14 KITSUMKALUM FIRST NATION

This section of the Application provides an assessment of the effects of the Project on Kitsumkalum First Nation interests, conducted as described in Section 6.0, with departures from conventional assessment based on the feedback provided by interested Indigenous nations (e.g., duration; magnitude). Additional feedback provided by Kitsumkalum First Nation has influenced other aspects of the assessment (i.e., not limited to the assessment methods). For example, based on feedback from all participating Indigenous nations, the Proponents expanded the marine shipping route assessment to include an assessment area between the BC Pilot Station at Triple Island and Canada's 12 nautical mile (**nm**) territorial sea limit.

The assessment of potential Project effects (both adverse and positive) on Kitsumkalum First Nation interests includes consideration of 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.

14.1 Scope and Methods

The assessment of effects on Kitsumkalum First Nation interests was scoped according to the following steps:

- Identify appropriate contacts and engage with Kitsumkalum First Nation to understand the nature and content of their Indigenous rights, recognizing that Kitsumkalum First Nation are best placed to identify the Project's potential impacts on their rights
- Identify guiding values and "valued components" (**VCs**) with respect to the Application, through the identification of Kitsumkalum First Nation priority values and topics associated with community well-being, cultural expression, and the preferred means of exercising their rights
- Establish clear criteria with input from the Kitsumkalum First Nation on impact characterizations
- Establish an iterative two-way dialogue on measures proposed to address the impact
- Maintain ongoing engagement throughout the environmental assessment (**EA**) process, which includes revisiting these steps and the analysis, which will be subject to revision based on new information and continued dialogue between all parties

Additional information regarding the efforts taken to scope the assessment with Kitsumkalum First Nation is provided in Section 14.1.2.

14.1.1 REGULATORY CONTEXT

The following current federal and provincial acts, impact assessment (**IA**) policies and best practices guided the assessment:

- British Columbia Declaration on the *Rights of Indigenous Peoples Act* (Province of British Columbia 2019) and associated Action Plan for 2022-2027 (Province of British Columbia 2022)
- British Columbia *Environmental Assessment Act* (**BC EAA**) (2018)

- BC Environmental Assessment Office (**BC EAO**) (2020a) Guide to Indigenous Knowledge in Environmental Assessments
- BC EAO (2020b) Effects Assessment Policy
- Impact Assessment Agency of Canada (**The Agency**) (2022) Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples
- The Agency (2020a) Guidance: Indigenous Knowledge under the *Impact Assessment Act*
- The Agency (2020b) Guidance: Protecting Confidential Indigenous Knowledge under the *Impact Assessment Act*
- The Agency (2021) Guidance: Gender-based Analysis Plus in Impact Assessment
- The Agency (2022a) *Impact Assessment Act* – Effects within Federal Jurisdiction
- The Agency (2022b) *Impact Assessment Act* – Factors defined under Section 22(1)
- The Agency (2022c) Indigenous Knowledge Policy Framework for Project Reviews and Regulatory Decisions

14.1.1.1 Statutory Requirements Under the Federal Impact Assessment Act

The scope of this assessment is designed to address statutory requirements under the IAA and the equivalent requirements of the BC EAA for the assessment of Project-related effects on Kitsumkalum First Nation's rights and interests. The outcomes of this assessment relative to the statutory requirements under the federal *Impact Assessment Act* are provided in Section 14.14.1 and address the following factors and effects:

- Factor 22 (1)(c): Changes to Kitsumkalum First Nation's Rights Recognized and Affirmed by section 35 of the *Constitution Act, 1982*
- Factor 22 (1)(g): Consideration of Indigenous Knowledge Provided with Respect to the Project
- Factor 22(1)(l): Consideration of Changes to Kitsumkalum First Nation Culture
- Factor 22(1)(r): Consistency with any Plan or Study Prepared by Kitsumkalum First Nation that has been Provided for the Project (including any existing Land-Use or Marine-Use Plans)
- Factor 22(1)(s): Disproportionate Effects on Distinct Human Populations (Intersections of Sex and Gender with Other Identity Factors)
- Effects under Section 2(b)(i): Changes to the Environment that would occur on Federal Lands
- Effects under Section 2(c)(i): Changes to Physical and Cultural Heritage
- Effects under Section 2(c)(ii): Changes to Current Use of Lands and Resources for Traditional Purposes

- Effects under Section 2(c)(iii): Changes to any Structure, Site or Thing of Historical, Archaeological, Paleontological, or Architectural
- Effects under Section 2(d): Changes to the Health, Social or Economic Conditions of the Indigenous Peoples of Canada

A complete listing and analysis of the Application's concordance to federal requirements can be found in Section 24.0 summary of Statutory Requirements under the federal *Impact Assessment Act*.

14.1.2 INFLUENCE OF CONSULTATION AND ENGAGEMENT

This section of the Application provides information regarding the efforts taken to seek the views of Kitsumkalum First Nation with respect to the Project.

14.1.2.1 Summary of Past Engagement

The Proponents have engaged directly with Kitsumkalum First Nation since March 2021. This engagement includes:

- Introducing the Project and the Proponents
- Providing notification of Project steps and processes
- Providing a copy of the draft Application Information Requirements (**dAIR**), the Detailed Project Description (**DPD**), the VC selection document, and other Project materials for review and comment
- Providing a copy of the preliminary list of potential effects and preliminary list of information sources for review and comment
- Signing an EA and Regulatory Process Funding Agreement that provides funding for Kitsumkalum First Nation to undertake studies to understand Project-related effects to their interests and to participate in the EA process
- Providing preliminary drafts of EA documents and technical data reports for review in advance of submission to the BC EAO
- Providing updates regarding Project design and evolving timelines

The Proponents remained available to engage diverse populations of Kitsumkalum First Nation (also referred to herein as 'the Nation') in culturally appropriate ways at the direction of Nation leadership, including a consideration of disproportionately distributed effects on Indigenous local group/sub-group (e.g., clan, family) areas within the broader territory, and groups identified by gender, age, or other community relevant factors to support the collection of information needed to complete the gender-based analysis plus (**GBA Plus**). For the GBA Plus assessment, the Proponents also relied on publicly available information, and information contained in the studies prepared for the Project by Kitsumkalum First Nation (see Section 14.1.3).

Other diverse methods of engagement were also made available through public consultation activities, including the following:

- Online or phone-based consultation opportunities were often used as alternatives to in-person meetings, included holding open houses and information sessions virtually and in the evenings, to provide greater accessibility for those limited in mobility, with time, financial or other familial constraints
- Early engagement phase documents were posted on the BC EAO's website
- A website with Project information and contact information for how to request in-person meetings was maintained

Information regarding the influence of Kitsumkalum First Nation comments, key information, and concerns on the assessment are described below in Table 14.1–1.

Additional information regarding the Proponents' engagement with Kitsumkalum First Nation will be provided in the Proponents' Indigenous Engagement Report.

14.1.2.2 Key Areas of Concern

The development of the Application Information Requirements (AIR) and this assessment was influenced by the Proponents' consultation with members of Kitsumkalum First Nation. This section describes information and concerns related to Kitsumkalum First Nation interests shared through consultation.

Table 14.1–1 provides a summary of the key information, including Indigenous knowledge, and concerns that the Proponents identified as part of their consultation and engagement efforts with Kitsumkalum First Nation, as well as a summary of the influence that the outcomes of this consultation and engagement had on the assessment.

Table 14.1–1 – Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Kitsumkalum First Nation Interests

Key Information and Concerns	Influence on the Assessment
Collaboration on the Project regulatory process and Proponents review of the various studies prepared by Kitsumkalum First Nation for the Project.	▪ The Proponents have established an EA and Regulatory Process Funding Agreement that provides funding for Kitsumkalum First Nation to undertake studies to understand Project-related effects to their interests and to participate in the EA process. ▪ The Proponents have continued engagement with Kitsumkalum First Nation to discuss the Project and its effects, understand concerns that may arise and respond to those concerns.

Table 14.1–1 – Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Kitsumkalum First Nation Interests

Key Information and Concerns	Influence on the Assessment
	▪ Summaries of past and planned engagement with Kitsumkalum First Nation are provided in Sections 14.1.2.1 and 14.14.3. ▪ Studies prepared by Kitsumkalum First Nation for the Project have been reviewed and information incorporated into the assessment as described in Section 14.1.3. The results of these studies will also be considered for future Project planning.
Extent of Project planning and scope, including: ▪ onshore pipeline ▪ offshore pipeline interacting with commercial and community bottom fishing opportunities ▪ transmission line and potential sub-sea cable, and associated lack of assessment of potential residual effects because Kitsumkalum First Nation may not have an opportunity to review the potential effects of the transmission line to the same extent as for this Project. ▪ management of waste ▪ consistency with the First Nations Climate Initiative ▪ marine shipping route and increased marine vessel traffic	The Application has assessed the potential effects of the Project activities and interactions identified by Kitsumkalum First Nation. These assessments are found in Sections 7.2 to 7.15, the results of which have informed the assessment of potential effects on Kitsumkalum First Nation interests. <u>Onshore and offshore pipeline</u> ▪ The Project will be supplied with pipeline grade natural gas from the Western Canadian Sedimentary Basin to the Site by an approximately 650 to 750 km long natural gas transmission pipeline which will be built, operated, and owned by a third party (as described in Section 1.4.6.1). The feed gas pipeline will be considered in the Project's cumulative effects assessment as a reasonably foreseeable project. The EAC for the pipeline will require amendment to support an amended marine pipeline route with a delivery point at the Site. ▪ Cumulative changes to Kitsumkalum First Nation interests related to the pipeline are assessed in Section 14.12. ▪ Kitsumkalum First Nation concerns regarding the offshore pipeline interacting with commercial and community bottom fishing opportunities will be communicated to third-party proponents. <u>Transmission line and potential sub-sea cable</u> ▪ Nisg̲a'a Nation intends to undertake a lead role in the assessment of the transmission line on Nisg̲a'a Lands under Chapter 10 of the Nisg̲a'a Treaty and will be responsible for granting the land authorizations for the right-of-way that will be required. The interconnection transmission line from Nisg̲a'a lands to the Site is included in the assessment as a Project component (see Section 14.1.5). The third-party provider will be responsible for applying for the other necessary Crown authorizations for the interconnection

Table 14.1–1 – Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Kitsumkalum First Nation Interests

Key Information and Concerns	Influence on the Assessment
	transmission line for those sections not located on Nisga'a Lands. ▪ Section 14.10.2 provides a summary of potential adverse residual effects of the transmission line on the interests identified by Kitsumkalum First Nation. Section 14.13.2 provides a summary of potential adverse residual cumulative effects on Kitsumkalum First Nation interests in relation to the transmission line. ▪ Kitsumkalum First Nation concerns regarding the assessment of potential residual effects and cumulative effects associated with the transmission line will be communicated by the Proponents to the third-party responsible for the transmission line as well as the BC EAO. <u>Management of waste</u> ▪ Management of solid and hazardous wastes during the construction and operation phases of the Project is described in Section 1.9.5.1. Where possible, non-hazardous wastes will be recycled or reused. Where reuse is not possible, waste will be stored at the Site and then shipped for disposal at a local landfill, other approved waste disposal facility, or a recycling facility in compliance with applicable legal requirements. No other means for waste management have been considered for the Project. Management of wastewater during the construction and operation phases of the Project is described in Section 1.9.5.2. <u>First Nations Climate Initiative</u> ▪ As described in Section 1.4.6.2, electrification of the Project is not only a requirement to achieve emission targets, but it is also one of the key features of the Project for its investors and customers. The Proponents anticipate that an electricity supply agreement with BC Hydro will be one of the requirements for reaching a positive financial investment decision and commencing construction on the Project. The requirement for grid electricity supply by BC Hydro is consistent with the First Nation Climate Initiative's (FNCI) policy and blueprint for net-zero LNG development on the northwest coast of BC. Further, the interconnection transmission line is expected to provide the ability for additional power supply to enable improved electricity reliability in Nisga'a communities.

