level of uncertainty or risk associated with the mitigation option(s).

14.5.5 Assessing Adverse Effects

The Application will provide a detailed description of the assessment of adverse effects to Indigenous interests that are anticipated as a result of the Project, and present the results of this assessment, after taking mitigation into account. It will describe proposed monitoring initiatives or review processes related to the effect on Indigenous interest.

14.5.6 Characterization of Residual Effects

The Application will provide a characterization of residual effects of the Project to the Indigenous interest. This will include information on the socio-cultural context of the Indigenous interest and the potential for effects on the broader social, economic, health status of the Nation from residual effects to Indigenous interest.

14.5.7 Cumulative Effects

The Application will include an assessment of the Project's contribution to cumulative effects on the Indigenous interest and identify any additional mitigation measures. The Application will describe the likelihood of any adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

14.6 Assessing Positive Effects

The Application will describe any positive effects to Indigenous interests or the Nation overall that are anticipated as a result of the Project and its associated effects management approaches.

14.7 Kitselas First Nation Views

The Application will describe how Cedar engaged with the Indigenous Nation, including any collaboration with the Indigenous Nation, or integrated the Nation's perspectives into the assessment of effects on Indigenous interests, including both positive and adverse effects. The Application will clearly state any views of the Nation on the potential positive and/or adverse effects identified, approach to effects management, residual effects, and conclusions.

14.8 Summary

The Application will include a summary of the assessment for the Indigenous Nation outlining the residual effects on Indigenous interests for the EAO to consider when determining the overall seriousness of impact to the Indigenous interests, outline any major points of agreement or disagreement with the Nation, and describe efforts taken to address any points of disagreement.

15.0 KITSUMKALUM FIRST NATION

The Application will include an assessment of the effects of the Project on Kitsumkalum First Nation interests as described in Section 6.0, or following other assessment methods developed in consultation with Kitsumkalum First Nation. The assessment in the Application will be informed by engagement with Kitsumkalum First Nation.

Based on initial correspondence and discussions with Kitsumkalum First Nation to date and review of the Project activities, Cedar understands that key areas of concern for Kitsumkalum First Nation are as follows:

- *Potential effects on the biophysical and human environment as assessed in Section 7.0, with a particular focus on air quality, human health and marine resources.*
- *Potential effects on social and economic conditions as assessed in Section 7.0, with a particular focus on housing impacts, and land and resource use.*

Based on feedback provided to date and review of the key areas of concern for Kitsumkalum First Nation, Cedar has developed a preliminary list of potential effects on Indigenous interests to be included in the assessment, as a starting point for discussion on the structure of this assessment. It is expected that this list will be further developed through ongoing consultation with Kitsumkalum First Nation during the assessment process. Approach to the assessment will consider input provided by Kitsumkalum First Nation on incorporation of Nation-specific VCs, if provided by Kitsumkalum First Nation.

The preliminary list of potential effects on Indigenous interests are as follows:

- *Aboriginal title and rights*
- *Changes in Indigenous interests related to consumption and harvest*

- *Changes in the use and integrity of sacred and culturally important sites and landscape features, including potential changes to sense of place.*
- *Changes that affect aspects of traditional Indigenous governance*

Each Indigenous interest will be assessed under its own section, unless analysis and supporting information is similar, in which case two or more may be combined in the same sub-section.

15.1 Overview and Context

The Application will include background information on each Indigenous Nation including ethnography, language, governance, economy, population, communities, Reserves, Indigenous land use plans (with reference to Section 2.3 as applicable), health and social conditions and other contextual information the Nation provides to Cedar and identifies as important to understanding the impacts of the Project on their Nation.

The assessment for each Indigenous Nation will include an overview of the understanding of Indigenous interests in the area that could be affected by the Project. Indigenous interests will include impacts to Aboriginal or treaty rights recognized and affirmed by section 35 of the *Constitution Act, 1982* as well as any other interests identified by the Nation. Information in this section will be developed through engagement with the Nation and include:

- An overview of the Nation's governance context of the area affected by the Project including information regarding:
 - How Indigenous laws, governance or customs apply to this area, including how those processes may have evolved over time, and how they should be used to review the potential impacts of the Project on Indigenous interests.
 - Indigenous laws, customs, or requirements for the area including any existing Indigenous land use plans.
 - Agreements with other Nations regarding governance of areas of territory overlap, as relevant to the Project.
- A list of the Indigenous interests that may be impacted by the Project.
- A summary of historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects, and practices in the vicinity of the Project with regard to the Indigenous interests. This summary will include any site-specific use values present in the vicinity of the Project, which are areas identified and/or mapped by Indigenous Nations as having environmental, cultural, spiritual, transportation, subsistence and habitation value.

15.2 Existing Conditions

As applicable and to the extent that information is available, the Application will:

- Describe historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects.
- Describe practices in the vicinity of the Project with regard to Indigenous interests (including reference to specific sites and species of interests, where applicable).
- Describe the relative importance of the Project Area, transmission line corridor and surroundings, including any special characteristics or unique features, to Indigenous interests.

15.3 Summary of Engagement

The Application will include:

- A summary of past and planned engagement activities that describes the efforts taken to seek the views of each Indigenous Nation with respect to the Project including:
 - Engagement activities undertaken with the Nation including the timeframe, means, and results of engagement.
 - Efforts to engage diverse populations of the Nation community in culturally appropriate ways, including Indigenous local group/sub-group (e.g., clan, family) areas within the broader traditional territory, and groups identified by gender, age, or other community relevant factors.
 - How engagement activities conducted by Cedar support the Nation to understand the Project and its effects on the Nation and its interests.
 - The Nation's views on Cedar's consultation approach and resolution of issues raised when provided.
- An analysis of the input received from the Nation with respect to the Project including:
 - A description of how Cedar responded to questions, comments and issues raised by the Nation, the Nation's perspective on the resolution of issues, how unresolved input has been addressed in the Application, and/or how unresolved input will be addressed through the assessment.

- Where and how the Nation's perspectives were integrated into or contributed to decisions regarding the Project, including:
 - Development and collection of baseline information
 - Plans for construction, operation, or decommissioning
 - Identification of VCs
- Information regarding any arrangement or agreement between Cedar and the Nation for collaboration on the development of the Application or delivery of the Project, subject to confidentiality terms. This includes agreements related to the delivery of studies, capacity funding agreements and agreements regarding the use of Indigenous knowledge.

15.4 Information Sources

The sources of information used in preparing the assessment of effects on the Indigenous Nation will be clearly identified, noting where information represents the views of the Nation, Cedar or otherwise. Information sources that include Indigenous knowledge will be clearly labeled as such.

Regarding the collection and use of Indigenous knowledge, the Application will include:

- An outline of the steps taken by Cedar to work with the Indigenous Nation to incorporate Indigenous knowledge including a summary of any agreement with the Nation regarding the use, application and interpretation of Indigenous knowledge (e.g., Memorandum of Understanding).
- Identification of how and when Indigenous Nation were provided the opportunity to confirm that the information sources were appropriate for public disclosure.
- A description of how Indigenous knowledge informed the Project design, the assessment, proposed mitigation measures or any other aspect of the assessment.
- If applicable, a plan for future cooperation between Cedar and the Nation to further consider Indigenous knowledge in project implementation, for example monitoring and management plans.

15.5 Assessing Effects on Indigenous Interests

15.5.1 *Scope of the Assessment*

The Application will:

- Identify the potential effects of the proposed Project on Indigenous interests that will be assessed
- Describe how the Indigenous interest was identified, through engagement with the Indigenous Nation or otherwise.
- Summarize the VCs used in the assessment of effects on the Indigenous interest and whether they were carried forward from Section 6.1 or developed specifically for the assessment of the Indigenous interest.
- Describe linkages with other Indigenous interests

15.5.2 *Assessment Boundaries*

The Application will define the assessment boundaries for assessing the effects on the Indigenous interest, including spatial and temporal boundaries, with reference to the spatial and temporal boundaries used for the VC assessments in Section 7.0, as applicable. Where relevant, administrative and technical boundaries will also be identified.

15.5.3 *Effects Assessment*

The Application will include an assessment of the effects of the Project on Indigenous interests. This will include:

- Description of the potential pathways by which the Project components and activities could impact the Indigenous interest. Effects may occur through multiple pathways including but not limited to the following:
 - Biophysical (e.g., effects to wildlife and habitat)
 - Related to the ability to use and access Crown lands and waters
 - Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Identification of effects to be carried forward from pathways determined to be consequential or requiring mitigation.
- Description of VCs and indicators used to assess effects carried forward
- Description of any assessment methods and analysis used to undertake the assessment of effects to the Indigenous interest.

15.5.4 *Mitigation and Enhancement Measures*

The Application will include information regarding:

- Project design and mitigations identified for the relevant VCs that are proposed to mitigate effects on Indigenous interests.
- Additional mitigations and enhancement measures that are specific to the Indigenous Nation or Indigenous interest.
- Proposed monitoring initiatives or review processes related to the effect on the Indigenous interest, as applicable.

Perspectives on the effectiveness of the mitigation options will be presented as well as the relative level of uncertainty or risk associated with the mitigation option(s).

15.5.5 *Assessing Adverse Effects*

The Application will provide a detailed description of the assessment of adverse effects to Indigenous interests that are anticipated as a result of the Project, and present the results of this assessment, after taking mitigation into account. It will describe proposed monitoring initiatives or review processes related to the effect on Indigenous interest.

15.5.6 *Characterization of Residual Effects*

The Application will provide a characterization of residual effects of the Project to the Indigenous interest. This will include information on the socio-cultural context of the Indigenous interest and the potential for effects on the broader social, economic, health status of the Nation from residual effects to Indigenous interest.

15.5.7 *Cumulative Effects*

The Application will include an assessment of the Project's contribution to cumulative effects on the Indigenous interest and identify any additional mitigation measures. The Application will describe the likelihood of any adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

15.6 **Assessing Positive Effects**

The Application will describe any positive effects to Indigenous interests or the Nation overall that are anticipated as a result of the Project and its associated effects management approaches.

15.7 Kitsumkalum First Nation Views

The Application will describe how Cedar engaged with the Indigenous Nation, including any collaboration with the Indigenous Nation, or integrated the Nation's perspectives into, the assessment of effects on Indigenous interests, including both positive and adverse effects. The Application will clearly state any views of the Nation on the potential positive and/or adverse effects identified, approach to effects management, residual effects, and conclusions.

15.8 Summary

The Application will include a summary of the assessment for the Indigenous Nation outlining the residual effects on Indigenous interests for the EAO to consider when determining the overall seriousness of impact to the Indigenous interests, outline any major points of agreement or disagreement with the Nation, and describe efforts taken to address any points of disagreement.

16.0 LAX KW'ALAAMS BAND

Lax Kw'alaams Band has informed Cedar, the EAO and IAAC that it is interested in directly preparing the assessment of effects of the Cedar LNG Project on Lax Kw'alaams interests and, as indicated by Lax Kw'alaams Band, that this section of the Application may be prepared collaboratively with Metlakatla First Nation as a joint Coast Tsimshian assessment. Therefore, this section of the Application, including relevant background information and key interests, will be presented and assessed in a manner determined by Lax Kw'alaams Band. To meet the specific requirements of BCEAA and the *Impact Assessment Act*, at a minimum the assessment will include:

- A summary of Cedar's engagement with Lax Kw'alaams Band.
- Indigenous knowledge used to assess the effects of the Project
- The effects of the Project on Lax Kw'alaams Band interests and rights recognized and affirmed by section 35 of the *Constitution Act, 1982*.
- Consistency of the Project with any Lax Kw'alaams Band land-use or marine-use plan that is relevant to the assessment.
- Potential effects resulting from a change to the environment caused by the Project on physical and cultural heritage.
- Potential effects resulting from a change to the environment caused by the Project on the current use of lands and resources for traditional purposes.
- Any change to the health, social, or economic conditions of the Lax Kw'alaams members.

- Any disproportionate effects on distinct human populations, including populations identified by gender.
- A summary of Cedar's perspective on the assessment and a description of the mitigation measures that it can implement by Cedar to mitigate identified effects/impacts.

Where no interactions with the specific requirements of BCEAA or the *Impact Assessment Act* are identified by Lax Kw'alaams Band, this will be noted accordingly in the Application.

17.0 METLAKATLA FIRST NATION

Metlakatla First Nation has informed Cedar, the EAO and IAAC that it is interested in directly preparing the assessment of effects of the Cedar LNG Project on Metlakatla interests and, as indicated by Metlakatla First Nation, that this section of the Application may be prepared collaboratively with Lax Kw'alaams Band as a joint Coast Tsimshian assessment. Therefore, this section of the Application, including relevant background information and key interests, will be presented and assessed in a manner determined by Metlakatla First Nation. To meet the specific requirements of BCEAA and the *Impact Assessment Act*, at a minimum the assessment will include:

- A summary of Cedar's engagement with Metlakatla First Nation.
- Indigenous knowledge used to assess the effects of the Project.
- The effects of the Project on Metlakatla First Nation interests and rights recognized and affirmed by section 35 of the *Constitution Act, 1982*.
- Consistency of the Project with any Metlakatla First Nation land-use or marine-use plan that is relevant to the assessment.
- Potential effects resulting from a change to the environment caused by the Project on physical and cultural heritage.
- Potential effects resulting from a change to the environment caused by the Project on the current use of lands and resources for traditional purposes.
- Any change to the health, social, or economic conditions of the Metlakatla members.
- Any disproportionate effects on distinct human populations, including populations identified by gender.
- A summary of Cedar's perspective on the assessment and a description of the mitigation measures that it can implement by Cedar to mitigate identified effects/impacts.

Where no interactions with the specific requirements of BCEAA or the *Impact Assessment Act* are identified by Metlakatla First Nation, this will be noted accordingly in the Application.