Table 14.1–1 – Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Kitsumkalum First Nation Interests

Key Information and Concerns	Influence on the Assessment
	▪ Section 22.2.3 summarizes how the Project aligns with the sustainable development goals of several provincial and local initiatives, including those of the FNCI, through Project design, mitigation and enhancement measures. <u>Marine shipping route and increased marine vessel traffic</u> • LNGCs, NGL product vessels, and tugboats will be owned, insured, and operated by third parties. The present estimate of LNG shipments per year is between 140 and 160, depending on the size of the LNGCs used and the total LNG produced by the Project (see Section 1.4.6.3). To address marine safety and potential marine accidents and malfunctions, a navigation safety assessment has been conducted as part of the Application. See Section 9.0 and/or Appendix E for more information on the navigation safety assessment. Marine shipping is also included as a Project component for the assessment of potential effects on Kitsumkalum First Nation interests (see Section 15.1.5).
Marine shipping route selection: ▪ preference for the northern option (Route C), which is north of Dundas Island to/from Triple Islands; the northern option would reduce risks in Chatham Sound.	▪ As discussed in Section 1.9.1, the preferred shipping route also known as Route A is considered the safest shipping route option. BC Coast Pilots have experience with the route, hazards along the route are marked with aids to navigation and the route has more favourable metocean conditions for escort tugs than Routes B and C. Route B is not the preferred route but is a viable alternative if required and under certain metocean conditions. Carriers should not transit Route C due to the navigation hazards. ▪ The Project's marine shipping route and procedures for LNGCs were informed by engagements with BC Coast Pilots, analyses and engagements with Indigenous nations, government agencies and stakeholders. ▪ Alternate shipping routes are further assessed in the Marine Route report completed as part of the Navigation Safety Assessment (Appendix E).
Extents of local and regional assessment areas for VCs.	▪ As described in Section 6.3, the VC assessments describe the spatial, temporal, administrative and technical boundaries used in assessing the potential adverse and positive environmental, economic, social, cultural and health effects of the Project. Rationale for these assessment areas is included in

Table 14.1–1 – Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Kitsumkalum First Nation Interests

Key Information and Concerns	Influence on the Assessment
	Table 6-1 of the AIR as well as the relevant VC sections. ▪ The spatial boundaries selected for the VC assessments do not preclude the consideration of potential Project interactions with Kitsumkalum First Nation's territorial lands and waters (as defined in Section 14.1.5.1). All information shared through ongoing engagement was evaluated in the context of relevant VC assessments and the assessment of potential effects on Kitsumkalum First Nation interests. ▪ Feedback, including Indigenous knowledge, provided by Kitsumkalum First Nation has the potential to inform VC linkages and change spatial boundaries. Where available, the VC assessments explain how the Proponents considered the information received from Kitsumkalum First Nation in defining spatial and temporal boundaries, particularly for VCs related to effects on Kitsumkalum First Nation interests. ▪ Based on feedback from all participating Indigenous nations, the Proponents expanded the marine shipping route assessment to include an assessment area between the BC Pilot Station at Triple Island and Canada's 12 nm territorial sea limit. Where available, the VC assessments explain how the Proponents considered the information received from Kitsumkalum First Nation in defining spatial and temporal boundaries, particularly for VCs related to effects on Kitsumkalum First Nation interests.
Impacts of accidents and malfunctions onshore and offshore: ▪ along the shipping route and terminal site (e.g., due to atmospheric and oceanic conditions) ▪ along Highway 113/Nisg̲a'a Highway, with a focus on increased traffic and associated risk for community safety, access, and wildlife (e.g., due to extreme weather)	▪ The Application has assessed the potential effects of onshore and offshore malfunctions and accidents to the surrounding environment. To address marine safety and potential marine accidents and malfunctions, a navigation safety assessment has been conducted as part of the Application. See Section 9.0 for more information on the navigation safety assessment and malfunctions and accidents. ▪ Highway 113/Nisg̲a'a Highway between Terrace and Gingolx is anticipated to be a primary road transportation route to the Site. Project crews are expected to be bused from Terrace to Gingolx via Highway 113/Nisg̲a'a Highway. Terrace is expected to be a supply centre and Highway 113/Nisg̲a'a Highway could be used to transport workers and

Table 14.1–1 – Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Kitsumkalum First Nation Interests

Key Information and Concerns	Influence on the Assessment
	supplies. An assessment of potential vehicular accidents on Highway 113/Nisga'a Highway and related effects on community safety, access and wildlife is found in Section 9.8. ▪ Section 9.0 also describes the prevention and response methods the Proponents will employ to reduce the risk of and manage potential effects of onshore and offshore malfunctions and accidents, including spill and release scenarios. ▪ The potential effects of the environment on the Project, and any cascading potential effects of the Project on the environment, including the hazards posed by extreme weather and natural disasters, are assessed in Section 10.
Potential impacts on Kitsumkalum First Nation's ability to practice section 35 rights, including: ▪ Loss of commercial fishing opportunities in the Portland Canal, Portland Inlet, and surrounding areas, including impacts from increased marine shipping traffic and underwater linear development. ▪ Impacts to Community Food Security, particularly for vulnerable and off-reserve populations. ▪ Project-related increases in traffic and wildlife mortality on Highway 113/Nisga'a Highway, concerns about increased non-Indigenous access to the Kitsumkalum Valley, and concerns about the potential for additional linear development in the Valley. ▪ Impacts to Kitsumkalum Livelihoods and Way of Life, and the Project's contribution to the cumulative effects of historical and ongoing development, including but not limited to loss of access to Indigenous land and marine use areas, loss of sense of place and opportunities for cultural knowledge transmission, and impacts to the ability of Kitsumkalum members to pass their livelihoods and way of life on to their children.	▪ Feedback, including Indigenous knowledge, shared by Kitsumkalum First Nation has informed the Proponents' understanding of existing conditions and the assessment of Project effects on Kitsumkalum First Nation interests in Section 14.0 and applicable VC sections. ▪ The Application has also assessed the potential effects of the Project on the VCs that support the interests identified by Kitsumkalum First Nation (e.g., marine resources). These assessments are found in Sections 7.2 to 7.15, the results of which have informed the assessment of potential effects on Kitsumkalum First Nation interests. ▪ Sections 14.2 to 14.9 provide the assessments of potential effects of the Project on the interests identified by Kitsumkalum First Nation. Section 14.12 provides the assessment of cumulative effects on Kitsumkalum First Nation interests. ▪ The distribution of disproportionate effects on Kitsumkalum First Nation interests is considered throughout the assessment in Section 14.0. Based on the predicted residual effects, the ways in which the Project may disproportionately affect on Kitsumkalum First Nation subgroups are described in Section 14.10.1. ▪ The Proponents are committed to working directly with Kitsumkalum First Nation to identify opportunities for Kitsumkalum First Nation to realize potential benefits from the Project that can be used to both offset potential adverse effects and create positive effects for the Nation.

14.1.3 INDIGENOUS KNOWLEDGE, INFORMATION SOURCES, ASSUMPTIONS, AND LIMITATIONS

The Proponents understands that there is no universally accepted definition of Indigenous knowledge, and that it is community specific, and place based, arising from Indigenous peoples' intimate relationship with their environment and territory over thousands of years (The Agency 2022c). Indigenous knowledge is therefore understood to be embedded within Indigenous legal, political, and governance systems, and may include Nation-specific direct observations about the biophysical world, as well as ecological indicators, oral histories, community practices, language, teachings, laws, relationships, rituals, cultural identity, spirituality, worldview, cultural values and other ways of knowing that have been identified by the Nation (BC EAO 2020a; The Agency 2022c). Indigenous knowledge is considered cumulative and dynamic, developed through the experiences of earlier generations, informing the practice of current generations, and evolving in the context of contemporary Indigenous societies (The Agency 2022c). Indigenous knowledge used in this Application is derived from ongoing engagement, Project-specific and nation-led studies, secondary sources, and publicly available information identified through engagement with Kitsumkalum First Nation. The treatment of Indigenous knowledge within this section of the Application is presented with any changes requested by Kitsumkalum First Nation following opportunities for review and comment.

The Proponents recognize that Kitsumkalum First Nation is best positioned to identify the sources of information, including Indigenous knowledge, appropriate for this assessment. The sources of information and Indigenous knowledge used in describing background information for the assessment of effects on Kitsumkalum First Nation interests were provided to Kitsumkalum First Nation for review and comment. This included meeting with Kitsumkalum First Nation to discuss the Nation's preferred approach and use of appropriate publicly available documents.

Kitsumkalum First Nation has prepared the following studies for the Project, which have been reviewed and incorporated to this assessment:

- Kitsumkalum First Nation Highway 113 and Supporting Roadways Risk Assessment
- Kitsumkalum First Nation Social and economic/Community Well-Being Literature Review: Ksi Lisims LNG Project
- Kitsumkalum First Nation Indigenous Land and Marine Use (ILMU) Study Regarding the Ksi Lisims LNG Project

This section provides information regarding the alignment of the use of Indigenous knowledge shared by Kitsumkalum First Nation with its respective policies and protocols, consent for its use and public disclosure, and views regarding the characterization of Indigenous knowledge within the Application.

This section also describes, as applicable, if no feedback regarding the use, public disclosure or characterization of Indigenous knowledge was provided by an Indigenous nation. In this case and as applicable, the Application has considered publicly available information and non-confidential outcomes of Project consultation activities to date.

Refer to Section 6.0 for detailed methods regarding the incorporation of Indigenous knowledge into the Application.

The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information related to this assessment.

This assessment uses a conservative approach that recognizes that an absence of Indigenous or traditional use information does not necessarily represent an absence of Indigenous or traditional use for that location or activity. This assessment assumes that Indigenous and traditional use sites, activities and resources have the potential to occur on accessible land within the Nation's territory and that Indigenous or traditional use species identified as being present near the Project could be hunted, trapped, fished, or gathered by Indigenous groups, even if Indigenous groups did not identify specific sites, areas or resources in relation to the Project.

14.1.3.1 Literature Review

A literature review was conducted to provide an overview of existing publicly available information for Kitsumkalum First Nation.

The literature review focused on social and economic, demographic and ethnographic information for Kitsumkalum First Nation as well as information related to the availability of harvested resources, access to resources and use areas, and locations of cultural importance that support the exercise of rights as described by Kitsumkalum First Nation. The Proponents also identified and considered potential Project effects on Kitsumkalum sub-groups from literature review where effects have been demonstrated in similar resource development projects. The identification of Kitsumkalum sub-groups considered those members that may experience disproportionate effects of the Project due to the intersectionality of identity factors (e.g., Indigenous females, Indigenous low-income single parent households, Indigenous two spirit individuals, Indigenous individuals with disabilities) (The Agency 2021; Province of British Columbia 2018; see also Section 7.13.)

The literature review considers information from the following sources:

- Publicly available information collected for studies previously completed by the Indigenous nations for other development projects in the region
- Regulatory filings for proximate projects
- Government reports and databases
- Historical and ethnographic literature
- Relevant internet sources (e.g., Nation websites)

Information was drawn from sources relevant to the locations of the Project assessment areas and to Kitsumkalum First Nation.

14.1.4 IDENTIFYING INTERESTS FOR ASSESSMENT

Indigenous interests, as defined by the BC EAO, refer to "interests related to an Indigenous nation and their rights recognized and affirmed by section 35 of the *Constitution Act, 1982*, including Treaty rights and Aboriginal rights and title, that may be impacted by a proposed project" (BC EAO 2020a). The Proponents understand that Indigenous interests are intricately linked and are also connected to the Nation's rights, culture, history, protocols, health and well-being.

A preliminary list of eight Indigenous interests was identified for this assessment through engagement with Kitsumkalum First Nation and review of issues and concerns about the Project raised by Kitsumkalum First Nation (Section 14.1.2.2 Key Areas of Concern). Additional guidance from current federal and provincial acts, IA policies and best practices also informed the identification of Indigenous interests for this assessment (Section 14.1.1 Regulatory Context). The preliminary list of potential effects on Kitsumkalum First Nation interests is as follows:

- Changes to Kitsumkalum First Nation marine harvest and consumption
- Changes to Kitsumkalum First Nation terrestrial harvest and consumption
- Changes to Kitsumkalum First Nation governance
- Changes to Kitsumkalum First Nation social and economic conditions
- Changes to Kitsumkalum First Nation sacred places and heritage sites
- Changes to Kitsumkalum First Nation health and well-being
- Changes to Kitsumkalum First Nation transmission of knowledge
- Changes to Kitsumkalum First Nation access and travel

No additional interests or potential effects were recommended for this assessment by Kitsumkalum First Nation following provision of drafts of this section of the Application for review.

Kitsumkalum First Nation identified seven value categories for assessment in their ILMU (Kitsumkalum First Nation 2023). The ILMU Values include cultural / spiritual values, Indigenous landscape values, habitation values, subsistence values, transportation values, commercial values, and wildlife / ecological values (Kitsumkalum First Nation 2023). Each of the ILMU Values relates to one or more of the potential effects identified for this assessment. Information regarding Kitsumkalum cultural / spiritual values, Indigenous landscape values, and habitation values is considered under changes to Kitsumkalum First Nation sacred places and heritage sites. Information regarding Kitsumkalum subsistence values and wildlife / ecological values is considered under changes to Kitsumkalum First Nation marine harvest and consumption and changes to Kitsumkalum First Nation terrestrial harvest and consumption. Transportation values are considered under changes to Kitsumkalum First Nation access and travel. Commercial values are considered under changes to Kitsumkalum First Nation social and economic conditions.

Potential effects on Kitsumkalum First Nation interests may occur through multiple pathways including but not limited to the following:

- Biophysical (e.g., effects to marine resources)
- Related to the ability to use and access lands and waters
- Cultural/experiential (e.g., presence of industrial activity disrupts peaceful enjoyment)
- Social and economic (e.g., presence and demands of Project workforce)

Kitsumkalum First Nation also indicated that each ILMU Value is part of the interrelated practices for the Nation (Kitsumkalum First Nation 2023).

This assessment uses a conservative approach that recognizes that an absence of information regarding Kitsumkalum First Nation interests does not necessarily represent an absence of the exercise or practice of an Indigenous right. As such, this assessment assumes that Kitsumkalum First Nation interests have the potential to occur on accessible lands and waters within Project assessment areas that overlap with the Nation's traditional territory (as defined in Section 14.1.5). This assessment reflects the best available information regarding Kitsumkalum First Nation interests in relation to the Project and efforts to validate assessment assumptions are described in Section 14.1.2.1.

Where possible, the assessment of potential effects on Kitsumkalum First Nation's interests considered measurable parameters that are quantifiable (e.g., area of direct marine habitat loss). However, not all effects pathways can be quantified (e.g., cultural/experiential). Therefore, some effects are predicted qualitatively through use of feedback shared by Kitsumkalum First Nation, the results of other the assessments for relevant VCs, and professional judgment. Finally, this assessment was shared in draft form with Kitsumkalum First Nation for review and comment. Feedback shared by Kitsumkalum First Nation on the draft assessment was incorporated, where noted.

The potential effects on Kitsumkalum First Nation interests listed in Table 14.1–2 were identified through ongoing consultation with Kitsumkalum First Nation. For each effect in Table 14.1–2, effect pathways and indicators/measurable parameters have been identified to facilitate the quantitative and/or qualitative measurement of change in Project-specific and cumulative effects potentially caused by the Project.

Table 14.1–2 – Potential Effects, Effects Pathways and Indicators/Measurable Parameters for Kitsumkalum First Nation Interests

Potential Effect	Effect Pathway	Indicator and/or Measurable Parameter(s) and Units of Measurement
Changes to Kitsumkalum First Nation marine harvest and consumption	▪ Loss or alteration of preferred marine harvesting methods, locations, or opportunities (e.g., alteration to the cultural component of harvesting, interference with fishing equipment) ▪ Loss of time when harvesting, including when harvesting for Elders or redistribution to other Kitsumkalum First Nation members ▪ Loss or alteration of harvested marine species including culturally critical species (e.g., change in species population health, abundance, migration routes, distribution, morbidity, and mortality) ▪ Loss or alteration in marine species behaviour ▪ Alteration to the harvesting experience ▪ Alteration or reduction of subsistence-based livelihoods and trade networks with neighbouring Indigenous nations ▪ Loss or alteration to the quality and quantity of marine species and country foods (real or perceived) (e.g., marine birds, marine fish)	▪ Quantitative consideration of change in availability of habitat for harvested marine resources with qualitative consideration for indirect effects on habitat (e.g., changes in underwater noise and sensory disturbances, changes in light conditions, increased risk of species mortality or injury) ▪ Quantitative consideration of change in water quality and quantity parameters (i.e., salinity, total suspended solids [mg/L], nutrients [nitrogen], hydrocarbon [from stormwater]) ▪ Qualitative consideration of factors contributing to lost or altered access, opportunities, and quality of experience (e.g., sensory disturbance associated with marine vessel traffic, increased vessel traffic and type, changes in aesthetic qualities) ▪ Qualitative consideration of estimated change in provision of food to Elders and hereditary leaders as well as feasting events ▪ Qualitative consideration of estimated change to status building activities such as in-community and external trade relationships with other Indigenous nations ▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Other changes identified by Kitsumkalum First Nation
Changes to Kitsumkalum First Nation terrestrial harvest and consumption	▪ Loss or alteration of preferred terrestrial harvesting methods, locations, or opportunities (e.g., alteration to the cultural component of harvesting, interference with traplines) ▪ Loss of time when harvesting, including when harvesting for Elders or redistribution to other Kitsumkalum First Nation members ▪ Loss or alteration of harvested terrestrial species including culturally critical species (e.g., change in species population health, abundance, migration routes, distribution, morbidity, and mortality)	▪ Quantitative consideration of change in availability of habitat for harvested terrestrial resources with qualitative consideration for indirect effects on habitat (e.g., changes in light conditions, increased risk of species mortality or injury) ▪ Qualitative consideration of factors contributing to lost or altered access, opportunities, and quality of experience (e.g., increased highway traffic and type, changes in aesthetic qualities) ▪ Qualitative consideration of estimated change in provision of food to Elders and hereditary leaders as well as feasting events

Table 14.1–2 – Potential Effects, Effects Pathways and Indicators/Measurable Parameters for Kitsumkalum First Nation Interests

Potential Effect	Effect Pathway	Indicator and/or Measurable Parameter(s) and Units of Measurement
	▪ Alteration to the harvesting experience ▪ Alteration or reduction of subsistence-based livelihoods and trade networks with neighbouring Indigenous nations ▪ Loss or alteration to the quality and quantity of country foods (real or perceived)	▪ Qualitative consideration of estimated change to status building activities such as in-community and external trade relationships with other Indigenous nations ▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Other changes identified by Kitsumkalum First Nation
Changes to Kitsumkalum First Nation governance	▪ Loss or alteration in the status and position of Hereditary leaders ▪ Loss or alteration in the production of foods from discrete house territories ▪ Loss or alteration in the ability to uphold Kitsumkalum First Nation management principles and ability to make decisions regarding land and marine use ▪ Loss or alteration in regional employment, business, and economy	▪ Qualitative consideration of available opportunities for Kitsumkalum First Nation involvement in development decision making ▪ Qualitative consideration of change in the quality and quantity harvested resources at discrete house territories ▪ Qualitative consideration of access to and use of house territories ▪ Qualitative consideration of potential changes in level of feasting ▪ Qualitative consideration of reduction in rank of a house due to disruption of their house territory ▪ Qualitative consideration of estimated change to status building activities such as in-community and external trade relationships with other Indigenous nations ▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Other changes identified by Kitsumkalum First Nation
Changes to Kitsumkalum First Nation Social and economic Conditions	▪ Loss or alteration in regional employment, business, and economy ▪ Loss or alteration in infrastructure, services, accommodation, and transportation ▪ Loss or alteration of commercial fishing opportunities	▪ Qualitative consideration of Nation members ability to access suitable accommodations, heath care and social services, emergency services, travel (land, sea, air), employment opportunities, training for youth and existing workforce ▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Other changes identified by Kitsumkalum First Nation

Table 14.1–2 – Potential Effects, Effects Pathways and Indicators/Measurable Parameters for Kitsumkalum First Nation Interests

Potential Effect	Effect Pathway	Indicator and/or Measurable Parameter(s) and Units of Measurement
Changes to Kitsumkalum First Nation sacred places and heritage sites	▪ Loss or alteration of use or access or required conditions of sacred places and heritage sites ▪ Loss or alteration of ability to share Indigenous knowledge at sacred places and heritage sites ▪ Reduced quality of experience and increased avoidance due to sensory disturbance (e.g., qualitative disconnect due to changes in noise levels) ▪ Loss or alteration of heritage sites	▪ Qualitative consideration of factors contributing to loss or altered access and opportunities (e.g., associated with marine vessel traffic, increased vessel traffic and type, changes in aesthetic qualities) ▪ Quantitative consideration of affected heritage and cultural sites ▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Other changes identified by Kitsumkalum First Nation
Changes to Kitsumkalum First Nation health and well-being	▪ Alteration to Indigenous health (e.g., psychological and physical) due to outside stressors and loss of culture ▪ Loss or alteration to quality of country foods ▪ Loss or alteration of community food security ▪ Loss or alteration to the safety of Nation members ▪ Loss or alteration to community health and well-being ▪ Reduction or alteration of community cohesion	▪ Qualitative consideration of factors contributing to changes in human exposure to chemicals of potential concern, quality of /quantity of /access to country foods, noise level and electric and magnetic fields, and subsequent health effects ▪ Qualitative consideration of changes in community health and Nation members well-being due to changes to related interest (e.g., change in harvest and consumption, change in cultural identity) ▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Qualitative consideration of change to community cohesion (e.g., change in social and economic conditions; change in the number of people who know how to hunt/gather/process traditional resources; qualitative consideration of change in access to resource harvesting location along HWY 113 within Kalum Valley) ▪ Qualitative consideration of estimated change to status building activities such as in-community and external trade relationships with other Indigenous nations ▪ Qualitative consideration for changes to community food security, including vulnerable and off-reserve populations. ▪ Other changes identified by Kitsumkalum First Nation

Table 14.1–2 – Potential Effects, Effects Pathways and Indicators/Measurable Parameters for Kitsumkalum First Nation Interests