18.0 HAIDA NATION

The Application will include an assessment of the effects of the Project's marine shipping on Haida Nation interests as described in Section 6.0, or following other assessment methods developed in consultation with Haida Nation. The assessment in the Application will be informed by engagement with Haida Nation.

As stated in the section 11 Order, consultation with Indigenous Nations identified in Schedule C (Haida Nation) will focus only on marine shipping related to the Project. The scope of the Project includes the operation of LNG carriers and other supporting traffic along the marine shipping route between the project location near Kitimat and the pilot boarding location at or near Triple Island. Based on review of the Haida territorial boundary map provided to Cedar by the EAO, Triple Island is approximately 24 km from the edge of Haida traditional territory. At this point, no potential effects on the Indigenous interests of Haida Nation have been identified since the scope of the Project's shipping activities included in the assessment do not overlap with Haida Nation's traditional territory. *In upcoming consultation activities, Cedar will work with Haida Nation to develop an understanding of Haida Nation key areas of concern related to marine shipping and any associated potential effects on Indigenous interests to be included in the assessment.*

18.1 Overview and Context

The Application will include background information on each Indigenous Nation including ethnography, language, governance, economy, population, communities, Reserves, Indigenous land use plans (with reference to Section 2.3 as applicable), health and social conditions and other contextual information the Nation provides to Cedar and identifies as important to understanding the impacts of the Project on their Nation.

The assessment for each Indigenous Nation will include an overview of the understanding of Indigenous interests in the area that could be affected by the Project. Indigenous interests will include impacts to Aboriginal or treaty rights recognized and affirmed by section 35 of the *Constitution Act, 1982* as well as any other interests identified by the Nation. Information in this section will be developed through engagement with the Nation and include:

- An overview of the Nation's governance context of the area affected by the Project including information regarding:
 - How Indigenous laws, governance or customs apply to this area, including how those processes may have evolved over time, and how they should be used to review the potential impacts of the Project on Indigenous interests.
 - Indigenous laws, customs, or requirements for the area including any existing Indigenous land use plans.

- Agreements with other Nations regarding governance of areas of territory overlap, as relevant to the Project.
- A list of the Indigenous interests that may be impacted by the Project.
- A summary of historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects, and practices in the vicinity of the Project with regard to the Indigenous interests. This summary will include any site-specific use values present in the vicinity of the Project, which are areas identified and/or mapped by Indigenous Nations as having environmental, cultural, spiritual, transportation, subsistence and habitation value.

18.2 Existing Conditions

As applicable and to the extent that information is available, the Application will:

- Describe historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects.
- Describe practices in the vicinity of the Project with regard to Indigenous interests (including reference to specific sites and species of interests, where applicable).
- Describe the relative importance of the Project Area, transmission line corridor and surroundings, including any special characteristics or unique features, to Indigenous interests.

18.3 Summary of Engagement

The Application will include:

- A summary of past and planned engagement activities that describes the efforts taken to seek the views of each Indigenous Nation with respect to the Project including:
 - Engagement activities undertaken with the Nation including the timeframe, means, and results of engagement.
 - Efforts to engage diverse populations of the Nation community in culturally appropriate ways, including Indigenous local group/sub-group (e.g., clan, family) areas within the broader traditional territory, and groups identified by gender, age, or other community relevant factors.
 - How engagement activities conducted by Cedar support the Nation to understand the Project and its effects on the Nation and its interests.
 - The Nation's views on Cedar's consultation approach and resolution of issues raised when provided.

- An analysis of the input received from the Nation with respect to the Project including:
 - A description of how Cedar responded to questions, comments and issues raised by the Nation, the Nation's perspective on the resolution of issues, how unresolved input has been addressed in the Application, and/or how unresolved input will be addressed through the assessment.
 - Where and how the Nation's perspectives were integrated into or contributed to decisions regarding the Project, including:
 - Development and collection of baseline information
 - Plans for construction, operation, or decommissioning
 - Identification of VCs
- Information regarding any arrangement or agreement between Cedar and the Nation for collaboration on the development of the Application or delivery of the Project, subject to confidentiality terms. This includes agreements related to the delivery of studies, capacity funding agreements and agreements regarding the use of Indigenous knowledge.

18.4 Information Sources

The sources of information used in preparing the assessment of effects on the Indigenous Nation will be clearly identified, noting where information represents the views of the Nation, Cedar or otherwise. Information sources that include Indigenous knowledge will be clearly labeled as such.

Regarding the collection and use of Indigenous knowledge, the Application will include:

- An outline of the steps taken by Cedar to work with the Indigenous Nation to incorporate Indigenous knowledge including a summary of any agreement with the Nation regarding the use, application and interpretation of Indigenous knowledge (e.g., Memorandum of Understanding).
- Identification of how and when Indigenous Nation were provided the opportunity to confirm that the information sources were appropriate for public disclosure.
- A description of how Indigenous knowledge informed the Project design, the assessment, proposed mitigation measures or any other aspect of the assessment.
- If applicable, a plan for future cooperation between Cedar and the Nation to further consider Indigenous knowledge in project implementation, for example monitoring and management plans.

18.5 Assessing Effects on Indigenous Interests

18.5.1 *Scope of the Assessment*

The Application will:

- Identify the potential effects of the proposed Project on Indigenous interests that will be assessed
- Describe how the Indigenous interest was identified, through engagement with the Indigenous Nation or otherwise.
- Summarize the VCs used in the assessment of effects on the Indigenous interest and whether they were carried forward from Section 6.1 or developed specifically for the assessment of the Indigenous interest.
- Describe linkages with other Indigenous interests

18.5.2 *Assessment Boundaries*

The Application will define the assessment boundaries for assessing the effects on the Indigenous interest, including spatial and temporal boundaries, with reference to the spatial and temporal boundaries used for the VC assessments in Section 7.0, as applicable. Where relevant, administrative and technical boundaries will also be identified.

18.5.3 *Effects Assessment*

The Application will include an assessment of the effects of the Project on Indigenous interests. This will include:

- Description of the potential pathways by which the Project components and activities could impact the Indigenous interest. Effects may occur through multiple pathways including but not limited to the following:
 - Biophysical (e.g., effects to wildlife and habitat)
 - Related to the ability to use and access Crown lands and waters
 - Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Identification of effects to be carried forward from pathways determined to be consequential or requiring mitigation.
- Description of VCs and indicators used to assess effects carried forward.
- Description of any assessment methods and analysis used to undertake the assessment of effects to the Indigenous interest.

18.5.4 Mitigation and Enhancement Measures

The Application will include information regarding:

- Project design and mitigations identified for the relevant VCs that are proposed to mitigate effects on Indigenous interests.
- Additional mitigations and enhancement measures that are specific to the Indigenous Nation or Indigenous interest.
- Proposed monitoring initiatives or review processes related to the effect on the Indigenous interest, as applicable.

Perspectives on the effectiveness of the mitigation options will be presented as well as the relative level of uncertainty or risk associated with the mitigation option(s).

18.5.5 Assessing Adverse Effects

The Application will provide a detailed description of the assessment of adverse effects to Indigenous interests that are anticipated as a result of the Project, and present the results of this assessment, after taking mitigation into account. It will describe proposed monitoring initiatives or review processes related to the effect on Indigenous interest.

18.5.6 Characterization of Residual Effects

The Application will provide a characterization of residual effects of the Project to the Indigenous interest. This will include information on the socio-cultural context of the Indigenous interest and the potential for effects on the broader social, economic, health status of the Nation from residual effects to Indigenous interest.

18.5.7 Cumulative Effects

The Application will include an assessment of the Project's contribution to cumulative effects on the Indigenous interest and identify any additional mitigation measures. The Application will describe the likelihood of any adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

18.6 Assessing Positive Effects

The Application will describe any positive effects to Indigenous interests or the Nation overall that are anticipated as a result of the Project and its associated effects management approaches.

18.7 Haida Nation Views

The Application will describe how Cedar engaged with the Indigenous Nation, including any collaboration with the Indigenous Nation, or integrated the Nation's perspectives into, the assessment of effects on Indigenous interests, including both positive and adverse effects. The Application will clearly state any views of the Nation on the potential positive and/or adverse effects identified, approach to effects management, residual effects, and conclusions.

18.8 Summary

The Application will include a summary of the assessment for the Indigenous Nation outlining the residual effects on Indigenous interests for the EAO to consider when determining the overall seriousness of impact to the Indigenous interests, outline any major points of agreement or disagreement with the Nation, and describe efforts taken to address any points of disagreement.

19.0 MÉTIS NATION BRITISH COLUMBIA

The Application will include an assessment of the effects of the Project on Métis Nation British Columbia interests as described in Section 6.0, or following other assessment methods developed in consultation with Métis Nation British Columbia. The assessment in the Application will be informed by engagement with Métis Nation British Columbia.

Based on initial correspondence and discussions with Métis Nation British Columbia to date and review of the Project activities, Cedar understands that Métis Nation British Columbia may have harvesters in the area with an interest in the Project. In upcoming consultation activities, Cedar will work with Métis Nation British Columbia to develop an understanding of Métis Nation key areas of concern and any associated potential effects on Indigenous interests to be included in the assessment.

19.1 Overview and Context

The Application will include background information on each Indigenous Nation including ethnography, language, governance, economy, population, communities, Reserves, Indigenous land use plans (with reference to Section 2.3 as applicable), health and social conditions and other contextual information the Nation provides to Cedar and identifies as important to understanding the impacts of the Project on their Nation.

The assessment for each Indigenous Nation will include an overview of the understanding of Indigenous interests in the area that could be affected by the Project. Indigenous interests will include impacts to Aboriginal or treaty rights recognized and affirmed by section 35 of the *Constitution Act*, 1982 as well as any other interests identified by the Nation. Information in this section will be developed through engagement with the Nation and include:

- An overview of the Nation's governance context of the area affected by the Project including information regarding:
 - How Indigenous laws, governance or customs apply to this area, including how those processes may have evolved over time, and how they should be used to review the potential impacts of the Project on Indigenous interests.
 - Indigenous laws, customs, or requirements for the area including any existing Indigenous land use plans.
 - Agreements with other Nations regarding governance of areas of territory overlap, as relevant to the Project.
- A list of the Indigenous interests that may be impacted by the Project.
- A summary of historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects, and practices in the vicinity of the Project with regard to the Indigenous interests. This summary will include any site-specific use values present in the vicinity of the Project, which are areas identified and/or mapped by Indigenous Nations as having environmental, cultural, spiritual, transportation, subsistence and habitation value.

19.2 Existing Conditions

As applicable and to the extent that information is available, the Application will:

- Describe historic and current use of the area in the vicinity of the Project by Indigenous people over time including consideration of cumulative effects.
- Describe practices in the vicinity of the Project with regard to Indigenous interests (including reference to specific sites and species of interests, where applicable).
- Describe the relative importance of the Project Area, transmission line corridor and surroundings, including any special characteristics or unique features, to Indigenous interests.

19.3 Summary of Engagement

The Application will include:

- A summary of past and planned engagement activities that describes the efforts taken to seek the views of each Indigenous Nation with respect to the Project including:
 - *The engagement activities undertaken with the Nation including the timeframe, means, and results of engagement.*
 - *Efforts to engage diverse populations of the Nation community in culturally appropriate ways, including Indigenous local group/sub-group (e.g., clan, family) areas within the broader traditional territory, and groups identified by gender, age, or other community relevant factors.*
 - *How engagement activities conducted by Cedar support the Nation to understand the Project and its effects on the Nation and its interests.*
 - *The Nation's views on Cedar's consultation approach and resolution of issues raised when provided.*
- An analysis of the input received from the Nation with respect to the Project including:
 - *A description of how Cedar responded to questions, comments and issues raised by the Nation, the Nation's perspective on the resolution of issues, how unresolved input has been addressed in the Application, and/or how unresolved input will be addressed through the assessment.*
 - *Where and how the Nation's perspectives were integrated into or contributed to decisions regarding the Project, including:*
 - *Development and collection of baseline information*
 - *Plans for construction, operation, or decommissioning*
 - *Identification of VCs*
- Information regarding any arrangement or agreement between Cedar and the Nation for collaboration on the development of the Application or delivery of the Project, subject to confidentiality terms. This includes agreements related to the delivery of studies, capacity funding agreements and agreements regarding the use of Indigenous knowledge.

19.4 Information Sources

The sources of information used in preparing the assessment of effects on the Indigenous Nation will be clearly identified, noting where information represents the views of the Nation, the proponent or otherwise. Information sources that include Indigenous knowledge will be clearly labeled as such.

Regarding the collection and use of Indigenous knowledge, the Application will include:

- *An outline of the steps taken by Cedar to work with the Indigenous Nation to incorporate Indigenous knowledge including a summary of any agreement with the Nation regarding the use, application and interpretation of Indigenous knowledge (e.g., Memorandum of Understanding).*
- *Identification of how and when Indigenous Nation were provided the opportunity to confirm that the information sources were appropriate for public disclosure.*
- *A description of how Indigenous knowledge informed the Project design, the assessment, proposed mitigation measures or any other aspect of the assessment.*
- *If applicable, a plan for future cooperation between Cedar and the Nation to further consider Indigenous knowledge in project implementation, for example monitoring and management plans.*

19.5 Assessing Effects on Indigenous Interests

19.5.1 Scope of the Assessment

The Application will:

- Identify the potential effects of the proposed Project on Indigenous interests that will be assessed
- Describe how the Indigenous interest was identified, through engagement with the Indigenous Nation or otherwise.
- Summarize the VCs used in the assessment of effects on the Indigenous interest and whether they were carried forward from Section 6.1 or developed specifically for the assessment of the Indigenous interest.
- Describe linkages with other Indigenous interests.

19.5.2 *Assessment Boundaries*

The Application will define the assessment boundaries for assessing the effects on the Indigenous interest, including spatial and temporal boundaries, with reference to the spatial and temporal boundaries used for the VC assessments in Section 7.0, as applicable. Where relevant, administrative and technical boundaries will also be identified.