Potential Effect	Effect Pathway	Indicator and/or Measurable Parameter(s) and Units of Measurement
Changes to Kitsumkalum First Nation transmission of knowledge	▪ Reduction or alteration of cultural practices tied to identity ▪ Reduction of cultural transference opportunities in the territory ▪ Reduction or alteration to community cohesion ▪ Disruption to sense of place	▪ Qualitative consideration of changes to the right to maintain cultural distinctiveness and integrity ▪ Qualitative consideration of Kitsumkalum First Nation conditions for connection to their territory ▪ Qualitative consideration of changes to cultural practices such as traditional funerals, feasts, resource sharing, harvesting, and teaching ▪ Qualitative consideration of changes to the right to maintain emotional and spiritual attachment to culturally important places within Kitsumkalum First Nation territory. ▪ Qualitative consideration of Kitsumkalum First Nation conditions for connection to their territory (change in peaceful enjoyment of lands and waters) ▪ Qualitative consideration of changes to related Indigenous interests (e.g., changes to cultural identity, changes to access and travel) ▪ Qualitative consideration of change to community cohesion (e.g., change in social and economic conditions, qualitative consideration of change in access to cultural transference opportunities) ▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Other changes identified by Kitsumkalum First Nation
Changes to Kitsumkalum First Nation access and travel	▪ Loss or alteration of access to preferred terrestrial harvesting locations and associated travel routes ▪ Loss or alteration of access to preferred marine harvesting locations and associated travel routes ▪ Loss or alteration of access to sacred places and heritage sites and associated travel route ▪ Loss or alteration of access to regional infrastructure and services (e.g., health centers,	▪ Qualitative consideration of factors contributing to loss or altered access to important cultural areas (e.g., sacred places, heritage sites, marine and terrestrial harvesting sites) and regional infrastructure and services (e.g., health centers, shopping centers) ▪ Qualitative consideration of factors contributing to loss or altered access to preferred travel routes on land and water (e.g., increased vessel traffic and type, increased traffic on HWY 113)

Table 14.1–2 – Potential Effects, Effects Pathways and Indicators/Measurable Parameters for Kitsumkalum First Nation Interests

Potential Effect	Effect Pathway	Indicator and/or Measurable Parameter(s) and Units of Measurement
	shopping centers) and associated travel routes (marine and terrestrial)	▪ Qualitative consideration of the intersectionality of factors contributing to the distribution of disproportionate effects on Kitsumkalum First Nation sub-groups ▪ Other changes identified by Kitsumkalum First Nation

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14.1.5 ASSESSMENT BOUNDARIES

The spatial, temporal, administrative, and technical boundaries for the assessment of effects on Kitsumkalum First Nation interests are described below.

14.1.5.1 Spatial Boundaries

The assessment areas are defined by spatial boundaries that consider the geographic extent over which Project activities may affect Kitsumkalum First Nation interests and are illustrated in Figure 14.16-1 to Figure 14.16-12.

The spatial boundaries for this assessment are based on the Project components and activities, which include:

- **Project footprint**: the physical footprint for the Project (i.e., the areal extent of planned onshore clearing and marine infrastructure development at the Project Site (**the Site**). The Project footprint measures 43.6 hectares (**ha**), and encompasses terrestrial areas (34.9 ha), riparian areas (7.9 ha), and intertidal areas (0.8 ha). The adjacent Water Lot measures approximately 96.4 ha. The Project footprint has been defined conservatively to encompass the maximum extent for Project development for both land-based and marine-based Project infrastructure and activities
- **Marine shipping route (MSR)**: the marine shipping route between Wil Milit and the BC Coast Pilots boarding location at or near Triple Island Pilotage Station, and the materials and supply shipping routes between Wil Milit and Prince Rupert and between Wil Milit and Gingolx. The Local Study Area (LSA) described in Kitsumkalum First Nation's ILMU consists of a 5 km buffer starting at the Project footprint that extends along the MSR to Triple Island Pilotage Station and represents a moderate estimation of the area in which Kitsumkalum First Nation anticipate direct and/or indirect Project-related impacts on their interests (Kitsumkalum First Nation 2023). Although generally consistent with the MSR, the LSA also includes a 5 km buffer along an alternative (hypothetical) shipping route over the north end of the Dundas Island group (Kitsumkalum First Nation 2023). For the purpose of this assessment, the shipping route over the north end of the Dundas Island group is described in text as the LSA (MSR).
- **Open water assessment area (OWAA)**: the open water marine shipping route between the 12 nm limit of Canada's territorial sea and the BC Coast Pilots boarding location at or near Triple Island Pilotage; as assessed for Air Quality (Section 7.02), Acoustic (Section 7.03), Wildlife and Wildlife Habitat (Section 7.07), Marine Resources (Section 7.09), Marine Use (Section 7.11), and Community Health and Wellness (Section 7.13). The OWAA includes the geographic extent over which direct and indirect effects may be expected to occur, and the geographic extent over which the predicted residual effects of the Project may act in combination with those of past, present, and reasonably foreseeable future projects

The spatial boundaries for the assessment of third-party infrastructure that may be developed in relation to the Project include:

- **Transmission Line Assessment Area (TLAA):** the marine and/or terrestrial areas within which a portion of the transmission line between the Project and Nisga'a Lands (as defined under the Nisga'a Treaty) will be developed. A third-party will own, design, construct and operate the transmission line. The transmission line within the TLAA will connect to the grid at a substation in New Aiyansh. The TLAA encompasses portions of Nisga'a Category A Lands and the Nass Area. As a specific route for the transmission line has not been developed, the TLAA encompasses a broad area measuring approximately 36,400 ha, within which the route is anticipated to occur.

The Project footprint, MSR, TLAA and OWAA area are located within or intersect with Kitsumkalum First Nation's traditional territory.

The assessment areas considered for the assessment of effects on Kitsumkalum First Nation interests include:

- **Local assessment areas (LAAs)**: the geographic extent over which direct (e.g., habitat loss) and indirect (e.g., sensory disturbance) effects may reasonably be expected to occur. As the LAAs are VC-specific, the LAAs of VCs that overlap Kitsumkalum First Nation's territory are considered in turn throughout this assessment. All VC LAAs intersect with Kitsumkalum First Nation traditional territory (Figure 14.16-1 to Figure 14.16-10).
- **Regional assessment areas (RAAs)**: the geographic extent over which the predicted residual effects of the Project may act in combination with those of past, present and reasonably foreseeable future projects. As the RAAs are VC-specific, the RAAs of VCs that overlap Kitsumkalum First Nation's territory are considered in turn throughout the assessment of cumulative effects. All VC RAAs intersect with Kitsumkalum First Nation traditional territory (Figure 14.16-1 to Figure 14.16-12).
- **Kitsumkalum First Nation Territory:** includes the areas surrounding the Kitsumkalum and Zymacord watersheds, as well as the Skeena River and Prince Rupert Coast spanning from Portland Inlet (north extent) to Chatham Sound (south extent); the combined coastal and inland areas cover 5,941,000 ha (Figure 14.16-1).

Descriptions of each of the VC LAAs and RAAs are provided in Sections 7.02 to 7.15 of the Application.

14.1.5.2 Temporal Boundaries

Temporal boundaries identify when an effect is evaluated in relation to specific Project phases and activities. Temporal boundaries are based on the timing and duration of Project activities and the nature of the interactions with Kitsumkalum First Nation's interests, where relevant. Temporal boundaries also consider seasonal sensitivities, as applicable, (e.g., seasonal harvesting) associated with Project activities within each Project phase.

The temporal boundaries for the assessment of effects on Kitsumkalum First Nation interests are the same as those described in Section 6.3.2:

- **Construction:** approximately three to four years, commencing following receipt of necessary regulatory approvals and a final investment decision by the Proponents
- **Operation:** a minimum of 30 years following completion of construction and commissioning
- **Decommissioning:** approximately 12 months following the end of operation

14.1.5.3 Administrative and Technical Boundaries

Kitsumkalum First Nation released their Marine Use Plan (MUP) in 2014 (Kitsumkalum First Nation 2014). The MUP outlines their management strategies and protocols for marine resources with the goal of maintaining a sustainable balance between cultural and social well-being and ecosystem health (Kitsumkalum First Nation 2014). The implementation of the MUP is guided by the Kitsumkalum Marine Planning Committee comprised of Elders, Chiefs, council members and wildlife managers (Kitsumkalum First Nation 2014). The Kitsumkalum Marine Planning Committee ensures that the values and interests of the Nation are implemented through the MUP (Kitsumkalum First Nation 2014). The MUP identifies different management zone types in Kitsumkalum First Nation territory and describes allowable activities in each marine use zone (Kitsumkalum First Nation 2014). Kitsumkalum First Nation have identified five *special management zones:* Stephens Island, Arthur Island, Shellfish Aquaculture, Skeena Estuary and Grenville Channel (Kitsumkalum First Nation 2014). A small portion of the northeastern extent of Kitsumkalum First Nation's Skeena Estuary special management zone may be intersected by the materials and supply marine shipping route between Digby Island and Kaien Island. Allowable activities within the Skeena Estuary special management zone include Kitsumkalum traditional fisheries and cultural practices, commercial fisheries (finfish line, trap and net; invertebrate dive and trap; however, salmon seine and crab fisheries are not permitted), recreational fisheries, shellfish aquaculture/algaculture, ecotourism, renewable energy projects, and education and research (Kitsumkalum First Nation 2014).

Section 14.1.5.1 further defines the way in which Project components and potential effects overlap with Kitsumkalum First Nation's traditional territory; in addition to the marine use plan described above, Kitsumkalum First Nation's administration, governance and guardianship of its territory are described in Section 14.4 and inform this assessment.

14.1.6 PROJECT INTERACTIONS

Table 14.1–3 identifies which Project components and physical activities have the potential to result in effects on Kitsumkalum First Nation interests. Interactions that have been identified (ranked as 1 or 2) are carried forward and assessed within this section. Each of the effects identified are discussed in detail, in the context of effects pathways, mitigation/enhancement, and residual effects. The highest-ranking interaction was selected in cases where multiple VCs or potential effects inform the Nation-specific assessment (e.g., change in marine habitat and changes due to sensory disturbance, which both inform

Kitsumkalum First Nation's harvest and consumption practices). Ranking of interactions was further informed by input received from Kitsumkalum First Nation.

Rationale for interactions ranked as 0 is provided following Table 14.1–3.

Table 14.1–3 – Potential Project Interactions and Effects on Kitsumkalum First Nation Interests

Project Activities and Physical Works	Potential Project Effects							
	Change s to marine consumption and harvest	Changes to terrestrial consumption and harvest	Changes to governance	Changes to social and economic conditions	Changes to sacred places and heritage sites	Changes to health and well-being	Changes to transmission of knowledge	Changes to access and travel
Construction								
Procurement of labour, goods, and services	1	1	1/+	1	1/+	1	1	1
Site preparation and clearing	1	1	1	1	1	1	1	1
Construction of temporary and permanent land-based infrastructure (includes transmission line within the TLAA)	2	2	2	2	2	2	2	2
Construction of temporary and permanent marine-based infrastructure (includes transmission line within the TLAA)	2	2	2	2	2	2	2	2
Marine transport of workforce, and construction materials to the Site	2	2	2	2	2	2	2	2
Land transportation of workforce and construction materials from Terrace to Gingolx or Prince Rupert/Port Edward (for marine transport to Site)	2	2	2	2	2	2	2	2
Waste management	1	1	1	1	1	1	1	1

Table 14.1–3 – Potential Project Interactions and Effects on Kitsumkalum First Nation Interests

Project Activities and Physical Works	Potential Project Effects							
	Change s to marine consumption and harvest	Changes to terrestrial consumption and harvest	Changes to governance	Changes to social and economic conditions	Changes to sacred places and heritage sites	Changes to health and well-being	Changes to transmission of knowledge	Changes to access and travel
Operation								
Procurement of labour, goods, and services	1	1	1/+	1/+	1	1/+	1	1
Natural gas pre-treatment, liquefaction, storage and offloading of LNG and NGL products (condensate) at the floating liquefied natural gas (**FLNG**) production, storage and offloading facility barges (includes storage of NGLs)	2	2	2	2	2	2	2	2
LNG carrier and NGL product vessel loading	1	1	1	1	1	1	1	1
Marine shipping and transportation (includes tugs) to Site	2	2	2	2	2	2	2	2
Land transportation of workforce to Gingolx (for marine transport to Site)	2	2	2	2	2	2	2	2
Facility and infrastructure maintenance (includes transmission line within the TLAA)	2	2	2	2	2	2	2	2
Waste management	2	2	2	2	2	2	2	2
Temporary on-Site power generation on barges	2	2	2	2	2	2	2	2

Table 14.1–3 – Potential Project Interactions and Effects on Kitsumkalum First Nation Interests

Project Activities and Physical Works	Potential Project Effects							
	Change s to marine consumption and harvest	Changes to terrestrial consumption and harvest	Changes to governance	Changes to social and economic conditions	Changes to sacred places and heritage sites	Changes to health and well-being	Changes to transmission of knowledge	Changes to access and travel
Decommissioning								
Procurement of labour, goods and services	1	1	1/+	1/+	1	1/+	1	1
Decommissioning or re-purposing of land-based infrastructure (includes transmission line within the TLAA)	2	2	2	2	2	2	2	2
Decommissioning of marine-based infrastructure (includes transmission line within the TLAA)	2	2	2	2	2	2	2	2
Land transportation of workforce to Gingolx (for marine transport to Site)	2	2	2	2	2	2	2	2
Marine transport of decommissioned infrastructure	1	1	1	1	1	1	1	1
Waste management	1	1	1	1	1	1	1	1

Key:

0 = Negligible or no effect expected; no further consideration warranted.