19.5.3 *Effects Assessment*

The Application will include an assessment of the effects of the Project on Indigenous interests. This will include:

- Description of the potential pathways by which the Project components and activities could impact the Indigenous interest. Effects may occur through multiple pathways including but not limited to the following:
 - Biophysical (e.g., effects to wildlife and habitat)
 - Related to the ability to use and access Crown lands and waters
 - Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Identification of effects to be carried forward from pathways determined to be consequential or requiring mitigation.
- Description of VCs and indicators used to assess effects carried forward
- Description of any assessment methods and analysis used to undertake the assessment of effects to the Indigenous interest.

19.5.4 *Mitigation and Enhancement Measures*

The Application will include information regarding:

- Project design and mitigations identified for the relevant VCs that are proposed to mitigate effects on Indigenous interests.
- Additional mitigations and enhancement measures that are specific to the Indigenous Nation or Indigenous interest.
- Proposed monitoring initiatives or review processes related to the effect on the Indigenous interest, as applicable.
- Perspectives on the effectiveness of the mitigation options will be presented as well as the relative level of uncertainty or risk associated with the mitigation option(s).

19.5.5 Assessing Adverse Effects

The Application will provide a detailed description of the assessment of adverse effects to Indigenous interests that are anticipated as a result of the Project, and present the results of this assessment, after taking mitigation into account. It will describe proposed monitoring initiatives or review processes related to the effect on Indigenous interest.

19.5.6 Characterization of Residual Effects

The Application will provide a characterization of residual effects of the Project to the Indigenous interest. This will include information on the socio-cultural context of the Indigenous interest and the potential for effects on the broader social, economic, health status of the Nation from residual effects to Indigenous interest.

19.5.7 Cumulative Effects

The Application will include an assessment of the Project's contribution to cumulative effects on the Indigenous interest and identify any additional mitigation measures. The Application will describe the likelihood of any adverse residual cumulative effects and provide a summary of the results of the cumulative effects assessment.

19.6 Assessing Positive Effects

The Application will describe any positive effects to Indigenous interests or the Nation overall that are anticipated as a result of the Project and its associated effects management approaches.

19.7 Indigenous Nation Views

The Application will describe how Cedar engaged with the Indigenous Nation, including any collaboration with the Indigenous Nation, or integrated the Nation's perspectives into, the assessment of effects on Indigenous interests, including both positive and adverse effects. The Application will clearly state any views of the Nation on the potential positive and/or adverse effects identified, approach to effects management, residual effects, and conclusions.

19.8 Summary

The Application will include a summary of the assessment for the Indigenous Nation outlining the residual effects on Indigenous interests for the EAO to consider when determining the overall seriousness of impact to the Indigenous interests, outline any major points of agreement or disagreement with the Nation, and describe efforts taken to address any points of disagreement.

20.0 SUMMARY OF STATUTORY REQUIREMENTS UNDER THE FEDERAL *IMPACT ASSESSMENT ACT*

As described in Section 2.0, the Project is subject to assessments under both the *Impact Assessment Act* and the *British Columbia Environmental Assessment Act* (BCEAA) and the Minister of Environment and Climate Change approved the substitution of the conduct of the impact assessment to the Province of British Columbia. In the Notice of Substitution Approval under the *Impact Assessment Act* issued by the Impact Assessment Agency of Canada (IAAC) on January 24, 2020, the substituted impact assessment process must:

- Meet the legislative requirements of the *Impact Assessment Act*, including consideration of the factors set out in subsection 22(1) and the reporting requirements for substitution outlined in subsections 33(1) and (2).
- Include an assessment of the potential effects of marine shipping activities associated with the Project, including potential effects of malfunctions or accidents and any potential cumulative effects.
- Include the requirements of the Strategic Assessment of Climate Change, prepared by Environment and Climate Change Canada.

The scope of the assessment is established by the Application Information Requirements and it addresses the requirements of both BCEAA and the *Impact Assessment Act*, plus the additional factors listed above.

The purpose of this section of the Application is to clearly identify where the “effects within federal jurisdiction” as defined in section 2 and the factors set out in section 22 of the *Impact Assessment Act* have been addressed in this Application. In addition, it clearly identifies where the additional requirements specified in the Notice (i.e., an assessment of the potential effects of marine shipping activities, and the requirements of the Strategic Assessment of Climate Change) have been addressed. The intent of this summary is to confirm that these federal requirements have been addressed. This section is not intended to reiterate the assessment or restate findings for each aspect of the federal impact assessment. Where specific requirements of the *Impact Assessment Act* have not been considered within other chapters of the Application, they are specifically addressed below.

20.1 Concordance to Federal Requirements

Table 20.1.1 below provides a concordance between the list of potential effects within federal jurisdiction, as established in section 2 (Definitions) of the *Impact Assessment Act*, and the information provided in the Application. Table 20.1.2 will provide a concordance between the factors that must be taken into account by an impact assessment of a designated project as per subsection 22(1) of the *Impact Assessment Act*, and where the relevant information is presented in the Application.

Table 20.1.1: Effects within Federal Jurisdiction

Effects within Federal Jurisdiction (as defined in section 2 of the <i>Impact Assessment Act</i>)	Section of Application Where the Effect is Assessed	Assessment Details	Assessment Findings <i>This row will provide a summary of the assessment findings and a short discussion</i>
(a) a change to the following components of the environment that are within the legislative authority of Parliament:			
(i) fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i> .	Section 7.6 Freshwater Fish	Assessment of: <ul style="list-style-type: none"> • Injury or mortality of freshwater fish within the context of section 34.4 of the <i>Fisheries Act</i> • Harmful alteration, disruption or destruction of freshwater fish habitat within the context of section 35 of the <i>Fisheries Act</i> • Degradation of freshwater quality within the context of section 36(3) of the <i>Fisheries Act</i> 	Finding: The findings to be presented in this column will be brief factual summaries of key information from the relevant assessment section(s). Discussion: The discussion to be presented in this column will place the findings into context with respect to the effects assessment and, as appropriate, Cedar's opinion of the importance of the assessment outcomes.
	Section 7.7 Marine Resources	Assessment of: <ul style="list-style-type: none"> • Injury or mortality of marine fish within the context of section 34.4 of the <i>Fisheries Act</i> • Harmful alteration, disruption or destruction of marine fish habitat within the context of section 35 of the <i>Fisheries Act</i> • Degradation of marine water quality within the context of section 36(3) of the <i>Fisheries Act</i> • Injury, mortality and disturbance of marine mammals in the context of section 34 of the <i>Fisheries Act</i> and sections 7 and 38 of the Marine Mammal Regulations 	Finding: Discussion:

Effects within Federal Jurisdiction (as defined in section 2 of the <i>Impact Assessment Act</i>)	Section of Application Where the Effect is Assessed	Assessment Details	Assessment Findings <i>This row will provide a summary of the assessment findings and a short discussion</i>
(ii) aquatic species, as defined in subsection 2(1) of the Species at Risk Act.	Section 7.7 Freshwater Fish	See above	Finding: Discussion:
	Section 7.7 Marine Resources	See above	Finding: Discussion:
(iii) migratory birds, as defined in subsection 2(1) of the <i>Migratory Birds Convention Act, 1994</i> .	Section 7.5 Wildlife	Assessment of potential disturbance or destruction of the nest or an egg of a migratory bird within the context of section 6 of the Migratory Birds Regulations	Finding: Discussion:
(iv) any other component of the environment that is set out in Schedule 3.	n/a	n/a	There are no other components of the environment set out in Schedule 3 to the <i>Impact Assessment Act</i> (Components of the Environment and Health, Social or Economic Matters)
(b) a change to the environment that would occur:			
(i) on federal lands,	Section 7.2 Air Quality	Assessment of: <ul style="list-style-type: none"> Potential change in ambient air concentrations of SO₂, NO_x, CO, and PM_{2.5} from operation of the LNG facility plus marine shipping at Kitamaat 1, Kitamaat 2 (Kitamaat Village), Walth 3, Jugwees 5, Bees 6, and Henderson's Ranch 11. Potential change in ambient air concentrations of SO₂, NO_x, CO, and PM_{2.5} from marine shipping at Kitamaat 2, Walth 3, Bees 6, Kitasa 7, Kulkayu (Hatley Bay) 4 and 4A, Lachkul-Jeets 6, Turtle Point 12, Kunhunoan 13, Keecha 11, Kooryet 12, Keswar 16, and Keyarka 17 	Finding: Discussion:

Effects within Federal Jurisdiction (as defined in section 2 of the <i>Impact Assessment Act</i>)	Section of Application Where the Effect is Assessed	Assessment Details	Assessment Findings <i>This row will provide a summary of the assessment findings and a short discussion</i>
	Section 7.3 Acoustic	Assessment of: <ul style="list-style-type: none"> Potential change in daytime and nighttime A-weighted sound pressure levels (dBA) from operation of the LNG facility plus marine shipping at Kitamaat 2 (Kitamaat Village) and Henderson's Ranch 11. Potential change in daytime and nighttime A-weighted sound pressure levels (dBA) from marine shipping at Kitamaat 2, Walth 3, Bees 6, Kitasa 7, Kulkayu (Hatley Bay) 4 and 4A, Lachkul-Jeets 6, Turtle Point 12, Kunhunoan 13, Keecha 11, Kooryet 12, Keswar 16, and Keyarka 17 	Finding: Discussion:
(ii) in a province other than the one where the physical activity or the designated project is being carried out, or	n/a	n/a	Potential effects are not predicted to extend outside of British Columbia
(iii) outside Canada.	n/a	n/a	Potential effects are not predicted to extend outside of Canada
(c) with respect to the Indigenous peoples of Canada, an impact—occurring in Canada and resulting from any change to the environment—on:			
(i) physical and cultural heritage,	Section 7.13 Heritage Section 11.0 Haisla Nation Section 12.0 Gitga'at First Nation Section 13.0 Gixaala Nation Section 14.0 Kitselas First Nation Section 15.0 Kitsumkalum First Nation Section 16.0 Lax Kw'alaams Band Section 17.0 Metlakatla First Nation Section 18.0 Haida Nation Section 19.0 Métis Nation BC	Section 7.13 of this Application assessed potential effects to physical heritage resources, including culturally modified trees, archaeological resources, and materials or other physical evidence of human habitation or use before 1846. Sections 11.0 to 19.0 of the Application assesses the potential effects of the Project on the Indigenous Nations listed in the section 11 Order under BCEAA. These assessments have been prepared collaboratively between Cedar and each Nation. Where it has been identified as an interest of concern by a community, the assessment has considered effects on cultural heritage that may result from the Project.	Finding: Discussion:

Effects within Federal Jurisdiction (as defined in section 2 of the <i>Impact Assessment Act</i>)	Section of Application Where the Effect is Assessed	Assessment Details	Assessment Findings <i>This row will provide a summary of the assessment findings and a short discussion</i>
(ii) the current use of lands and resources for traditional purposes, or	Section 2.3 Land and Marine Use Plans Section 11.0 Haisla Nation Section 12.0 Gitga'at First Nation Section 13.0 Gixaala Nation Section 14.0 Kitselas First Nation Section 15.0 Kitsumkalum First Nation Section 16.0 Lax Kw'alaams Band Section 17.0 Metlakatla First Nation Section 18.0 Haida Nation Section 19.0 Métis Nation BC	<p>Section 2.3 provides a summary of the land and marine use plans published by Indigenous Nations with traditional territories that overlap the Project Area or the shipping route between Kitimat and Triple Island. This information provides context for the individual assessments of effects on the current use of lands and resources for traditional purposes.</p> <p>Sections 11.0 to 19.0 of the Application assesses the potential effects of the Project on the Indigenous Nations listed in the section 11 Order under BCEAA. These assessments have been prepared collaboratively between Cedar and each Nation. Where it has been identified as an interest of concern by a community, the assessment has considered effects on the current use of lands and resources for traditional purposes. Where this has not been identified as an interest of concern by a community, the assessment specifically states that the Nation has not raised effects on the current use of lands and resources for traditional purposes as a concern.</p>	Finding: Discussion:
(iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.	Section 7.13 Heritage	Section 7.13 of this Application assessed potential effects to structures, sites, or other physical resource of archaeological, paleontological or architectural significance. The provincial Heritage Conservation Act defines the extent of historical as physical evidence of human habitation or use before 1846.	Finding: Discussion:

Effects within Federal Jurisdiction (as defined in section 2 of the <i>Impact Assessment Act</i>)	Section of Application Where the Effect is Assessed	Assessment Details	Assessment Findings <i>This row will provide a summary of the assessment findings and a short discussion</i>
(d) any change occurring in Canada to the health, social or economic conditions of the Indigenous peoples of Canada.	Section 7.8 Employment and Economy Section 7.11 Infrastructure and Services Section 7.12 Human Health Section 11.0 Haisla Nation Section 12.0 Gitga'at First Nation Section 13.0 Gixaa'a Nation Section 14.0 Kitselas First Nation Section 15.0 Kitsumkalum First Nation Section 16.0 Lax Kw'alaams Band Section 17.0 Metlakatla First Nation Section 18.0 Haida Nation Section 19.0 Métis Nation BC	Section 7.8 describes any impacts to employment and economy resulting from the Project, including how employment and the economy relate to Indigenous groups Section 7.11 describes any impacts to infrastructure and services resulting from the Project, including how infrastructure and services relate to Indigenous groups Section 7.12 describes any impacts to human health resulting from the Project, including health of Indigenous groups as it relates to country foods Sections 11.0 to 19.0 of the Application assesses the potential effects of the Project on the Indigenous Nations listed in the section 11 Order under BCEAA. These assessments have been prepared collaboratively between Cedar and each Nation. Where it has been identified as an interest of concern by a community, the assessment has considered effects on health, social or economic conditions that may result from the Project.	Finding: Discussion:
(e) any change to a health, social or economic matter that is within the legislative authority of Parliament that is set out in Schedule 3 (effects within federal jurisdiction).	n/a	n/a	There are no other health, social or economic matters set out in Schedule 3 to the <i>Impact Assessment Act</i> (Components of the Environment and Health, Social or Economic Matters)

Table 20.1.2 Federal *Impact Assessment Act* Section 22 Factors

IAA Subsection and Requirement	Section the Factor is Addressed in the Application	Discussion <i>This row will provide a brief summary of the key findings of the Application related to the section 22(1) factor</i>
22 (1) The impact assessment of a designated project, whether it is conducted by IAAC or a review panel, must take into account the following factors		
(a) the changes to the environment or to health, social or economic conditions and the positive and negative consequences of these changes that are likely to be caused by the carrying out of the designated project, including		
(i) the effects of malfunctions or accidents that may occur in connection with the designated project,	Section 9.0 (Malfunctions and Accidents) considers the potential effects of the following potential incidents: <ul style="list-style-type: none"> • Spills of hazardous materials not including LNG • Loss of containment of LNG from the floating LNG facility • Emergency LNG production unit shutdown • Fires or explosions • Marine LNG carrier grounding • Marine LNG carrier collisions and allisions 	
(ii) any cumulative effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out, and	Cumulative effects assessments are provided for each valued component (Sections 7.2 to 7.13), malfunctions and accidents (Section 9.0), and for Indigenous Nation interests (Sections 11.0 to 19.0). The methods for the cumulative effects assessments are provided in Section 6.9 Cumulative Effects Assessment.	
(iii) the result of any interaction between those effects;	Predicted interactions between potential effects resulting from malfunctions or accidents and potential cumulative effects identified for any of the valued components or Indigenous interests are discussed in Section 9.0 (Malfunctions and Accidents). Integrated assessment summaries are also provided in Section 21.0 (Summary of Biophysical Factors that Support Ecosystem Function), Section 22.0 (Summary of Human and Community Well-being), and Section 23.0 (Summary of Effects to Current and Future Generations).	

IAA Subsection and Requirement	Section the Factor is Addressed in the Application	Discussion <i>This row will provide a brief summary of the key findings of the Application related to the section 22(1) factor</i>
(b) mitigation measures that are technically and economically feasible and that would mitigate any adverse effects of the designated project;	Mitigation measures to reduce or avoid potential adverse effects of the Project are identified in each of the effects assessments completed as part of this Application. These mitigation measures are summarized in Appendix A by valued component and by project phase.	
(c) the impact that the designated project may have on any Indigenous group and any adverse impact that the designated project may have on the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the <i>Constitution Act, 1982</i> ;	Sections 11.0 to 19.0 of the Application provide community-specific assessments for each: <ul style="list-style-type: none"> • Haisla Nation • Gitga'at First Nation • Gixaala Nation • Kitselas First Nation • Kitsumkalum First Nation • Lax Kw'alaams Band • Metlakatla First Nation • Haida Nation • Métis Nation British Columbia 	
(d) the purpose of and need for the designated project;	The purpose of and need for the Project is described in Section 1.1 (Project Context)	
(e) alternative means of carrying out the designated project that are technically and economically feasible, including through the use of best available technologies, and the effects of those means;	Technically and economically feasible alternative means of carrying out the Project are described in Section 1.7 (Alternative Means of Carrying Out the Project).	

IAA Subsection and Requirement	Section the Factor is Addressed in the Application	<p>Discussion</p> <p><i>This row will provide a brief summary of the key findings of the Application related to the section 22(1) factor</i></p>
(f) any alternatives to the designated project that are technically and economically feasible and are directly related to the designated project;	Section 20.2 (Alternatives to the Project) provides an analysis of the alternatives to developing an LNG export facility for exporting natural gas to Asia and the alternatives options for Haisla Nation to advance its economic development opportunities within the LNG sector.	
(g) Indigenous knowledge provided with respect to the designated project;	Cedar has engaged with each of the Indigenous Nations identified in the section 11 Order to obtain Indigenous knowledge to support the effects assessments. This is described in the existing conditions sections (i.e., 7.X.2) of each valued component section. Sections of this Application where greater levels of Indigenous knowledge have been provided include Section 7.4 (Vegetation Resources), Section 7.5 (Wildlife), Section 7.7 (Marine Resources), Section 7.9 (Land and Resource Use), and Section 7.10 (Marine Use).	
(h) the extent to which the designated project contributes to sustainability;	Section 20.3 (Contributions to Sustainability) provides a discussion of the extent to which the Cedar LNG Project (the Project) contributes to sustainability.	
(i) the extent to which the effects of the designated project hinder or contribute to the Government of Canada's ability to meet its environmental obligations and its commitments in respect of climate change;	Section 8.0 (Greenhouse Gas Emissions) will document the greenhouse gas emissions from the Project and demonstrate how the Project hinders or contributes to the Government of Canada's ability to meet its environmental obligations and its commitments in respect of climate change. The information provided in this section aligns with the requirements of Environment and Climate Change Canada's (ECCC) Strategic Assessment of Climate Change (October 2020).	
(j) any change to the designated project that may be caused by the environment;	Section 10.0 (Effects of the Environment on the Project) demonstrates how the Project may be affected by: <ul style="list-style-type: none"> • Climate change • Extreme weather (i.e., temperature, precipitation, flooding, wind, and waves) • Seismic events and tsunamis • Geohazards (i.e., slope failure and underwater slope failure) • Forest fires 	

IAA Subsection and Requirement	Section the Factor is Addressed in the Application	Discussion <i>This row will provide a brief summary of the key findings of the Application related to the section 22(1) factor</i>
(k) the requirements of the follow-up program in respect of the designated project;	Follow-up strategies have been proposed where there is uncertainty in the mitigation measures or predicted environmental effects. The scope of the follow-up strategy is based on the requirements of Section 6.10 of the final Application Information Requirements and, where appropriate and needed, are described in subsection six of each valued component assessment (i.e., Section 7.X.6).	
(l) considerations related to Indigenous cultures raised with respect to the designated project;	Sections 11.0 to 19.0 of this Application assesses the potential effects of the Project on the Indigenous Nations listed in the section 11 Order under BCEAA. Each section was prepared in collaboration with the Indigenous Nations, with Sections 16.0 and 17.0 prepared directly by the Lax Kw'alaams Band and Metlakatla First Nation, respectively. This includes considerations related to culture that were identified by the Indigenous Nations and the information provided during consultation.	
(m) community knowledge provided with respect to the designated project;	Section 3.0 summarizes feedback received from the public, including local knowledge. Cedar has prepared a public consultation plan to guide its engagement in accordance with the section 11 Order issued under BCEAA and the Environmental Assessment Office's policies. The Public Consultation Plan identifies the stakeholder groups that Cedar engaged for input on the environmental assessment.	
(n) comments received from the public;	Section 3.0 summarizes feedback received from the public, including comments on the Project and the assessment. This feedback was obtained by following the Public Consultation Plan prepared by Cedar in accordance with the section 11 Order issued under BCEAA and the Environmental Assessment Office's policies.	
(o) comments from a jurisdiction that are received in the course of consultations conducted under section 21;	n/a	As part of the BCEAA process, the Environmental Assessment Office formed a Working Group to provide advice on the assessment. Cedar responded to all comments on the draft Application Information Requirements.
(p) any relevant assessment referred to in section 92, 93 or 95;	n/a	No additional committees have been assigned by the federal minister to review the Project

IAA Subsection and Requirement	Section the Factor is Addressed in the Application	Discussion <i>This row will provide a brief summary of the key findings of the Application related to the section 22(1) factor</i>
(q) any assessment of the effects of the designated project that is conducted by or on behalf of an Indigenous governing body and that is provided with respect to the designated project;	n/a	No Indigenous governing body has been assigned to assess the project outside of the environmental assessment.
(r) any study or plan that is conducted or prepared by a jurisdiction — or an Indigenous governing body not referred to in paragraph (f) or (g) of the definition jurisdiction in section 2 — that is in respect of a region related to the designated project and that has been provided with respect to the project;	n/a	Cedar is not aware of any additional studies or plans that have been provided with respect to the Project.
(s) the intersection of sex and gender with other identity factors; and	Where appropriate and information has been available, GBA+ analyses have been used in Section 7.8 (Employment and Economy), Section 7.11 (Infrastructure and Services), Section 7.12 (Human Health), and Section 22.0 (Summary of Human and Community Well-Being) to assess potential disproportionate effects on diverse subgroups, including those identified by sex, age, and other relevant identity factors.	Finding: Discussion:
(t) any other matter relevant to the impact assessment that IAAC requires to be taken into account.	n/a	IAAC has not identified any matters relevant to the assessment that are not identified in the final Application Information Requirements and addressed in this Application.

20.2 Alternatives to the Project

Section 22(1)(f) of the *Impact Assessment Act* requires the impact assessment of a designated project, to take into account any alternatives to the designated project that are technically and economically feasible and are directly related to the designated project. The objectives of the Project are two-fold. First, it will provide the infrastructure needed to export natural gas from western Canada to international markets. Second, it will advance the Haisla Nation's objective of promoting economic development that respects community values and creates employment, and skills development opportunities for members.

This section of the Application will discuss technically and economically feasible alternatives to the Project such that the needs and purpose of the Project could be met. The analysis will validate that the preferred alternative is a reasonable approach.

20.3 Contributions to Sustainability

Section 22(1)(h) of the *Impact Assessment Act* requires the impact assessment of a designated project to take into account the extent to which the designated project contributes to sustainability. This section of the Application will draw upon the results of Section 7.0 (all valued components), Section 21.0 (Summary of Biophysical Factors that Support Ecosystem Function), Section 22.0 (Summary of Human and Community Well-being), and Section 23.0 (Summary of Effects to Current and Future Generations) to describe the extent to which the Project contributes to sustainability. This will take into consideration IAAC's *Guidance: Considering the Extent to which a Project Contributes to Sustainability* and the principles for the sustainability analysis set out in *Policy Context: Public Interest Determination under the Impact Assessment Act*.

21.0 SUMMARY OF BIOPHYSICAL FACTORS THAT SUPPORT ECOSYSTEM FUNCTION

The Application will consider effects on biophysical factors that support ecosystem function based on the results of the VC assessments, including the cumulative effects assessments. The Application will:

- Provide an overview of the current ecosystem function in the vicinity of the Project at a landscape-level.
- Identify the key biophysical factors that support ecosystem function.
- Discuss how the VC assessments and cumulative effects assessments considered effects on these biophysical factors.
- Summarize the positive and adverse effects, including adverse cumulative effects, on biophysical factors that support ecosystem function based on appropriate information from the VC assessments.
- Identify any additional proposed measures required to manage potential effects on biophysical factors that support ecosystem function.
- Describe any predicted changes to ecosystem function as a result of the Project.

22.0 SUMMARY OF HUMAN AND COMMUNITY WELL-BEING

This section of the Application will summarize the broad range of potential social, cultural, economic and health effects that contribute to changes in human and community well-being (i.e., social determinants of health), with the understanding that these effects can be highly dependent on each other and are inter-related. This is reflected in the World Health Organization’s definition of health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. The Application will consider linkages between potential project-related changes to environmental, economic, social and cultural factors, contributing to community well-being. These effects are also often closely intertwined with the state of and trends in the biophysical environment, which demonstrates the need to consider potential effects on human and community well-being from a holistic perspective.

The Application will:

- Acknowledge Haisla Nation’s Comprehensive Community Plan
- Provide an overview of the current state of human and community well-being in the vicinity of the Project from both a local and Indigenous perspective.

- Describe, or refer to the applicable section of the Application where the information is provided, baseline conditions identified for VCs linked to population health (e.g., employment and economy, infrastructure and services) that contribute to community well-being, such as:
 - Population demographics
 - Personal health practices (e.g., substance use, diet, exercise)
 - Access to public lands for recreational and traditional uses
 - Access to healthcare services
- Summarize potential positive and adverse effects including adverse cumulative effects of the Project on human and community well-being based on the results of the VC assessments under social, economic and health and the assessment of effects to Indigenous interests.
- Identify how the Project interacts differently with distinct human populations.
- Identify if the Project interacts with other factors that support human and community well-being that were not specifically assessed as part of a VC.
- Identify any key measures proposed to manage potential effects on human and community well-being.
- Describe any anticipated changes to human and community well-being more generally as a result of the Project.
- Describe how the Project interacts differently with distinct human populations (GBA+).
- Consider how certain subgroups may be differentially affected due to variety of factors including gender. Intersectionality (multiple identity factors that influence their experiences) will be considered.

23.0 SUMMARY OF EFFECTS TO CURRENT AND FUTURE GENERATIONS

The Application will summarize analyses and conclusions for each of the VCs and Indigenous interests that contribute to the Project's positive or adverse effects on current and future generations. The Application will:

- Describe how input from engagement related to effects on current and future generations was incorporated and how the Project has changed as a result.
- Demonstrate how any strategic direction from the Province of British Columbia, regarding sustainable development was considered.
- Provide any mitigation measures proposed to more equitably distribute positive and adverse effects over time (e.g., across generations).
- Discuss the potential outcome that residual effects to VCs and Indigenous interests will have on both current and future generations.
- Discuss the type(s) of economic growth that would be generated by the Project and how this growth would be distributed, both within the population, (including for Indigenous populations) and over time.
- Identify any relevant regional or provincial growth strategies and describe how the Project is or is not aligned with them.

24.0 CONCLUSIONS

The Application will include:

- A summary of residual effects, including cumulative effects, presented in a table following the format shown in Table 24.0.1
- A statement on the Project's ability to mitigate any residual or cumulative effects
- An overview of the Project's positive effects and benefits
- A request for an EAC from the Government of British Columbia and a decision under section 60 of the IAA from the Canadian Minister of Environment and Climate Change
- Confirmation of the need to successfully complete subsequent permitting or authorization processes prior to proceeding with construction, operation, and decommissioning of the Project

Table 24.0.1: Summary of Project Residual and Cumulative Effects

Potential Effect	Project Phase	Contributing Project Activity or Physical Works	Residual Effects, including Cumulative Effects	Conclusion
Valued Component (VC)				

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26.0 APPENDICES

26.1 Appendix A: Summary of Mitigation Measures

The Application will include a summary table of mitigation measures by VC and by project phase and categorize the mitigation measures to indicate how they will be tracked and implemented, for example as requirements associated with permitting authorizations, standard best management practices, or Project commitments resulting from the assessment.