1 = Potential adverse effect that warrants consideration, and requires mitigation through current legal or policy management, best management practice(s) and/or Project-specific mitigation.

2 = Potential adverse effect of particular importance or concern that warrants further detailed assessment

+ = Potential positive effect that can be enhanced; warrants further consideration

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14.1.7 RESIDUAL EFFECTS CHARACTERIZATION

Each residual effect on Kitsumkalum First Nation interests is characterized using the following characterization terms: magnitude, geographic extent, timing, duration, reversibility, frequency, affected sub-population, risk (likelihood and consequence). The definitions for these terms as they relate to this assessment are provided in Table 14.1–4.

Table 14.1–4 – Characterization of Residual Effects on Kitsumkalum First Nation Interests

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Magnitude	The amount of change in measurable parameters or the ability to exercise or practice rights / maintain the interest, relative to existing conditions	**No Measurable Change –** no measurable change **Low –** effect may increase the effort necessary but will not reduce the ability to exercise or practice rights / maintain the interest **Moderate – –**effect may reduce but not eliminate the ability to exercise or practice rights / maintain the interest **High –** effect will greatly reduce or eliminate the ability to exercise or practice rights / maintain the interest
Geographic Extent	The geographic area in which a residual effect occurs	**Project footprint –** residual effects are restricted to the Project footprint **OWAA -** residual effects are restricted to the OWAA **LAAs –** residual effects extend into the LAAs **RAAs –** residual effects extend into the RAAs **MSR** – residual effects extend into the marine shipping route **Beyond Regional** – residual effects extend beyond the VC RAAs but are within or beyond Kitsumkalum First Nation Territory
Timing	Considers when the residual environmental effect is expected to occur. Timing considerations are noted in the evaluation of the residual environmental effect on Indigenous interests, where applicable or relevant.	**Not Applicable** – seasonal aspects are unlikely to affect residual effects on the Indigenous interest **Applicable** – seasonal aspects may affect residual effect on the Indigenous interest
Duration	The length of time the residual effect is expected to persist or be experienced by Kitsumkalum First Nation	**Short-term –** the residual effect is restricted to the construction phase (3 to 4 years), or decommissioning phase (12 months) **Medium-term –**the residual effect extends beyond the construction or decommission phases but is less than the timespan of a single human generation (25 years[1])

Table 14.1–4 – Characterization of Residual Effects on Kitsumkalum First Nation Interests

<table>
<tr><th>Characterization</th><th>Description</th><th>Quantitative Measure or
Definition of Qualitative Categories</th></tr>
<tr><td></td><td></td><td>Long-term – the residual effect extends beyond the timespan of a single human generation (>25 years) and the operation phase (30 years).</td></tr>
<tr><td>Reversibility</td><td>Pertains to whether or not the residual effect on the Indigenous interest can return to its existing condition after the Project activity ceases</td><td>Reversible – the residual effect is likely to be reversed after activity completion and reclamation
Partially reversible – the residual effect can be partially reversed activity completion and reclamation
Irreversible – the residual effect is unlikely to be reversed activity completion and reclamation</td></tr>
<tr><td>Frequency</td><td>How often the residual effect occurs and how often during the Project or in a specific phase</td><td>Single event - effect occurs once
Multiple irregular event – occurs at no set schedule
Multiple regular event – occurs at regular intervals
Continuous – occurs continuously</td></tr>
<tr><td>Affected Sub-Populations (where appropriate)</td><td>The distribution of the effect amongst the Kitsumkalum First Nation population</td><td>Evenly distributed – the effect will be experienced by any or all Kitsumkalum subpopulations
Disproportionally distributed – the effect will be experienced only by certain Kitsumkalum subpopulations or experienced more acutely by certain Kitsumkalum subpopulations.</td></tr>
<tr><td>Risk (likelihood and consequences)</td><td>Assesses the likelihood and consequences of the potential residual effect. Likelihood is the probability of the residual effect occurring and should consider many factors. Consequence is the potential outcome of the residual effect.
Risk is the interaction between likelihood and consequence (see risk rating table)</td><td>Consequences: are assessed as minor, moderate, or major based primarily on a combination of Magnitude and Geographic Extent as:
<table>
<tr><th colspan="2"></th><th>Geographic Extent*</th></tr>
<tr><th colspan="2"></th><th>Project Footprint or LAA (if different from RAA)</th><th>RAA and/or OWAA</th></tr>
<tr><td rowspan="4">Magnitude</td><td>No Measurable Change</td><td>Minor</td><td>Minor</td></tr>
<tr><td>Low</td><td>Minor</td><td>Minor or Moderate</td></tr>
<tr><td>Moderate</td><td>Minor or Moderate</td><td>Moderate</td></tr>
<tr><td>High</td><td>Moderate or Major</td><td>Major</td></tr>
<tr><td colspan="4">*Where relevant, Duration is also taken into consideration (e.g., a high Magnitude event within the LAA may be Moderate or Major in Consequence and Duration could be considered)</td></tr>
</table></td></tr>
</table>

Table 14.1–4 – Characterization of Residual Effects on Kitsumkalum First Nation Interests

<table>
<tr><th>Characterization</th><th>Description</th><th>Quantitative Measure or
Definition of Qualitative Categories</th></tr>
<tr><td></td><td></td><td>Likelihood: as defined in the Risk table below
Risk:
Low: Low risk/uncertainty of effect prediction
Moderate: Moderate risk/uncertainty of impact prediction
High: High risk/uncertainty of impact prediction
<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="3">Consequence</th></tr>
<tr><th>Major</th><th>Moderate</th><th>Minor</th></tr>
<tr><td rowspan="3">Likelihood</td><td>High (>80% chance)</td><td>High</td><td>Moderate</td><td>Low</td></tr>
<tr><td>Medium (40-80% chance)</td><td>High</td><td>Moderate</td><td>Low</td></tr>
<tr><td>Low (<40% chance)</td><td>Moderate</td><td>Low</td><td>Low</td></tr>
</table></td></tr>
<tr><td>Uncertainty</td><td>The degree of uncertainty as assessed for the data and methods including potential effectiveness of mitigation that have been used in the assessment of effects</td><td>Low – good understanding of the pathway to effect(s) on the Indigenous interest due to the Project activities and/or physical works and sufficient data is available to support the assessment. Uncertainty associated with data and/or modelling is low. The effectiveness of the selected mitigation is expected to be moderate to high. Overall, uncertainty in the predicted residual effect is low.
Moderate – potential uncertainty associated with the pathway to effect(s) on the Indigenous interest due to the Project activities and/or physical works, e.g., due to unknown external variables or incomplete data. Potential for uncertainty associated with data and/or modelling. The effectiveness of mitigation is expected to be moderate to low. Uncertainty in the predicted residual effect is considered moderate.
High – poor understanding of the pathway to effect(s) on the Indigenous interest due to the Project activities and/or physical works. May be unknown external variables and/or data for the Project is incomplete. Modelling results may vary considerably with inputs. The effectiveness of the mitigation may be expected to be low or is unproven. Overall, there is a high degree of uncertainty associated with the predicted residual effect.</td></tr>
</table>

Table 14.1–4 – Characterization of Residual Effects on Kitsumkalum First Nation Interests

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories

NOTE:

[1] "Twenty-five years" is representative of a single generation as established by EAs conducted for comparable projects on the North Coast and based on the Proponents' understanding that Indigenous knowledge and associated customs, traditions, practices, or locales, can be displaced from collective memory if transmission of knowledge, or the ability to engage in associated cultural activities, are disrupted beyond a single generation's time.

14.1.7.1 Context and Resilience

The characterization of every residual Project effect inherently considers the effects of past and present projects and activities, and potential trends in the condition of the Interest, as applicable. Literature reviewed, and feedback received from Kitsumkalum First Nation describes historical, ongoing, and future development as modifications to the existing conditions of their Interests.

Resilience is notionally understood as the ability of a receptor to recover from or adapt to a change in its environment, real or perceived. The degree of resilience may be measured or characterized for species or ecosystems relied upon by Indigenous peoples for the exercise of their rights, traditional activities, and practices. Such characterization may be relevant and incorporated into this assessment, where noted, given the interdependence of community health, well-being and culture and the health and availability of the land and water. However, the ability of Indigenous peoples to recover from or adapt to environmental effects of the Project remains contingent on personal, cultural, esthetic, or spiritual values that are subjective and cannot be meaningfully reduced to EA criteria. When applied to human receptors, resilience in this sense, or as a concept overall, is viewed as uniquely personal as it is informed by an individual's lived experience, individually and/or collectively in social and community groups. It would not be appropriate given the subjective and complex nature of these considerations for anyone but the affected party to characterize resilience. As such, the "context" or "resilience" criterion is not carried forward for the assessment of Project effects on the collectively held rights and interests of Kitsumkalum First Nation.

The more commonly understood and accepted criteria defined for this assessment, including: (1) consideration for disproportionate effects on vulnerable populations, (2) Kitsumkalum First Nation views regarding existing environmental, social or economic barriers, and (3) Kitsumkalum First Nation preferred conditions required to maintain or enhance their rights and Interests, are viewed as sufficient to assist the BC EAO in determining the overall seriousness of the Project effects on Kitsumkalum First Nation Interests.

14.1.7.2 Transmission Line Assessment Approach

As described in Section 14.1.5.1, a third-party will own, design, construct and operate the transmission line that is proposed within the TLAA, a portion of which will support the electrification of the Project. The third-party will be responsible for route selection and siting the proposed transmission line within the TLAA (Figure 14.16-12).

A high voltage (287 kV) electrical cable will be installed within the TLAA to distribute power to smaller substations, the FLNGs, and the plant buildings at the marine terminal location. While the transmission line route is not currently known, for the purposes of this assessment, the TLAA encompasses a broad area measuring approximately 36,400 ha, and represents the area within which the transmission line is expected to be installed (Figure 14.16-12). Preliminary transmission line scenarios, including aerial and submarine options, with segments of variable lengths have been identified as potential routes; however, final route selection will be the responsibility of the third-party owner. Installation methods associated with submarine route scenarios include the potential for areas of transmission line burial as well as areas of surface-lay on the seabed. The decommissioning plan is not currently known, so for the purposes of this assessment, two scenarios have been considered: removal or abandonment in place.