26.2 Appendix B: Valued Components Selection Memo

The Application will provide a copy of the valued components selection memo prepared for the Project.

Project: Cedar LNG Liquefaction and Export Terminal

Date: April 26, 2021

Reference: Valued Component Selection for the Cedar LNG Project, Revision 1

Introduction

Cedar LNG Partners LP (Cedar) is proposing to construct and operate the Cedar LNG Project (the proposed Project), a floating liquefied natural gas (LNG) production and storage facility, marine terminal and related infrastructure for the export of LNG. The proposed Project will be located in the District of Kitimat, British Columbia on Haisla Nation-owned land within the nation's traditional territory (Figure 1, Attachment A). The proposed Project is a key element of the Haisla Nation economic and social development strategy and will further advance reconciliation by allowing Haisla Nation to—for the first time—directly own and participate in a major industrial development in its territory.

The proposed Project is subject to environmental assessment requirements under the British Columbia *Environmental Assessment Act* (BCEAA) and the federal *Impact Assessment Act* (IAA). Cedar filed a description of the proposed Project with the Environmental Assessment Office (EAO) in August 2019 (Cedar 2019a) and initial and detailed descriptions of the proposed Project with the Impact Assessment Agency of Canada (the Agency) in August and December 2019, respectively (Cedar 2019b and 2019c). The EAO has determined that the proposed Project requires an environmental assessment certificate (EAC), and the Agency has determined that the proposed Project requires an impact assessment under the IAA. On January 24, 2020, the federal Minister of Environment and Climate Change Canada granted approval for substitution of the federal process with the provincial regulatory review process.

This document has been prepared to provide the EAO, Agency, Working Group, and Indigenous Nations with Cedar's rationale for identifying Valued Components (VCs) and a proposed list of VCs to be used for the proposed Project's environmental assessment, in consideration of the potential for the proposed Project to result in positive and adverse environmental, economic, social, heritage and health effects.

The EAO's *Guideline for the Selection of Valued Components and Assessment of Potential Effects* (2013, p. 4) defines VCs as "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." Similarly, the Agency defines VCs as "what communities and Indigenous groups identify as valuable to them or that is identified by an expert as being of biophysical, social or cultural importance" (IAAC 2019a, p. 18).

VCs presented in this document encompass requirements under BCEAA and the IAA. The approach to selecting VCs is consistent with the EAO's *Guideline for the Selection of Valued Components and Assessment of Potential Effects* (2013) and considers the approach to VCs presented in the Agency's *Practitioner's Guide to Federal Impact Assessments under the Impact Assessment Act* and associated *Tailored Impact Statement Guidelines Template for Designated Projects Subject to the Impact Assessment Act* (IAAC 2019b, IAAC 2019c). Cedar's proposed selection of VCs was influenced by the conclusions of previous marine terminal effects assessments in northwest British Columbia, the scopes of assessment for other LNG projects in the Kitimat area and British Columbia, and the professional opinions of the environmental assessment practitioners retained by Cedar to support this environmental assessment process. This initial list of VCs will support discussions with the EAO and Working Group to help frame the



assessment requirements for the proposed Project.

Project Overview

The proposed Project is located approximately 10 km south of Kitimat city centre and 3 km west of Kitimaat Village. The proposed Project is located within the municipal boundaries of the District of Kitimat in an area zoned for industrial and port development by the District of Kitimat's Official Community Plan (Kitimat 2019).

The proposed Project will process and liquefy up to approximately 500 million standard cubic feet per day of natural gas into up to approximately four million tonnes per annum of LNG. Key project components will include:

- Floating LNG (FLNG) facility—A purpose-built, permanently-moored floating natural gas liquefaction facility with capacity of up to four million tonnes annually using established liquefaction technology
- Marine terminal—A dedicated terminal providing security, material on- and off-loading capability, power and pipeline to vessel tie-ins, articulating arm jetty, and fire protection/suppression
- Supporting infrastructure—Land-based supporting infrastructure, including administration, remote control room, maintenance and support buildings, utilities, access roads
- Transmission line—An approximately 8-km long 287 kV transmission line

LNG carriers are anticipated to call at the LNG facility up to approximately 50 times per year (an average of approximately one LNG carrier every 7 to 10 days). LNG carriers will transit established international shipping lanes through Dixon Entrance southward through Hecate Strait where a BC Coast Pilot will board at a designated location near the Triple Island pilotage station (Figure 2, Attachment A).

During construction, it is expected that the proposed Project will have a peak workforce of 350 to 500 workers. Key Project construction activities are anticipated to include:

- Procurement of labour, goods, and services
- Transport of construction materials to the site using existing roads and marine transportation routes
- Site preparation and clearing
- Construction of land-based infrastructure
- Construction of marine-based infrastructure

During operation, it is expected that the proposed Project will have approximately 100 full-time staff. Key activities during Project operation are anticipated to include:

- Procurement of labour, goods, and services
- Liquefaction, storage and offloading of natural gas at the floating LNG facility
- LNG carrier loading
- Marine shipping and transportation
- Supporting infrastructure operations
- Facility and infrastructure maintenance

Key decommissioning activities are anticipated to include:

- Procurement of labour, goods and services
- Decommissioning of land-based infrastructure
- Decommissioning of marine-based infrastructure

For additional details on the proposed Project, including key infrastructure components and activities, see the Project Description filed with the EAO (Cedar 2019a) and the Detailed Project Description Summary filed with the Agency (Cedar 2019c).

Valued Component Selection Methods

What Makes a Valued Component?

Valued components provide the foundation of environmental assessments in British Columbia (EAO 2018) and of impact assessments federally. They represent aspects of the natural and human environment that have scientific, ecological, economic, social, cultural, archaeological, historical or other importance, and are used to focus environmental assessments on the areas with the greatest potential to be affected by projects.

To be effective and useful, VCs should have the following attributes (EAO 2013):

- **Relevant** to one or more of the five “pillars” of BCEAA (environment, economic, social, heritage, and health) and the factors to be considered under the IAA related “to the environment or to health, social or economic conditions.”
- **Comprehensive**, so that taken together, the selected VCs allow a fulsome understanding of the potential adverse and positive effects of the proposed Project.
- **Representative** of the important features of the natural and human environments likely to be affected by the proposed Project.
- **Responsive** to potential effects of the proposed Project.
- **Concise**, so that the nature of the project-VC interaction and the resulting effect pathway can be clearly articulated and understood, and redundant analyses are avoided.

Valued Component Selection Process

Cedar followed a staged process in VC selection. First, Cedar conducted a screening to identify potential interactions between broad components of the natural and human environments (the EAO’s five “pillars”) and Project activities during construction, operation and decommissioning. Next, where interactions were identified between Project activities and a pillar, constituent candidate VCs comprising the pillar were reviewed for potential inclusion based on Indigenous, regulatory, scientific, public or stakeholder importance and an understanding of the mechanism of the potential interaction with the candidate VC.

The following information sources were considered in scoping potential issues and identifying candidate VCs:

- Guideline on the Selection of Valued Components and Assessment of Potential Effects (EAO 2013) and the Tailored Impact Statement Guidelines Template for Designated Projects Subject to the *Impact Assessment Act and the Nuclear Safety and Control Act* (IAAC 2019c)



- Residual effects identified through the assessment process for proposed marine terminals and LNG projects in northwest British Columbia, with an emphasis on proposed projects in the Kitimat area (as available on the EAO's ePIC website and the Canadian Impact Assessment Registry)
- Preliminary issues and effects identification completed for the proposed Project during development of the initial Project Description
- Review of public comments submitted to IAAC during the public comment period on the Project Description Summary
- Feedback from Indigenous Nations during early consultation activities
- Provincial and federal guidance and regulatory requirements for approvals, licences, permits, authorizations, or acceptable thresholds
- Feedback from EAO and IAAC.

Once candidate VCs were identified, the proposed approach for consideration in the Project assessment was evaluated based on the following categories:

- Inclusion as a stand-alone VC. This approach is appropriate for candidate VCs that are well defined and have the attributes outlined above.
- Inclusion as a topic or subcomponent of another broader VC. This approach is appropriate for candidate VCs that are better captured through the assessment of another (e.g., a broader) VC.
- Inclusion in two or more proposed VCs. This approach is appropriate for broad candidate VCs that can be more clearly assessed by splitting components of the assessment between two or more VCs.
- Exclusion from the assessment. This approach is appropriate for candidate VCs for which there is not a realistic potential for Project-related effects to a degree that can be reasonably quantified, either because they are absent from the Project area, because there is not a clear pathway of effects (i.e., they do not meet the attributes outline by the EAO) or based on feedback from EAO or IAAC that they would be better assessed via alternate means.
- Inclusion in Part C of the Assessment. This approach is appropriate for candidate VCs that have strong relevance or importance to Indigenous rights, culture, or beliefs and are not addressed in a fulsome manner through the assessment of the “five pillars” of BCEAA.

There are differing philosophies around whether it is better to have fewer broad VCs or numerous narrow VCs. In preparing this document, Cedar has generally opted for fewer broad proposed VCs. Broader VCs mean that the assessment of related components of the biophysical and human environment can be considered in a wholistic manner with the presentation of related information in a single location and less duplication between chapters. This facilitates a more integrated, comprehensive, and efficient consideration of effects and issues relevant to a given VC.

Scoping and Selection of Proposed Valued Components

A preliminary evaluation of potential interactions between Project activities and the pillars of the natural and human environment is provided in Table 1. As described above, this table identifies the pillars representing broad components of the natural and human environments and whether they are expected to interact with Project-related activities during construction, operation and/or decommissioning.



Table 1 Preliminary Interaction Scoping

Project Activities	Pillars of the Biophysical and Human Environment				
	Environment Pillar: Clean Air and Water, Climate, Biodiversity and Ecosystems	Economic Pillar: Employment Opportunities, Capacity Building and Skills Development	Social Pillar: Affordable Housing, Community Safety and Use of Lands and Waters	Heritage Pillar: Preservation and Revitalization of Culture	Health Pillar: Physical Health and Wellbeing
Construction					
Procurement of labour, goods, and services	–	✓	✓	–	–
Transport of construction materials to the site using existing roads and marine transportation routes	✓	–	✓	–	✓
Site preparation and clearing	✓	–	✓	✓	✓
Construction of land-based infrastructure	✓	–	✓	–	✓
Construction of marine-based infrastructure.	✓	–	✓	–	✓
Operation					
Procurement of labour, goods, and services	–	✓	✓	–	–
Liquefaction, storage and offloading of natural gas at the nearshore LNG production unit	✓	–	–	–	✓
LNG carrier loading	✓	–	✓	–	✓
Marine shipping and transportation	✓	–	✓	–	✓
Supporting infrastructure operations	✓	–	–	–	✓
Facility and infrastructure maintenance.	✓	–	✓	–	✓
Decommissioning					
Procurement of labour, goods and services	–	✓	✓	–	–
Decommissioning of land-based infrastructure	✓	–	✓	✓	✓
Decommissioning of marine-based infrastructure.	✓	–	✓	–	✓
NOTES: ✓ = Potential interaction – = No interaction					



Based on the screening outlined in Table 1, the proposed Project has potential to interact with all five of EAO's pillars of the biophysical and human environment.

Cedar compiled a list of candidate VCs representing all five pillars of the biophysical and human environment based on review of residual effects to the environment, the economy, social conditions, heritage and health identified for proposed LNG projects and marine terminals in northwest British Columbia that have been assessed or scoped for assessment under BCEAA, with an emphasis on proposed projects in the Kitimat area. A detailed review of candidate VCs included in the evaluation and the proposed approach for their consideration in the Project assessment is provided in Attachment B. The proposed VCs for inclusion in the Project environmental assessment and their rationale for selection are presented in Table 2. Table 2 also outlines topics that are anticipated to be considered in each VC assessment, including the topics and subcomponents identified in Attachment B based on review of other assessments under BCEAA as well as topics identified for consideration based on review of the IAAC's Tailored Impact Statement Guidelines.

Table 2 Proposed Valued Components

Valued Component	Reason for Selection	Topics for Consideration in the Valued Component Assessment
Environment Pillar		
Air Quality	The Project may have emissions that affect the atmospheric environment through construction, operation and/or decommissioning of the LNG facility. This includes emissions from LNG carriers and tugboats at or near the Project's marine terminal during operations. Changes to the atmospheric environment could affect human health.	Atmospheric environment Baseline air quality Criteria air contaminants BC Air Quality Objectives and Canadian Ambient Air Quality Standards Dispersion modelling Acidifying emissions Source characteristics Emission rates and factors Modelling assumptions and justifications Details of achievement of emission standards for engines
Acoustic	Construction, operation and decommissioning of the Project will have noise emissions that may affect the acoustic environment. Changes to the acoustic environment could affect human health and wildlife behaviour in the vicinity of the Project. Operational phase noise emissions are subject to the Oil and Gas Commission's (OCG) British Columbia Noise Control Best Practices Guideline. Construction phase noise emissions will be compared to Health Canada noise guidance targets.	Acoustic environment Ambient sound levels Overall noise levels Low frequency noise Quantification of sound levels Description of frequency, duration, and character of sound Location of noise-sensitive receptors Consultation with agencies, the public, and Indigenous Nations about potential effects to the acoustic environment

Valued Component	Reason for Selection	Topics for Consideration in the Valued Component Assessment
Freshwater Fish	<p>Project development may affect freshwater fish and fish habitats, due to construction and decommissioning of Project infrastructure and changes in water quality.</p> <p>The <i>Impact Assessment Act</i> requires assessment of potential effects to fish and fish habitat.</p> <p>Indigenous communities and the public are concerned about effects on fisheries.</p>	<p>Riparian areas</p> <p>Water quality</p> <p>Construction timing and fisheries windows</p> <p><i>Fisheries Act</i> and/or <i>Species at Risk Act</i> permits required</p> <p>Fish population composition and characteristics</p> <p>Species at risk</p> <p>Positive changes (e.g., habitat creation)</p>
Marine Resources	<p>The Project has the potential to affect marine resources through construction of the marine infrastructure and changes to water quality, and through marine shipping and transportation.</p> <p>The <i>Impact Assessment Act</i> requires assessment of potential effects to fish and fish habitat and aquatic species.</p> <p>Indigenous communities and the public are concerned about effects on fisheries and marine mammals.</p>	<p>Water quality</p> <p>Oceanographic conditions</p> <p>Bathymetry</p> <p>Construction timing and fisheries windows</p> <p>Vibration, and fish habitat and behaviour</p> <p><i>Fisheries Act</i> and/or <i>Species at Risk Act</i> permits required</p> <p>Aquatic invasive species</p> <p>Underwater sound level and exposure</p> <p>Light</p> <p>Fish population composition and characteristics</p> <p>Potential effects of marine traffic and underwater noise on marine animal individuals or populations</p> <p>Marine plants</p> <p>Marine organisms</p> <p>Species at risk</p> <p>Positive changes (e.g., habitat creation)</p>
Vegetation Resources	<p>The Project has the potential to affect vegetation and wetland resources through clearing and site preparation. Wetland conservation is of importance to federal and provincial governments and Indigenous Nations.</p>	<p>Non-native and invasive plant species</p> <p>Country foods</p> <p>Old forest</p> <p>Communities of conservation concern</p> <p>Wetland functions</p> <p>Hydrological or drainage changes</p> <p>Vegetation standards and controls, and management programs</p> <p>Revegetation procedures</p> <p>Species at risk</p>



Valued Component	Reason for Selection	Topics for Consideration in the Valued Component Assessment
Wildlife	<p>Site clearing will result in the loss or alteration of wildlife habitat which could affect wildlife movement patterns and mortality risk.</p> <p>The <i>Impact Assessment Act</i> requires assessment of potential effects on migratory birds.</p> <p>Ministry of Environment and Climate Change Strategy and Environment and Climate Change Canada are concerned with protecting breeding birds and species at risk.</p> <p>Indigenous communities are concerned about effects on species they hunt or that have cultural importance.</p>	<p>Species presence and relative abundance</p> <p>Species noted as important to Indigenous groups and local communities and their habitat</p> <p>Mortality risk and movement</p> <p>Changes to key habitat for species important to current use of lands and resources for traditional purposes</p> <p>Species at risk</p> <p>Short- and long-term changes to habitats and food sources</p> <p>Bird-habitat relationships (habitat associations, species presence, relative abundance)</p> <p>Incidental effects of disturbance (e.g., sound, artificial light, presence of workers)</p>
Economic Pillar		
Employment and Economy	<p>Federal, provincial and municipal governments, the public and Indigenous Nations will want to understand potential pressures and benefits of the Project on employment, cost of living, and economic trends.</p>	<p>Local and regional economic participation</p> <p>Direct, indirect, and induced economic impact</p> <p>Sources and methodologies for developing multipliers and estimates</p> <p>Potential impacts to natural resource-based industries such as fishing, forestry, and tourism</p> <p>Local and regional employment and potential for labour drawdown</p> <p>Wage inflation</p> <p>Income and wages</p> <p>Impacts on local, regional, provincial, federal or Indigenous group revenues</p> <p>Impact to gross domestic product</p> <p>GBA+ analysis</p>
Social Pillar		
Infrastructure and Services	<p>Project construction activities may place pressure on local and regional infrastructure and services. Population changes associated with the Project may increase the demand for housing and accommodations and place additional demand on local and regional infrastructure. Project-related business growth and increased incomes for residents may affect community infrastructure and services.</p> <p>This approach combines the majority of social considerations into one valued component as opposed to separating discussions across numerous sections of the Application, to facilitate a fulsome consideration of interconnected issues.</p>	<p>Accommodations/lodging and housing, including campgrounds</p> <p>Ambulance and health care services</p> <p>Educational services, facilities and day care</p> <p>Emergency services including police and firefighting</p> <p>Road infrastructure and traffic safety</p> <p>Increased demand on existing services, facilities, or infrastructure</p> <p>In- and out- migration effects</p> <p>Community level changes as a result of increased population, workers camps, economic activity</p> <p>GBA+ analysis</p>

Valued Component	Reason for Selection	Topics for Consideration in the Valued Component Assessment
Land and Resource Use	Construction and operation of the Project may affect access and use of private and Crown lands. The Project may affect non-tenured land-uses including both consumptive (e.g., hunting, fishing, trapping, and vegetation gathering) and non-consumptive (e.g., hiking and off-road vehicle operation) uses, and visual quality.	Potential interactions with local and regional land use and resources activities including: fishing, forestry, mining, transportation and utilities corridors, residential land use, commercial outfitters, and other land uses Access to recreation Tourism Visual quality and viewscales Ambient light Night-time light levels
Marine Use	Floating infrastructure and shipping activities associated with the Project have the potential to affect marine use, including fishing, and navigation. Population-related effects of the Project can also increase pressure on marine fisheries.	Navigable waterways Potential affected waterway users (e.g., commercial and guided recreational fishing, recreational boating and fishing) Navigation and safety
Heritage Pillar		
Heritage	Project activities may result in the alteration, disturbance, or destruction of archaeological or heritage resources. Indigenous communities are concerned with impacts to archaeological sites.	Culturally modified trees Structures, sites or things of historical or archaeological significance
Health Pillar		
Human Health	Project construction, operation and decommissioning may result in an increase in air and noise emissions that may affect human health. Where the Project affects the chemistry of the air, soil or water in a manner that influences human health, health-related topics such as air quality, drinking water quality, and country food chemistry will be considered.	Adverse and positive effects on human health due to changes in air quality, noise, and quality of country foods Exposure pathways Community and Indigenous knowledge related to country foods consumption (types and quantities) GBA+ analysis Positive health effects

Closure

The proposed VCs provide for comprehensive consideration of potential environmental, economic, social, heritage and health effects of the proposed Project in a concise and representative manner. They represent aspects of the biophysical and human environments that will respond to potential effects of the proposed Project. Because these proposed VCs are sufficiently consistent with previous relevant environmental assessments conducted in the Kitimat area, the Cedar environmental assessment will be able to efficiently and defensibly draw upon previous baseline data and effects characterizations.



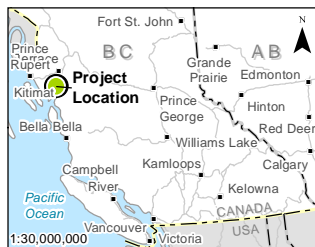
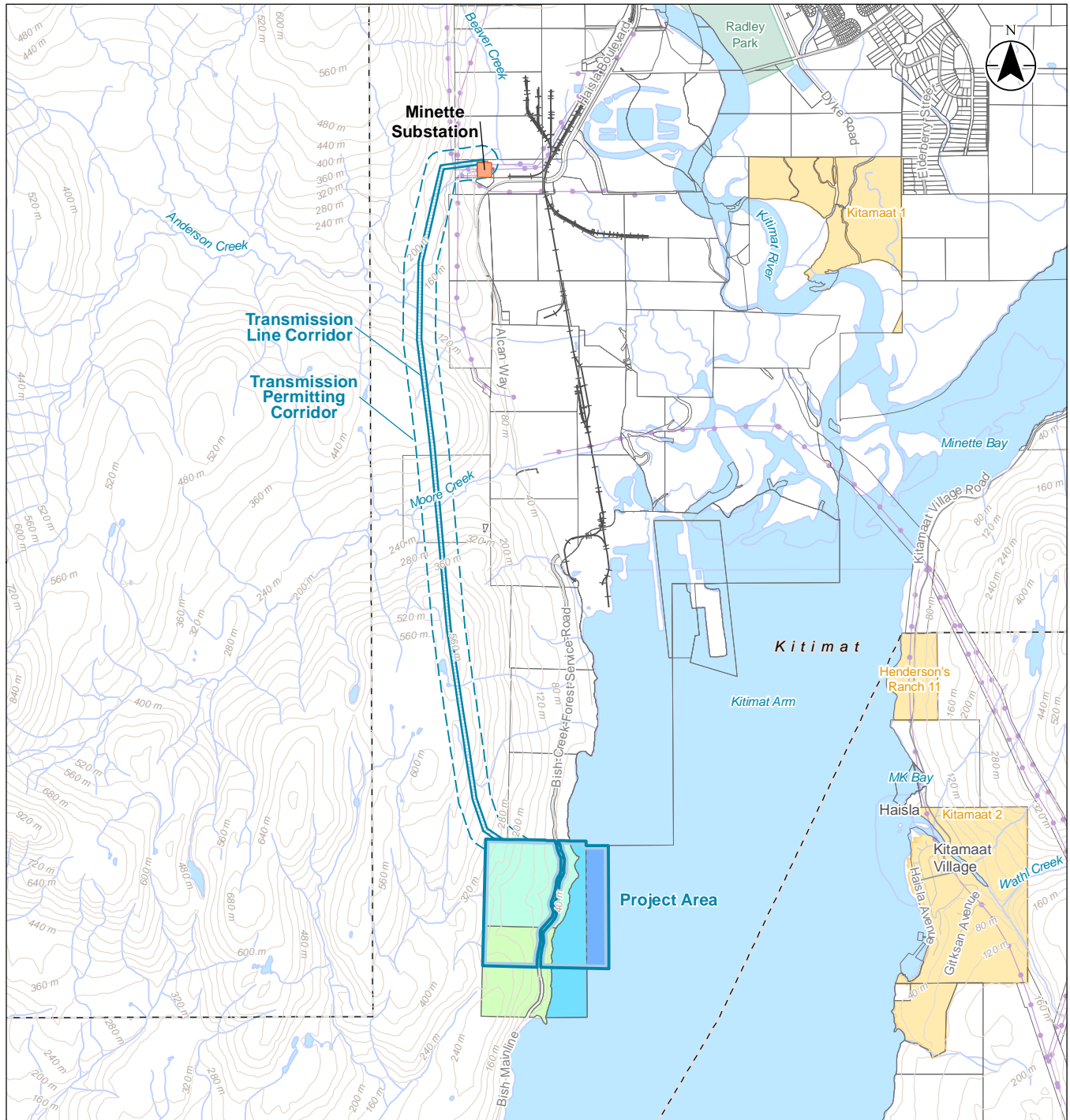
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Attachment: Attachment A: Figures
 Attachment B: Detailed Review of Candidate VCs

ATTACHMENT A

Figures



Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia;
 Natural Resources Canada; Canadian Hydrographic Service

- Road
- Local Street
- - - Resource Road
- + - - Railway
- Transmission Line
- Topographic Contour
- Watercourse
- Waterbody
- Cadastral (Legal Lot) Boundary
- Reserve Land
- Local Greenspace
- - - Municipal Boundary
- Minette Substation

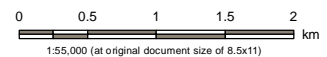
- Project Area
- Transmission Line Corridor
- Transmission Permitting Corridor

Parcels Owned by Haisla Enterprise Ltd.

- District Lot 309
PID 013-061-089
- District Lot 99, Plan 14740,
PID 013-061-267
- Water Lot A, Plan EPP 14217,
PID 029-462-142

Proposed Crown Lease

- Conceptual Water Lot
(Approximate Location)



Project Location: Kitimat, British Columbia
 Project Number 123221301
 Prepared by LTRUdell on 20200129
 Discipline Review by JMUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

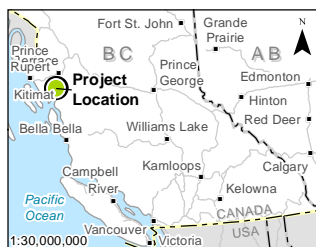
Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 VC Selection

Figure No.

1

Title

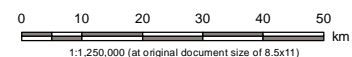
Cedar LNG Project Area



Notes
 1. Coordinate System: NAD 1983 UTM Zone 9N
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- 12 Mile Nautical Limit
- Highway
- Resource Road
- Ferry Route
- Watercourse
- Waterbody
- Reserve Land
- Treaty Lands
- Terrestrial Park, Ecological Reserve, Protected Area or Conservancy Area
- Marine Park, Ecological Reserve, Protected Area or Conservancy Area

- Project Location
- Marine Shipping Route (Approximate Location)
- ★ National Historic Site of Canada



Project Location: Kitimat, British Columbia
 Project Number 12322-001
 Prepared by LTRUDELL on 20200129
 Discipline Review by JMUNDY on 20200213
 GIS Review by TCARDINAL on 20200212

Client/Project/Report
 Cedar LNG Partners LP
 Cedar LNG Project
 VC Selection

Figure No.

2

Title

Project-related Marine Shipping Route

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ATTACHMENT B

Detailed Review of Candidate VCs

Attachment B

As part of the process for selecting proposed valued components (VCs) to include in the assessment for the proposed Cedar LNG Project, a review was conducted of residual effects identified through the EAO's assessment process for proposed LNG projects and marine terminals in British Columbia, with an emphasis on proposed Projects in the Kitimat Area and northwest B.C. (as available on the EAO's EPIC website and the Canadian Impact Assessment Registry). The following projects were included in this review, as they have either completed their environmental assessment process and/or have approved Application Information Requirements outlining the VCs to be included in their assessment. A brief description of each of these projects is provided in Table B-1.