As described in Section 14.1.3, this assessment assumes that Indigenous and traditional use sites, activities and resources have the potential to occur on accessible land and waters within a Nation's territory and that Indigenous or traditional use species present within the TLAA could be hunted, trapped, fished, or gathered by Indigenous nations, even if Indigenous nations did not identify specific sites, areas or resources in relation to the TLAA.

Potential adverse residual effects identified within this assessment area in relation to the development of the proposed transmission line is not characterized. The potential effects associated with the construction, operation, and decommissioning of the portion of the transmission line within the TLAA are however considered in Section 14.10.2. Potential effects, effects pathways, and indicators / measurable parameters considered for the TLAA are the same as those identified in Table 14.1–2.

14.1.8 MITIGATION MEASURES

Mitigation and enhancement measures described throughout this Application are proposed to reduce adverse residual effects and enhance positive effects on Kitsumkalum First Nation interests, as applicable, and are discussed relative to specific potential effects for each of the identified Indigenous interests in Sections 14.2 to 14.9. These sections also describe:

- The criteria or rationale used to determine technically and economically feasible mitigation measures
- Additional accommodation, mitigations, complementary and enhancement measures that are specific to Kitsumkalum First Nation interests, as applicable
- The relative level of uncertainty, effectiveness, or risk associated with the accommodation, mitigation and complementary options

- An assessment of the effectiveness of the mitigation measures and adaptive management measures applied to mitigate the residual effects and cumulative effects
- In cases where measures to mitigate these effects are beyond the control of the Proponents, what parties have authority to act on the measures and commitments made by the other parties regarding the implementation of necessary measures and any associated communication plans
- A discussion of potential regional implications of applying Project-specific mitigation and enhancement measures (e.g., interactions with initiatives of other projects), taking into account any reasonably foreseeable development in the area
- How the measures will be integrated into the Project design, if applicable
- How the GBA Plus results in disproportionate effects specific to Kitsumkalum First Nation, as described in Section 7.13 Community Health and Wellness, have been used to inform these measures

Mitigation measures were selected based on:

- their effectiveness to limit Project interactions that affect Kitsumkalum First Nation interests during all Project phases
- their technical and economic feasibility
- their inclusion on similar projects proposed for the Pacific North Coast
- the views of Kitsumkalum First Nation regarding mitigation appropriateness
- and the professional judgment of the effects assessment team

A summary of mitigation or enhancement measures, review processes or monitoring initiatives for Kitsumkalum First Nation interests is described in Sections 14.2 to 14.9.

14.1.9 ASSESSMENT OF ADVERSE RESIDUAL EFFECTS

The assessment of residual effects is described for each of the identified Indigenous interests in Sections 14.2 to 14.9. This evaluation focuses on the effect pathways listed in Section 14.1.4 and characterizes adverse residual effects according to the approach described in Section 14.1.7. A summary of the assessment of adverse residual effects is described in Section 14.10.

Residual effects on aspects of Kitsumkalum First Nation interests identified for assessment have been conservatively overestimated with consideration for the interconnectedness of the effect pathways that inform Kitsumkalum First Nation interests. The analysis in Sections 14.2 to 14.9 incorporates the findings of relevant VCs however, potential effects may not fully align with effects on Kitsumkalum First Nation interests. As a result, the characterization of residual effects on Kitsumkalum First Nation interests are generally ranked higher than the residual effects characterized for related VCs, specifically, duration, magnitude, and likelihood. This is considered when evaluating the need for additional mitigation and enhancement measures, review processes or monitoring initiatives that are specific to Kitsumkalum First Nation interests.

14.1.10 ASSESSMENT OF POSITIVE RESIDUAL EFFECTS

The assessment of any positive residual effects to Kitsumkalum First Nation interests where anticipated because of the Project and its associated effects management approaches is provided in Section 14.11.

14.1.11 ASSESSMENT OF CUMULATIVE EFFECTS

The assessment of cumulative effects is initiated when the following two conditions are met:

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

If neither condition is 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 identifies the Project residual effects likely to interact cumulatively with the residual effects of other projects or physical activities.

The assessment of the Project's contribution to cumulative effects on Kitsumkalum First Nation interests and the identification of any additional mitigation measures is described for the identified Indigenous interests in Section 14.12 (Cumulative Effects Assessment). The assessment of cumulative effects includes:

- Background and context, including how the identified Indigenous interests have been affected by cumulative effects to date
- A description of the Project's residual effects on Kitsumkalum First Nation interests that are likely to interact cumulatively with residual effects of past, present, or reasonably foreseeable projects and physical activities
- An assessment of the likelihood of any adverse residual cumulative effects on the Indigenous interests

A summary of the results of the cumulative effects assessment is described in Section 14.13.

14.2 Changes to Kitsumkalum First Nation Marine Harvest and Consumption

This section provides the assessment of potential Project effects on Kitsumkalum First Nation marine harvest and consumption.

14.2.1 BACKGROUND AND EXISTING CONDITIONS

Kitsumkalum First Nation maintains a deep intimate connection with the waters and marine resources within their *laxyuup* (traditional territory), and continue to harvest and fish for consumption, economic, subsistence and trade purposes; however, Kitsumkalum reported that existing conditions experienced today have been influenced by industrial and colonial developments within and near Kitsumkalum *laxyuup,* such as the Grand Trunk Pacific Railway; the *Indian Act;* and residential schools, which have had adverse impacts on the transference of knowledge and the continuation of seasonal rounds, disrupting

traditional Kitsumkalum ways of life including the use of and care for their *laxyuup* (Kitsumkalum First Nation 2023). Kitsumkalum First Nation indicated that their seasonal movement patterns between the Kitsumkalum and Zimacord Valleys, and marine harvesting and winter village sites on the coast, were disrupted by colonial legislation, impacting resource management practices and resulting in a loss of knowledge and disruption and erosion of the Nation's matrilineal social order (Kitsumkalum First Nation 2023). The resurgence and revitalization of the *Sm'algyax*, and opportunities to teach and share knowledge related to seasonal rounds is important to Kitsumkalum First Nation members, who are committed to reinstating traditional forms of governance to maintain and pass important knowledge and information onto future generations (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation fish and harvest marine resources in patterns that follow seasonal variations for availability and productivity, also known as seasonal rounds (Kitsumkalum Fist Nation 2020). Seasonal awareness involves deep connections with the physical environment, evident in the extensive trails and water routes harvesters moved through to access cultural harvesting sites, the placenames throughout their *laxyuup*, and the use of techniques and knowledge accumulated and evolving since immemorial (Kitsumkalum Fist Nation 2020). The maintenance of trails and routes, as well as the knowledge associated with these deep connections is embedded within *ayaawx* (Tsimshian law), and stewardship (Kitsumkalum Fist Nation 2020).

During seasonal rounds, Kitsumkalum First Nation harvest flounder, halibut, other groundfish, kelp, marine birds, rockfish, salmon, seal, sea lion, seaweed and shellfish, which hold non-consumptive value for harvesters, as well as for the purpose of consumption within the family and community (Kitsumkalum First Nation 2020c). Other common marine resources harvested throughout the waters of their *laxyuup* include abalone, chitons, clams, geoducks, cod, cockles, crabs, muscles, Pacific herring, Pacific herring eggs, oolichan, all types of salmon (Chinook, chum, coho, pink, sockeye), scallops, and trout (Kitsumkalum First Nation 2023). Water plants harvested by Kitsumkalum First Nation includes algae, eelgrass, red laver, seaweeds (giant kelp), water parsley, and water parsnip (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation members are actively harvesting and utilizing a wide variety of resources within their traditional territory but report low rates of satisfaction with many areas of harvesting, indicating that these resources are not abundant or accessible enough to meet their needs (Kitsumkalum First Nation 2022b). Kitsumkalum First Nation identified several important harvesting sites within their *laxyuup* including Barrett Rock, Eyde Passage, *Lax Spa Suunt* (Arthur Island), Lelu Island, *Kwel'Maas* (Island Point), Mud Bay, Ridley Island, *Spa Xksuutks* (Port Essington), *Ya asqualu'l* (Casey Point), as well as several locations along the Skeena River. Harvesters access these sites through extensive trails and waterways. Intertidal and areas containing eelgrass beds are especially important cultural sites to Kitsumkalum First Nation, located near Digby Island, Kaien Island and within the Port Edward Area (Kitsumkalum First Nation 2023). Barrett Rock, Eyde Passage, Lelu Island, Kwel'Maas, Ridley Island, Ya asqualu'l (Casey Point) are located along the MSR. *Lax Spa Suunt* (Arthur Island), Mud Bay, and Spa Xksuutks (Port Essington) are located outside the MSR.

Kitsumkalum First Nation's commercial fishing activities provide both personal economic security and food security/sovereignty for the community through the distribution of food fish which are caught as bycatch during commercial fishing to community members at no cost (Kitsumkalum First Nation 2022b, 2023). Importantly, the Nation related that these fishing practices are also in keeping with Kitsumkalum's rights to commercial fishing, ways of knowing, and understandings of environmental stewardship (Kitsumkalum First Nation 2022b, 2023). Kitsumkalum First Nation reported that the prevalence of LNG and other development along the coast has impacted their access to seafood (Kitsumkalum First Nation 2022b, 2023). Kitsumkalum First Nation emphasized that their sense of food security is reliant on easy access to healthy and abundant seafood, which is extremely nutritious and part of Kitsumkalum's Tsimshian way of life (Kitsumkalum First Nation 2022b, 2023). Kitsumkalum First Nation reported that the Project will impact not only economic and food security, but also Kitsumkalum's Tsimshian way of life, including knowledge transfer to the next generation (Kitsumkalum First Nation 2022b, 2023). Kitsumkalum First Nation stated that marine foods are vital to Kitsumkalum's food security, fishing rights, and distinctive way of life (Kitsumkalum First Nation 2023). Kitsumkalum First Nation reported 30 Subsistence Values within the LSA (MSR)including fishing and gathering areas, which represent decades of an individual or group subsistence activity carried out in a resource-rich area. Subsistence Values intersected by the LSA (MSR) include fish/shellfish harvesting areas (butter clams, cockles, crabs, prawns, halibut, cod, salmon, steelhead, rockfish, abalone, and red snapper), and seaweed harvesting areas (Kitsumkalum First Nation 2023). Additionally, Kitsumkalum First Nation demonstrated that the majority of their LSA (MSR) are representative of marine subsistence values (Kitsumkalum First Nation 2023:67). Kitsumkalum First Nation reported Wildlife/Ecological Values within the LSA (MSR) as areas where important marine life (including whales and seals) has already been adversely impacted by marine traffic and pollution. Kitsumkalum First Nation also indicated that the LSA (MSR) and surrounding area is highly productive for halibut, rockfish, lingcod, snapper, and salmon. Salmon was identified by Kitsumkalum First Nation as a keystone species and "is particularly vital to the ecological health of the [LSA (MSR)] and supports the vitality of other species in the area" (Kitsumkalum First Nation 2023:71).

14.2.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation marine harvest and consumption. Changes to Kitsumkalum First Nation marine harvest and consumption could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.2.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation marine harvest and consumption. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Air Quality (Section 7.02)
- Acoustic (Section 7.03)
- Wildlife and Wildlife Habitat (Section 7.07)
- Marine Resources (Section 7.09)
- Marine Use (Section 7.11)
- Human Health (Section 7.14)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation interest, including marine harvest and consumption. In conjunction with these measures, the Proponents will develop and implement a Project-specific construction environmental management plan that describes the mitigation and enhancement measures tied to Project-related activities and physical works associated with construction. The construction environmental management plan will be incorporated into appropriate construction-related contracts.

While the mitigation measures are intended for the Proponents, Project contractors will be required to implement these measures as applicable to their scope of work.

Table 14.2–1 – Mitigation and Enhancement Measures Proposed to Avoid or Reduce Potential Effects on Kitsumkalum First Nation Interests

Mitigation/Mitigation Mechanism	Rationale for Selection	Expected Success/Risks and Uncertainty	Timing and Effectiveness	Management and/or Compensation Plans
Mitigation IN-1: The Proponents will continue to work with Kitsumkalum First Nation to develop a shared understanding of how the Project may affect their Indigenous interests. The Proponents will continue engaging with Kitsumkalum First Nation to discuss the Project and its effects, understand concerns that may arise, and respond to those concerns. **Mechanism:** The Proponents will continue to work with Kitsumkalum First Nation to explore opportunities to further mitigate adverse effects to Kitsumkalum First Nation's interests and enhance Project benefits. Through ongoing engagement (i.e., throughout the life of the Project) and in development of the social and economic effects management plan, the Proponents aim to maintain a positive long-term relationship with Kitsumkalum First Nation.	This measure was selected based on their effectiveness to mitigate potential changes in health, technical and economic feasibility, their inclusion as mitigation measures in similar Projects proposed for the Pacific North Coast, the views of Kitsumkalum First Nation regarding mitigation appropriateness, and professional judgment of the effects assessment team.	**Expected Success:** The success of this measure is contingent upon Kitsumkalum First Nation willingness to engage with the Proponents, Kitsumkalum First Nation's specific communication protocol needs, and implementation of additional public notices. **Risk and Uncertainty:** Low.	**Project Phase:** All phases **Effectiveness**: This mitigation measure is effective in the long-term.	Indigenous Engagement and Collaboration Plan Construction environmental management plan Health and medical services plan Social and economic effects management plan

14.2.4 PROJECT RESIDUAL EFFECT

During the construction phase, two floating liquefied natural gas (FLNG) production, storage and offloading facility barges will be towed through the OWAA and MSR for installation at the Project footprint. During the decommissioning phase, the FLNG barges will either be moved to a Canadian shipyard or a foreign shipyard for re-furbishing or salvage. If the FLNG barges are destined for a Canadian shipyard, they would be towed through the MSR and south along the coast of BC during the decommissioning phase. If the FLNG barges are destined for a foreign shipyard, they would be towed through the MSR and the OWAA during the decommissioning phase. FLNG barge transits through the MSR and OWAA during the construction phase and the decommissioning phase represent single events.

The Project is not predicted to result in a change in the quality of country foods harvested within the Human Health LAA, the MSR, the OWAA, and the Project footprint during the operation phase; all exposure pathways for country foods are inoperable (Section 7.14). Residual effects on air quality are predicted within the Air Quality LAA, the Project footprint, and along the OWAA and MSR during the operation phase, however, the predicted criteria air contaminants are less than the applicable regulatory criteria at all receptors in the vicinity of the Project footprint, including sensitive receptors (i.e., vegetation, aquatic ecosystems, human health) (Sections 7.02 and 7.14). Along the Air Quality LAA, the MSR and the OWAA, emission concentrations do not persist in one location due to the transient nature of the LNG carrier and tugboat, and concentrations decrease rapidly with increasing distance from the sources (Sections 7.02 and 7.14). Noise levels will increase during the operation phase within the Acoustic LAA, the Project footprint, the MSR and OWAA but will comply with federal and provincial noise guidance at most receptors (Sections 7.03 and 7.14). Sensory disturbances (including perceived change in air quality and noise levels) may result in an alteration to Kitsumkalum First Nation harvesting experience and associated activities during the operation phase.

Project construction will result in a direct habitat loss or alteration of marine bird habitat throughout the Wildlife and Wildlife Habitat Marine Terminal LAA and the Project footprint due to vegetation clearing and Site preparation activities (Section 7.07). Underwater noise will also be emitted into the marine environment at the Wildlife and Wildlife Habitat Marine Terminal LAA and the Project footprint (e.g., through pile installation, infilling, idling vessels) during the construction phase (Section 7.09). Construction activities at the Wildlife and Wildlife Habitat Marine Terminal LAA and the Project footprint will affect the behaviour and movements of Kitsumkalum First Nation culturally important wildlife (e.g., marine birds), fish (e.g., Pacific herring; eulachon), and marine mammals (e.g., baleen whales, sea lions) (Sections 7.07 and 7.09).

During the operation phase, approximately 140 to 160 Project-related LNG carriers and 8 to 12 NGL product vessels travelling at speeds of 12 to 19 knots/hour will transit the OWAA and MSR. An LNG carrier will therefore transit the OWAA and MSR approximately every 2.3 days during the operation phase (30 years). The Project is not predicted to result in a change in the quality of country foods harvested within the Human Health LAA, the MSR, the OWAA, and the Project footprint during the operation phase; all exposure pathways for country foods are inoperable (Section 7.14). Residual effects on air quality are predicted within the Air Quality LAA, the Project footprint, and along the OWAA and MSR during the

operation phase, however, the predicted criteria air contaminants are less than the applicable regulatory criteria at all receptors in the vicinity of the Project footprint, including sensitive receptors (i.e., vegetation, aquatic ecosystems, human health) (Sections 7.02 and 7.14). Along the Air Quality LAA, the MSR and the OWAA, emission concentrations do not persist in one location due to the transient nature of the LNG carrier and tugboat, and concentrations decrease rapidly with increasing distance from the LNG carrier and tugboat emission sources (Sections 7.02 and 7.14). Noise levels will increase during the operation phase within the Acoustic LAA and the Project footprint and along the MSR and OWAA but will comply with federal and provincial noise guidance at most receptors (Sections 7.03 and 7.14). Sensory disturbances (change in air quality and noise levels) may result in an alteration to Kitsumkalum First Nation harvesting experience during the operation phase.

During the operation phase, an indirect loss or alteration of marine bird habitat within the Wildlife and Wildlife Habitat LAA and at the Project footprint will occur due to sensory disturbance (i.e., reduced habitat effectiveness) (Section 7.07). Physical and sensory barriers may present semi-permeable barriers that can result in temporary local shifts in marine bird distributions in the vicinity of the Project footprint, but the sustainability of regional marine bird populations is not expected to be adversely affected (Section 7.07). Project activities (shipping and activities at the Project footprint) may increase marine bird mortality risk and some mortality events may be unavoidable, but the sustainability of regional marine bird populations harvested and consumed by Kitsumkalum First Nation is not expected to be adversely affected (Section 7.07).

Marine shipping activities during the operation phase may adversely affect Kitsumkalum First Nation marine harvest and consumption by altering the abundance and distribution of fish and marine mammals within the Marine Resources LAA, the OWAA, the MSR and in the vicinity of the Project footprint (Section 7.09). Vessel wakes produced during operation will result in increased wave activity throughout the Marine Resources LAA, the OWAA and MSR, however they are not expected to result in additional shoreline erosion, degradation of marine vegetation or meaningful increases to total suspended solids (TSS) when compared to natural wave action in the area (Section 7.09). Underwater noise will be emitted into the marine environment within the Marine Resources LAA, the Project footprint (e.g., seawater intakes) and along the MSR and OWAA (e.g., LNG carrier and tugboats underway) during the operation phase, however, noise is not expected to exceed the threshold of injury for species of cultural importance to Kitsumkalum First Nation (Section 7.09).

The Project is not expected to result in residual effects that may adversely affect the long-term persistence of any marine population harvested and consumed by Kitsumkalum First Nation. A measurable change in the productivity of relevant fish, invertebrate, marine mammal, or sea turtle populations is not predicted within the Marine Resources LAA, the OWAA, the MSR and the Project footprint (Section 7.09). Population wide effects to any culturally important marine mammal species caused by vessel strikes are not anticipated (Section 7.09). During all Project phases, Project activities may increase mortality risk for marine birds and some mortality events may be unavoidable, but the sustainability of regional populations within the Marine Resources LAA, the OWAA, the MSR and in the vicinity of the Project footprint are not expected to be adversely affected (Section 7.07).

A measurable change in Kitsumkalum First Nation marine access within the Marine Use LAA, the OWAA, the MSR and in the vicinity of the Project footprint is predicted to occur during the operation phase due to the increase in marine shipping activity, however, as the Project is expected to comply with existing marine use plans and participate in federal initiatives and requirements (e.g., development and implementation of recommendations from a Navigational Safety Assessment), it is not expected to create a change or disruption that widely reduces or restricts Kitsumkalum First Nation present marine access and use activities to a point where they cannot continue at current activity levels (Section 7.11). Marine navigation is unlikely to be affected as the waters of the Marine Use LAA, the OWAA and MSR are open and not confined by geography, allowing adequate space for Kitsumkalum First Nation marine users to navigate.

With the implementation of mitigation measures outlined in Table 14.2–1 and Appendix A, residual effects on Kitsumkalum First Nation interests related to marine harvest and consumption during all Project phases are anticipated to be moderate in magnitude within applicable VC LAAs, the OWAA, the MSR and the Project footprint, inclusive of timing considerations due to the seasonal movements of migratory species. Residual effects are short-term during the construction and decommissioning phases and will occur as multiple irregular events. Residual effects are long-term (lasting for longer than one generation [25 years]) during the operation phase and will occur as multiple regular events. However, residual effects are considered reversible during all phases as they are primarily tied to marine shipping; the effects cease once the FLNG barges, LNG carriers, tugs, and crew vessels pass through the applicable VC LAAs, the MSR and OWAA, and noise levels and air quality will return to current conditions once Project activities cease. The risk of a residual effect on Kitsumkalum First Nation marine harvest and consumption is moderate (moderate consequence, high likelihood) during all phases, with moderate uncertainty due to unknown external variables. The LNG carriers, tugs, and crew vessels will transit an established shipping route where marine and other cultural activities will be able to safely continue in a manner that is generally consistent with existing conditions.

14.3 Changes to Kitsumkalum First Nation Terrestrial Harvest and Consumption

This section provides the assessment of potential Project effects on Kitsumkalum First Nation terrestrial harvest and consumption.

14.3.1 BACKGROUND AND EXISTING CONDITIONS

Kitsumkalum First Nation have harvested and continue to harvest a variety of terrestrial wildlife and plant resources within their *laxyuup* (traditional territory) for consumption, economic, subsistence and trade purposes since time immemorial (Kitsumkalum First Nation 2023). Of particular importance for subsistence, Kitsumkalum First Nation harvests bear, deer, moose, mountain goat, deer and furbearers (Kitsumkalum First Nation 2023; Vopak 2021). Some examples of harvested berries includes black crowberry, black currants, black hawthorn berries, blackberry, blueberry, bunchberry, cherries (pin/chokecherries), cloud berries, cranberries (low bush/highbush/bog), currants (stink currant/black [white-flowered]), elderberries, gooseberries (black/swamp), highbush cranberries, huckleberry, kinnikinnick berries, raspberry, salal berries, salmonberry, Saskatoon, soapberries, strawberries, and

thimbleberry, (Kitsumkalum First Nation 2023; Vopak 2021). Other harvested terrestrial plant species includes arrow grass, aspen, bracken fern, calypso corms, carrots, cedar, clover, columbine, copper-bush, cottonwood, crab apple, devil's club, dock, elderberry, red, *exobasidium vaccinii,* ferns, fir, fireweed, goat's bears, hazelnuts, hemlock, green hellebore, juniper, kneeling angelica, labrador tea leaves, lichen, lily-of-the-valley, liquorice fern, lupine, moss, mountain ash berries, mushrooms, nettles, onion, parsnip, pine, potato, rhubarb (western dock), rose, sheep sorrel, silverwood roots, skunk cabbage, Solomon's seal, spruce, stone crop (sedum), sword fern, tobacco plant, wood fern, and yew (Kitsumkalum First Nation 2023)

As stated in Section 14.2.1, federal and provincial government policies and development have had adverse impacts on the transference of knowledge, and the continuation of seasonal rounds, disrupting traditional Kitsumkalum ways of life including the use of and care for their *laxyuup* (Kitsumkalum First Nation 2023). Kitsumkalum First Nation have previously reported that increases in local populations associated with previous developers such as Rio Tinto, Alcan and Eurocan have already created lasting adverse impacts within Kitsumkalum *laxyuup*, causing water and ground pollution, changes in air and water quality, vegetation, and human health in the area (Cedar 2022). Additionally reported is the increased use of trails for recreational activities, subsequently adding more pressure on Kitsumkalum First Nation resources (Cedar 2022).