- LNG Canada Export Terminal
- Aurora LNG Digby Island
- Kitimat LNG
- Pacific NorthWest LNG
- WCC LNG
- Woodfibre LNG
- Prince Rupert LNG
- Terminal A Extension
- Vopak Pacific Canada Project

Table B-2 provides a summary of all VCs included in the assessments for the above projects and summarizes how these candidate VCs will be addressed in the Cedar LNG assessment, as applicable. Table B-3 also summarizes how the candidate VCs will be addressed in the Cedar LNG assessment but arranges the data by the applicable VC proposed for the proposed Cedar LNG Project.

Table B-1 Projects Considered in the Review of Candidate Valued Components

Project	Location	Project Status	Project Components	Key Information
LNG Canada Export Terminal	Kitimat	In Progress (currently under construction)	<ul style="list-style-type: none"> On-land LNG facility Temporary construction related infrastructure Marine terminal Shipping 	<ul style="list-style-type: none"> The LNG facility will have up to four processing units and a maximum total combined production of LNG that does not exceed 38.056 10⁹ m³ (as natural gas equivalent) per year. The processing units will be powered by natural gas-fired turbines. The marine terminal will have two berths able to accommodate carriers up to 345 m long (Q-Max). It is expected that 170 to 350 LNG carriers will visit the terminal each year, depending on carrier size. Up to 3.5 million m3 of material may be dredged for the construction of the marine terminal.
Aurora LNG Digby Island	Digby Island (near Prince Rupert)	Withdrawn	<ul style="list-style-type: none"> On-land LNG facility Temporary construction related infrastructure Marine terminal Shipping 	<ul style="list-style-type: none"> The LNG facility was to have up to four processing units with a maximum production capacity of 20-24 mtpa. The processing units were to be powered by natural gas-fired turbines. The marine terminal was to include capability to accommodate up to three 315 m long carriers (Q-Flex). Some dredging, related to the marine terminal, was expected to be required.
Kitimat LNG	Kitimat	In Progress	<ul style="list-style-type: none"> On-land LNG facility Temporary construction related infrastructure Marine terminal Shipping 	<ul style="list-style-type: none"> At full build-out, the facility will include three processing units and have a maximum capacity of 18 mtpa. The initial phase will include two processing units. The processing units proposed are all-electric, with power supplied by BC Hydro. The marine terminal will include a single LNG carrier berth (with second berth added at full-build out). At full build-out, an estimated 225 to 255 LNG carriers will visit the terminal per year. Construction will require dredging (amount is still to be determined).
Pacific NorthWest LNG	Port Edward	Cancelled	<ul style="list-style-type: none"> On-land LNG facility Temporary construction related infrastructure Marine terminal Shipping 	<ul style="list-style-type: none"> The facility was to have up a production capacity of up to 20.5 mtpa of LNG. The processing units were to be powered by natural gas-fired turbines. The marine terminal was to include a 2.7 km jetty, 1.6 km clear-span suspension bridge, and 1.19 km pipe pile trestle extending west from Lelu Island to the marine terminal berths beyond Agnew Bank. The marine terminal berth was expected to accommodate LNG carriers up to 315 m long (Q-Flex). At full build-out, approximately 350 LNG carriers were expected to visit the terminal each year. Dredging required for construction was estimated at approximately 200,000 m3 of sediment and 590,000 m3 of rock.
WCC LNG	Prince Rupert	Withdrawn	<ul style="list-style-type: none"> On-land or barge-mounted floating LNG facility Temporary construction related infrastructure Marine terminal Shipping 	<ul style="list-style-type: none"> The facility was to have a production capacity of 30 mtpa at full build-out. The initial phase was going to have a capacity of 15 mtpa. The processing units were to be powered by natural gas-fired turbines. The terminal as expected to be able to accommodate carriers up to 350 m long (Q-Max). At full build-out, it was estimated that the facility would load 330 to 430 carriers per year. It was anticipated that some dredging would be required for construction.
Woodfibre LNG	Squamish	In Progress	<ul style="list-style-type: none"> On-land LNG facility with floating storage and offloading unit Temporary construction related infrastructure Marine terminal Shipping 	<ul style="list-style-type: none"> The facility will have up to two natural gas processing units with a production capacity of 2.1 mtpa. The processing units will be electric-drive. Electricity is to be provided by BC Hydro. The facility will have one LNG carrier berth. Approximately 40 LNG carriers will visit the terminal each year. The project has a limited dredging volume of no more than 80,000 m3 required for construction.

Table B-1 **Projects Considered in the Review of Candidate Valued Components**

Project	Location	Project Status	Project Components	Key Information
Prince Rupert LNG	Ridley Island (near Prince Rupert)	Withdrawn	<ul style="list-style-type: none">On-land LNG facilityTemporary construction related infrastructureMarine terminalShipping	<ul style="list-style-type: none">The facility was to have up to three natural gas processing units with a total maximum production capacity of 21 mtpa.The facility was to be fully powered by natural gas turbines on site (self-sufficient for all power needs).The marine terminal was to have one berth able to accommodate LNG carriers up to 315 m long (Q-Flex).At full-build out, 284 LNG carriers would visit the terminal each year.It was estimated that 2,615,000 m3 of sediment would need to be dredged for construction of the terminal.
Terminal A Extension	Kitimat	In Progress (currently under construction)	<ul style="list-style-type: none">Marine terminalMarine dredgingTemporary construction related infrastructure	<ul style="list-style-type: none">250 m extension of Rio Tinto Alcan's existing terminal and installation of a barge ramp and tug dock.Construction will involve dredging of up to 585,000 m3 of material.
Vopak Pacific Canada Project	Prince Rupert	In Progress	<ul style="list-style-type: none">On-land bulk liquids tank storage facilityMarine terminal and loading facilityRail car unloading racksSupporting infrastructureTemporary construction related infrastructureOff-site shipping including marine shipping and rail activities	<ul style="list-style-type: none">The facility will include up to 50 rail car unloading racks, liquefied petroleum gas (LPG) storage tanks (6 pressurized 1,000 m³ bullets, 1 full containment LPG storage tank with a capacity of 90,000 m³, carbon steel storage tanks for storage of clean petroleum products [2 with 40,000 m³ capacity and 6 with 30,000 m³ capacity], and carbon steel storage tanks for storage of methanol [4 with 40,000 m³ capacity, 2 with 30,000 m³ capacity]), LPG cooling equipment, gas generators (total combined electrical power of 2.7 megawatts) for powering LPG cooling equipment, and emergency ground flare.The marine jetty will include a 200 m long causeway, 800 m long trestle, two vessel berths, two loading platforms, and one auxiliary platform.Dredging will be associated with construction of the marine jetty and berths.

Table B-2 **Review of Candidate Valued Components based on Valued Components Included in other Project Assessments**

Candidate Valued Component	Project	Proposed Consideration in Cedar Assessment	Applicable Cedar VC
Environment			
Acoustic Environment	Aurora LNG	Included as a VC	Acoustic
	LNG Canada Export Terminal		
	Pacific Northwest LNG		
Air Quality	Aurora LNG	Included as a VC	Air Quality
	LNG Canada Export Terminal		
	Pacific Northwest LNG		
	Prince Rupert LNG		
	Vopak Pacific Canada Project		
	WCC LNG		
Ambient Light	Pacific Northwest LNG	Considered as a topic/subcomponent of another VC	Land and Resource Use
Amphibians	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Wildlife
	Woodfibre LNG		
Archaeological and Heritage Resources	Kitimat LNG	Included as a VC	Heritage
Atmospheric Environment	Kitimat LNG	Included in two or more VCs Greenhouse gas topic/subcomponent excluded based on feedback from EAO	Air Quality
			Acoustic

Table B-2 Review of Candidate Valued Components based on Valued Components Included in other Project Assessments

Candidate Valued Component	Project	Proposed Consideration in Cedar Assessment	Applicable Cedar VC
Atmospheric Environment (Air Quality)	Woodfibre LNG	Included as a VC	Air Quality
At-Risk Bat Species	Woodfibre LNG	Considered as a topic/subcomponent of another VC	Wildlife
Avifauna	Kitimat LNG	Considered as a topic/subcomponent of another VC	Wildlife
	Woodfibre LNG		
Bats	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Wildlife
Birds	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Wildlife
Forage Fish and Other Fish (Marine)	Woodfibre LNG	Considered as a topic/subcomponent of another VC	Marine Resources
Freshwater & Estuarine Fish & Fish Habitat	LNG Canada Export Terminal	Included as a VC	Freshwater Fish
Freshwater Aquatic Resources	Pacific Northwest LNG	Included as a VC	Freshwater Fish
Freshwater Fish and Fish Habitat	Aurora LNG	Included as a VC	Freshwater Fish
	Kitimat LNG		
	Prince Rupert LNG		
	Terminal A Extension		
	Vopak Pacific Canada Project		
	WCC LNG		
	Woodfibre LNG		
Greenhouse Gas Management	LNG Canada Export Terminal	Excluded, based on feedback from EAO that greenhouse gases will no longer be a VC	N/A
	Pacific Northwest LNG		
	WCC LNG		
	Woodfibre LNG		
Greenhouse Gases	Aurora LNG	Excluded, based on feedback from EAO that greenhouse gases will no longer be a VC	N/A
	Prince Rupert LNG		
	Vopak Pacific Canada Project		
Groundwater Quality and Quantity	N/A	Excluded, based on review of Project activities and potential for interactions, consistent with the assessment approach employed by other LNG project and marine terminals in northwest BC. The BC Water Resources Atlas (http://maps.gov.bc.ca/ess/hm/wrbc/) does not show an aquifer or any water wells to be present in the vicinity of the LNG terminal (aquifer 1075 is approximately 2.4 km north of the Cedar site). As such, an assessment of potential effects to groundwater is not proposed.	N/A
Intertidal and Subtidal Marine Habitat	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Marine Resources
Landforms and Soils	Prince Rupert LNG	Excluded, as there is no Agricultural Land Reserve or unique landforms (e.g., Karst) in the proposed Project area. Indirect effects to vegetation and wetlands via proposed Project activities that affect soils may be considered in the application, if applicable, in the Vegetation Resources VC.	N/A
Large Mammals	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Wildlife
Marine Benthic Habitat	Woodfibre LNG	Considered as a topic/subcomponent of another VC	Marine Resources
Marine Birds	Woodfibre LNG	Considered as a topic/subcomponent of another VC	Wildlife
Marine Environment	Kitimat LNG	Included as a VC	Marine Resources

Table B-2 Review of Candidate Valued Components based on Valued Components Included in other Project Assessments

Candidate Valued Component	Project	Proposed Consideration in Cedar Assessment	Applicable Cedar VC
Marine Fish and Fish Habitat	Aurora LNG	Considered as a topic/subcomponent of another VC	Marine Resources
Marine Fish and Shellfish and their Habitats	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Marine Resources
Marine Life and Habitat	Terminal A Extension	Included as a VC	Marine Resources
Marine Mammals	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Marine Resources
	Woodfibre LNG		
Marine Resources	LNG Canada Export Terminal	Included as a VC	Marine Resources
	Pacific Northwest LNG		
	Vopak Pacific Canada Project		
	WCC LNG		
Marine Water Quality	WCC LNG	Considered as a topic/subcomponent of another VC	Marine Resources
Marine Wildlife (Marine Birds, Marine Mammals)	Aurora LNG	Included in two or more VCs	Marine Resources
			Wildlife
Noise	Vopak Pacific Canada Project	Included as a VC	Acoustic
Soils and Terrain	Vopak Pacific Canada Project	Excluded, as there is no Agricultural Land Reserve or unique landforms (e.g., Karst) in the proposed Project area. Indirect effects to vegetation and wetlands via proposed Project activities that affect soils may be considered in the application, if applicable, in the Vegetation Resources VC.	N/A
Surface Water Quality	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Freshwater Fish
	WCC LNG		
Surface Water Quality (Freshwater)	LNG Canada Export Terminal	Considered as a topic/subcomponent of another VC	Freshwater Fish
Surface Water Quantity	WCC LNG	Considered as a topic/subcomponent of another VC	Freshwater Fish
Terrestrial Resources (including Wildlife and Wildlife Habitat, Vegetation, and Wetlands and Wetland Function)	Vopak Pacific Canada Project	Included in two or more VCs	Vegetation Resources
			Wildlife
Terrestrial Wildlife and Marine Birds	Pacific Northwest LNG	Included as a VC	Wildlife
Vegetation	Prince Rupert LNG	Included as a VC	Vegetation Resources
	Terminal A Extension		
	WCC LNG		
Vegetation and Wetland Resources	Aurora LNG	Included as a VC	Vegetation Resources
	Pacific Northwest LNG		
Vegetation Communities	Woodfibre LNG	Included as a VC	Vegetation Resources
Vegetation Resources	Kitimat LNG	Included as a VC	Vegetation Resources
	LNG Canada Export Terminal		
Water Quality (Freshwater and Marine)	Aurora LNG	Included in two or more VCs	Freshwater Fish
			Marine Resources
Wildlife	WCC LNG	Included as a VC	Wildlife
Wildlife and Habitat (including Marine Birds)	Terminal A Extension	Included as a VC	Wildlife

Table B-2 Review of Candidate Valued Components based on Valued Components Included in other Project Assessments

Candidate Valued Component	Project	Proposed Consideration in Cedar Assessment	Applicable Cedar VC
Wildlife and Wildlife Habitat	Kitimat LNG	Included as a VC	Wildlife
Wildlife Resources (Terrestrial)	Aurora LNG	Included as a VC	Wildlife
Wildlife Resources	LNG Canada Export Terminal	Included as a VC	Wildlife
Economic			
Commercial and Guided Recreational Fishing	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Marine Use
Economic Conditions	Aurora LNG	Included as a VC	Employment and Economy
	LNG Canada Export Terminal		
	Terminal A Extension		
	Vopak Pacific Canada Project		
Economic Environment	Pacific Northwest LNG	Included as a VC	Employment and Economy
Financial Strength of Local Businesses	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Employment and Economy
Financial Wellbeing of Local Residents	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Employment and Economy
Labour Market	Woodfibre LNG	Considered as a topic/subcomponent of another VC	Employment and Economy
Land and Resource Use	Terminal A Extension	Included as a VC	Land and Resource Use
Net Revenues for Governments	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Employment and Economy
Property Values	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Employment and Economy
Sustainable Economy	Woodfibre LNG	Considered as a topic/subcomponent of another VC	Employment and Economy
Tourism	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Land and Resource Use
Social			
Aesthetics / Visual Quality	Terminal A Extension	Considered as a topic/subcomponent of another VC	Land and Resource Use
Available Accommodation	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Infrastructure and Services
Available Education Capacity	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Infrastructure and Services
Available Emergency Response Services	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Infrastructure and Services
Available Recreation Sites and Services	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Land and Resource Use
Available Social Services	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Infrastructure and Services
Community Health	Aurora LNG	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
Community Health and Wellbeing	LNG Canada Export Terminal	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
	Pacific Northwest LNG		
	WCC LNG		
Community Infrastructure and Services	Terminal A Extension	Included as a VC	Infrastructure and Services
	Vopak Pacific Canada Project		
Community Stability and Wellbeing	Prince Rupert LNG	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A



Table B-2 Review of Candidate Valued Components based on Valued Components Included in other Project Assessments

Candidate Valued Component	Project	Proposed Consideration in Cedar Assessment	Applicable Cedar VC
Community Wellbeing	Terminal A Extension	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
	Vopak Pacific Canada Project		
Convenient Transportation	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Infrastructure and Services
Current Use of Lands and Resources for Traditional Purposes	WCC LNG	To be considered	N/A
	Woodfibre LNG		
Health Service Capacity and Service Level Requirements	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Infrastructure and Services
Infrastructure and Services	Aurora LNG	Included as a VC	Infrastructure and Services
	LNG Canada Export Terminal		
	Pacific Northwest LNG		
	WCC LNG		
Infrastructure and Community Services	Woodfibre LNG	Included as a VC	Infrastructure and Services
Land and Resource Use	Aurora LNG	Included as a VC	Land and Resource Use
	WCC LNG		
	Woodfibre LNG		
Marine Transport	Woodfibre LNG	Included as a VC	Marine Use
Marine Transportation & Use	LNG Canada Export Terminal	Included as a VC	Marine Use
Marine Use and Navigable Waters	Aurora LNG	Included as a VC	Marine Use
Marine Use and Navigation	Vopak Pacific Canada Project	Included as a VC	Marine Use
Marine Use and Transportation	WCC LNG	Included as a VC	Marine Use
Navigation and Marine Resource Use	Pacific Northwest LNG	Included as a VC	Marine Use
Personal Security	Prince Rupert LNG	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
Pleasing Views	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Land and Resource Use
Recreational Boating	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Marine Use
Recreational Fishing	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Marine Use
Safe Marine Transportation	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Marine Use
Safe Road Transportation	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Infrastructure and Services
Visual Quality	Aurora LNG	Considered as a topic/subcomponent of another VC	Land and Resource Use
	LNG Canada Export Terminal		
	Pacific Northwest LNG		
	Vopak Pacific Canada Project		
	WCC LNG		
	Woodfibre LNG		

Table B-2 Review of Candidate Valued Components based on Valued Components Included in other Project Assessments

Candidate Valued Component	Project	Proposed Consideration in Cedar Assessment	Applicable Cedar VC
Socio-economic			
Community and Regional Infrastructure and Services	Kitimat LNG	Included as a VC	Infrastructure and Services
Employment and Business	Kitimat LNG	Considered as a topic/subcomponent of another VC	Employment and Economy
First Nations Communities and Land Use	Kitimat LNG	To be considered	n/a
Land and Resource Use	Kitimat LNG	Included as a VC	Land and Resource Use
Public Health and Safety	Kitimat LNG	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
Heritage			
Aboriginal Cultural Activities	Prince Rupert LNG	To be considered	n/a
Access to Traditional Fishing Grounds	Prince Rupert LNG	To be considered	n/a
Archaeological and Heritage Resources	Aurora LNG	Included as a VC	Heritage
	LNG Canada Export Terminal		
	Pacific Northwest LNG		
Archaeological and Historic Places	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Heritage
Archaeology and Heritage Resources	WCC LNG	Included as a VC	Heritage
Heritage and Archaeology	Vopak Pacific Canada Project	Included as a VC	Heritage
Heritage Resources	Terminal A Extension	Included as a VC	Heritage
	Woodfibre LNG		
Traditional Hunting, Gathering, and Harvesting Areas	Prince Rupert LNG	To be considered	n/a
Health			
Healthy Community	Prince Rupert LNG	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
Human and Ecological Health	Pacific Northwest LNG	Included in part as a VC. Ecological health is excluded because no ecological health effects are anticipated based on review of potential effects pathways (e.g., air and effluent emissions)	Human Health
	WCC LNG		
Human Health	Aurora LNG	Included as a VC	Human Health
	LNG Canada Export Terminal		
	Terminal A Extension		
	Vopak Pacific Canada Project		
Mental Wellbeing of Local Residents	Prince Rupert LNG	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
Physical Health of Local Residents	Prince Rupert LNG	Considered as a topic/subcomponent of another VC	Human Health
Public Health	Woodfibre LNG	Excluded, based on discussions with EAO that this is best captured outside the VC structure.	N/A
First Nations and Aboriginal			
Current Use of Lands and Resources for Traditional Purposes	Pacific Northwest LNG	To be considered	N/A

Table B-3 Review of Candidate Valued Components by Applicable Cedar VC

Cedar VC	Candidate VCs from other Projects	Proposed Consideration in Cedar VC Assessment
Environment Pillar		
Air Quality	Air Quality	Included
	Atmospheric Environment	Included in two or more VCs (Air Quality & Acoustic)
	Atmospheric Environment (Air Quality)	Included
Acoustics	Acoustic Environment	Included
	Atmospheric Environment	Included in two or more VCs (Air Quality & Acoustic)
	Noise	Included
Freshwater Fish	Freshwater and Estuarine Fish and Fish Habitat	Included, as applicable
	Freshwater Aquatic Resources	Included
	Freshwater Fish and Fish Habitat	Included
	Surface Water Quality	Considered as a topic/subcomponent
	Surface Water Quality (Freshwater)	Considered as a topic/subcomponent
	Surface Water Quantity	Considered as a topic/subcomponent
	Water Quality (Freshwater and Marine)	Included in two or more VCs (Freshwater Fish & Marine Resources)
Marine Resources	Forage Fish and Other Fish (Marine)	Considered as a topic/subcomponent
	Intertidal and Subtidal Marine Habitat	Considered as a topic/subcomponent
	Marine Benthic Habitat	Considered as a topic/subcomponent
	Marine Environment	Included
	Marine Fish and Fish Habitat	Considered as a topic/subcomponent
	Marine Fish and Shellfish and their Habitats	Considered as a topic/subcomponent
	Marine Life and Habitat	Included
	Marine Mammals	Considered as a topic/subcomponent
	Marine Resources	Included
	Marine Water Quality	Considered as a topic/subcomponent
	Marine Wildlife (Marine Birds, Marine Mammals)	Included in two or more VCs (Marine Resources & Wildlife)
	Water Quality (Freshwater and Marine)	Included in two or more VCs (Freshwater Fish & Marine Resources)

Table B-3 Review of Candidate Valued Components by Applicable Cedar VC

Cedar VC	Candidate VCs from other Projects	Proposed Consideration in Cedar VC Assessment
Vegetation Resources	Landforms and Soils	Excluded, as there is no Agricultural Land Reserve or unique landforms (e.g., Karst) in the proposed Project area. Indirect effects to vegetation and wetlands via proposed Project activities that affect soils may be considered in the application, if applicable, in the Vegetation Resources VC.
	Soils and Terrain	Excluded, as there is no Agricultural Land Reserve or unique landforms (e.g., Karst) in the proposed Project area. Indirect effects to vegetation and wetlands via proposed Project activities that affect soils may be considered in the application, if applicable, in the Vegetation Resources VC.
	Terrestrial Resources	Included in two or more VCs (Vegetation Resources & Wildlife)
	Vegetation	Included
	Vegetation and Wetland Resources	Included
	Vegetation Communities	Included
	Vegetation Resources	Included
Wildlife	Amphibians	Considered as a topic/subcomponent
	At-Risk Bat Species	Considered as a topic/subcomponent
	Avifauna	Considered as a topic/subcomponent
	Bats	Considered as a topic/subcomponent
	Birds	Considered as a topic/subcomponent
	Large Mammals	Considered as a topic/subcomponent
	Marine Birds	Considered as a topic/subcomponent
	Marine Wildlife (Marine Birds, Marine Mammals)	Included in two or more VCs (Marine Resources & Wildlife)
	Terrestrial Resources	Included in two or more VCs (Vegetation Resources & Wildlife)
	Terrestrial Wildlife and Marine Birds	Included
	Wildlife	Included
	Wildlife and Habitat (including marine birds)	Included
	Wildlife and Wildlife Habitat	Included
	Wildlife Resources (Terrestrial)	Included
	Wildlife Resources/ Terrestrial Wildlife and Marine Birds	Included

Table B-3 Review of Candidate Valued Components by Applicable Cedar VC

Cedar VC	Candidate VCs from other Projects	Proposed Consideration in Cedar VC Assessment
Economic		
Employment and Economy	Economic Conditions	Included
	Economic Environment	Included
	Employment and Business	Considered as a topic/subcomponent
	Financial Strength of Local Businesses	Considered as a topic/subcomponent
	Financial Wellbeing of Local Residents	Considered as a topic/subcomponent
	Labour Market	Considered as a topic/subcomponent
	Net Revenues for Governments	Considered as a topic/subcomponent
	Property Values	Considered as a topic/subcomponent
	Sustainable Economy	Considered as a topic/subcomponent
Social		
Infrastructure and Services	Available Accommodation	Considered as a topic/subcomponent
	Available Education Capacity	Considered as a topic/subcomponent
	Available Emergency Response Services	Considered as a topic/subcomponent
	Available Social Services	Considered as a topic/subcomponent
	Community and Regional Infrastructure and Services	Included
	Community Infrastructure and Services	Included
	Convenient Transportation	Considered as a topic/subcomponent
	Health Service Capacity and Service Level Requirements	Considered as a topic/subcomponent
	Infrastructure and Services	Included
	Infrastructure and Community Services	Included
	Safe Road Transportation	Considered as a topic/subcomponent
Land and Resource Use	Aesthetics / Visual Quality	Considered as a topic/subcomponent
	Ambient Light	Considered as a topic/subcomponent
	Available Recreation Sites and Services	Considered as a topic/subcomponent
	Land and Resource Use	Included
	Pleasing Views	Considered as a topic/subcomponent
	Tourism	Considered as a topic/subcomponent
	Visual Quality	Considered as a topic/subcomponent

Table B-3 Review of Candidate Valued Components by Applicable Cedar VC

Cedar VC	Candidate VCs from other Projects	Proposed Consideration in Cedar VC Assessment
Marine Use	Commercial and Guided Recreational Fishing	Considered as a topic/subcomponent
	Marine Transport	Included
	Marine Transportation & Use	Included
	Marine Use and Navigable Waters	Included
	Marine Use and Navigation	Included
	Marine Use and Transportation	Included
	Navigation and Marine Resource Use	Included
	Recreational Boating	Considered as a topic/subcomponent
	Recreational Fishing	Considered as a topic/subcomponent
	Safe Marine Transportation	Considered as a topic/subcomponent
Heritage		
Heritage	Archaeological and Heritage Resources	Included
	Archaeological and Historic Places	Considered as a topic/subcomponent
	Archaeology and Heritage Resources	Included
	Heritage and Archaeology	Included
	Heritage Resources	Included
Health		
Human Health	Human and Ecological Health	Included in part as a VC. Ecological health is excluded because no ecological health effects are anticipated based on review of potential effects pathways (e.g., air and effluent emissions)
	Human Health	Included
	Physical Health of Local Residents	Included as it relates to human health risk assessment
Greenhouse Gases		
N/A	Greenhouse Gases	Excluded based on feedback from EAO that it should not be a VC.

Table B-3 Review of Candidate Valued Components by Applicable Cedar VC

Cedar VC	Candidate VCs from other Projects	Proposed Consideration in Cedar VC Assessment
Human and Community Wellbeing		
N/A	Community Health	Excluded, based on discussions with EAO that relevant information is already assessed in other VCs and human and community wellbeing is best captured by summarizing outside of the VC structure. It is anticipated that the EAC application will include a summary of human and community wellbeing that considers factors that support community wellbeing based on the results of the VC assessments. This would include a discussion of the functioning and health of the human environment, encompassing a broad range of matters that affect communities in the vicinity of the project in a way that recognizes interrelationships, systems functions (e.g., mental and social well-being, cost of living, quality of life, food security, community and cultural cohesion, social divisions, changes in disposable income, coping mechanisms) and vulnerabilities (e.g., effects on sub-populations such as workers/job seekers and their families, youth, elders, women, service providers, economically marginalized members of the community).
	Community Health and Wellbeing	
	Community Stability and Wellbeing	
	Community Wellbeing	
	Healthy Community	
	Mental Wellbeing of Community Members	
	Personal Safety	
	Public Health	
	Public Health and Safety	
Part C (Indigenous Consultation)		
N/A	Current Use of Lands and Resources for Traditional Purposes	To be considered
	Aboriginal Cultural Activities	To be considered
	Access to Traditional Fishing Grounds	To be considered
	First Nations Communities and Land Use	To be considered
	Traditional Hunting, Gathering, and Harvesting Areas	To be considered

26.3 Appendix C: Requested Certified Project Description

The Application will provide Cedar's requested certified project description for environmental assessment certification, as a draft to support engagement during Application Review.

26.4 Appendix D: Authorship

The Application will include an appendix to identify key personnel, contractors, and/or sub-contractors responsible for preparing the Application, their qualifications, and the sections for which they were responsible.