Kitsumkalum First Nation have previously reported that the imposition of government regulated hunting seasons runs counter to Tsimshian understandings of stewardship and resource maintenance, and that the establishment of government managed traplines in 1925 imposed often arbitrary trapline boundaries on the Tsimshian landscape (Kitsumkalum First Nation 2023). Kitsumkalum First Nation stated that while trapline registration protected some Indigenous trapping areas from non-Indigenous encroachment, it opened other areas to non-Indigenous trapline holders, and that trapline registrations and policies surrounding non-Indigenous notions of productivity resulted in traplines being re-allocated (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation have reported that moose frequent the roadways in the region, as they are attracted to salt and to escape wolves, noting that winter poses a problem for animals to escape oncoming traffic due to high snowbanks. Kitsumkalum First Nation have reported that more vehicular incidents with wildlife occur near *Laxgalts ap* (Greenville), within the wildlife marine shipping regional assessment area. It was also reported that Highway 113/Nisga'a Highway, the main highway near Kitsumkalum, has seen an increase in wildfire occurrence along the highways and surrounding roads ways over the past 20 years (Kitsumkalum First Nation 2022a).

Kitsumkalum First Nation reported that the Project will impact not only economic and food security, but also Kitsumkalum's Tsimshian way of life, including knowledge transfer to the next generation (Kitsumkalum First Nation 2022b, 2023). Kitsumkalum First Nation stated that terrestrial resources are vital to Kitsumkalum's food security (Kitsumkalum First Nation 2023). Kitsumkalum First Nation reported 30 Subsistence Values within the LSA (MSR) including hunting and gathering areas, which represent decades of an individual or group subsistence activity carried out in a resource-rich area

(Kitsumkalum First Nation 2023). Additionally, Kitsumkalum First Nation demonstrated that the majority of their LSA (MSR) is representative of terrestrial subsistence values, including the southern portion of Digby Island and the shores of Wales Island, Pearse Island, and Somerville Island (Kitsumkalum First Nation 2023:67). These island are located along the MSR.

Kitsumkalum First Nation indicated that Highway 113/Nisg̲a'a Highway is included in their assessment as increased traffic caused by the Project and related infrastructure (i.e., the transmission line through the Nass Valley) will have direct impacts on Kitsumkalum First Nation's ILMU and Rights (Kitsumkalum First Nation 2023). Kitsumkalum First Nation is particularly concerned about the impacts of increased wildlife collisions, increased noise/disturbance, and increased non-Indigenous access to the Kitsumkalum Valley resulting in increased pressure on local resources (Kitsumkalum First Nation 2023). Kitsumkalum First Nation reported harvesting areas and terrestrial values along and which require access from Highway 113/Nisg̲a'a Highway, including critical moose and goat habitat, trapping areas, and over 70 moose, goat, bear, ptarmigan, grouse, and deer hunting areas, food and medicinal plants gathering areas, and berry harvesting areas (Kitsumkalum First Nation 2023). Highway 113/Nisg̲a'a Highway is within the Employment and Economy LAA and Wildlife RAA (Section 7.10 and Section 7.07).

Kitsumkalum First Nation recommends that the provincial government install wildlife signage along Highway 113/Nisg̲a'a Highway, particularly in the area leading up to and including Greenville (Kitsumkalum First Nation 2022a).

14.3.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation terrestrial harvest and consumption. Changes to Kitsumkalum First Nation terrestrial harvest and consumption could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.3.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation terrestrial harvest and consumption. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Air Quality (Section 7.02)
- Acoustic (Section 7.03)
- Wildlife and Wildlife Habitat (Section 7.07)
- Human Health (Section 7.14)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation terrestrial harvest and consumption.

14.3.4 PROJECT RESIDUAL EFFECT

As described in Section 14.2.4, changes in air quality and noise are predicted within applicable VC LAAs, the Project footprint and along the MSR and OWAA during all Project phases. The Project is not predicted to result in a change in the quality of country foods within applicable VC LAAs during any of the Project phases as all pathways are inoperable.

Project construction will result in a direct habitat loss or alteration of terrestrial wildlife habitat throughout the Wildlife and Wildlife habitat LAA and the Project footprint due to vegetation clearing and Site preparation activities and an indirect loss or alteration of terrestrial wildlife habitat at the Project footprint will occur during the operation phase due to sensory disturbance (i.e., reduced habitat effectiveness). These activities and associated residual effects on terrestrial wildlife will however occur on Nisga'a Category A lands that are not accessible to Kitsumkalum First Nation. The Project is therefore not expected to result in adverse residual effects on Kitsumkalum First Nation interests related to terrestrial harvest and consumption at the Project footprint.

Kitsumkalum First Nation may however encounter alteration of the harvesting experience at terrestrial harvesting sites adjacent the applicable VC LAAs, the MSR, the OWAA, and in the vicinity of the Project footprint due to real or perceived sensory disturbances associated with the increase in LNG carriers and associated change in air quality and noise levels (primarily during the operation phase). Shipping activities and associated residual effects may reduce Kitsumkalum First Nation terrestrial harvesting activities within their territory that they rely upon for FSC, economic, subsistence, trade, and other purposes.

With the implementation of mitigation measures outlined in Table 14.2–1 and Appendix A, a low magnitude residual effect on Kitsumkalum First Nation terrestrial harvest and consumption is anticipated at terrestrial harvesting sites with the applicable VC LAAS, the MSR and OWAA, and in the vicinity of the Project footprint due to potential changes in overall quality of the harvesting experience. Residual effects are short-term during the construction and decommissioning phases and will occur as multiple irregular events. Residual effects are long-term (lasting for longer than one generation [25 years]) during the operation phase and will occur as multiple regular events. Residual effects are considered reversible during all Project phases as they are tied to marine shipping; the effects cease once the vessels pass through the applicable VC LAAs, MSR and OWAA. The risk of a residual effect on Kitsumkalum First Nation terrestrial harvest and consumption is moderate (moderate consequence, high likelihood) during all Project phases, with moderate uncertainty due to unknown external variables.

14.4 Changes to Kitsumkalum First Nation Governance

This section provides the assessment of potential Project effects on Kitsumkalum First Nation governance.

14.4.1 BACKGROUND AND EXISTING CONDITIONS

Kitsumkalum First Nation works together with the Kitsumkalum Environment, Lands and Referrals staff, as well as Kitsumkalum Hereditary Chiefs (*Waap* leadership), to fulfill requirements set by Indigenous and Northern Affairs Canada and to protect Kitsumkalum interests (Kitsumkalum First Nation 2017). Kitsumkalum First Nation holds elections every two years for council members and consists of one elected Chief as well as seven councillors (Kitsumkalum First Nation 2020). The Council of Kitsumkalum First Nation manages the Nation's finances and budgeting, with objectives to respect the interests of Kitsumkalum First Nation members (Kitsumkalum First Nation 2020). A Comprehensive Community Plan was developed by Kitsumkalum First Nation in 2016 to guide decision-making in ways that reflect the Nation's environmental, spiritual, social and economic values which included health, infrastructure, education, and governance (Kitsumkalum First Nation 2020).

Kitsumkalum First Nation Government is a traditional governance system that follows traditional processes established under traditional laws of the Tsimshian (*ayaawx*), which is essential to Tsimshian culture and society for the management of Kitsumkalum lands and resources (Kitsumkalum First Nation 2017, 2020d). Kistumkalum First Nation maintains a matrilineal society, which means that house and clan memberships are passed down through the maternal line (Wolfhard 2014). Chiefs and Matriarchs are bound to the inherited lands and waters of their hereditary system which defines the boundaries of lands within each Kitsumkalum house. The hereditary governance system of the Kitsumkalum First Nation is rooted in familial groups called Houses or *Waap*, which have unique crests, totems, headdresses, regalia and drums specific to that *Waap*. Each *Waap* belongs to one of four clans, also have a designated Chief (Sm'gyigyet), or a matriarchal Chief (*Sigydmhana)* that is head of the lineage (Cedar 2022; Kitsumkalum First Nation 2020). Each clan maintains the responsibility of managing the resources of their *laxyuup* (inherited lands and waters). The four clans of Kitsumkalum First Nation are known as *Pteex* and include the *Ganhada* (Ravens), *Gisbutwada* (Blackfish/Killer whales), *Laxgibuu* (wolves), and *Laxsgiik* (Eagles) (Cedar 2022; Kitsumkalum First Nation 2020).

Kitsumkalum First Nation asserted their rights and title in the Prince Rupert Harbour area in 2013 through the Declaration of the Kitsumkalum Indian Band of the Tsimshian Nation of Aboriginal Title and Rights to Prince Rupert Harbour and Surrounding Coastal Areas, following an evaluation Kitsumkalum's claim of Aboriginal title and rights within the Prince Rupert area (Kisumkalum First Nation 2013).

Kitsumkalum First Nation noted the need for community leadership to initiate road safety through supporting real-time updates through community-preferred communication outlets and the implementation of educational campaigns targeting local-level roadway safety issues (Kitsumkalum First Nation 2022a). Kitsumkaylum IR1 is the primary residential and commercial hub for Kitsumkalum. This reserve houses the vast majority of Kitsumkalum's on-reserve population, as well as the House of Sim-oi-Ghets gift shop, which is owned by Kitsumkalum; Kalum Ventures Ltd., which manages Kitsumkalum's forestry activities; the Kitsumkalum Health Centre; and the Kitsumkalum Band Office. Kitsumkalum First Nation stated that reserve creation, land pre-emptions, political and economic marginalization, residential schools, and other incompatible land uses, have altered Kitsumkalum's way of life, but that their sustained resistance and resilience is demonstrated by their harvesting and hunting

practices, language revitalization and teaching; and the re-instatement of traditional forms of governance (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation reported that for more than a century, major project development in their traditional territory has proceeded without Kitsumkalum's free, prior, and informed consent, and often in direct opposition to their wishes (Kitsumkalum First Nation 2022b, 2023). Kitsumkalum First Nation reported that with few other choices, many Kitsumkalum members have become employed by the industries that have made their Tsimshian way of life untenable (Kitsumkalum First Nation 2022b). Kitsumkalum First Nation reported that development-related benefits have rarely materialized for the Nation, and generally cannot offset the sense of powerlessness that has resulted from the erosion of Tsimshian self-governance and decision-making (Kitsumkalum First Nation 2022b, 2023). Kitsumkalum First Nation stated that they do not anticipate the Project as supporting positive outcomes to their desired futures and self-governance (Kitsumkalum First Nation 2023).

14.4.1.1 Kitsumkalum First Nation Arrangements with the Province of British Columbia, the Government of Canada, and other Indigenous Nations

Kitsumkalum First Nation joined the Marine Plan Partnership for the North Coast in 2015, which is collaboratively managed by the Province of BC as well as 16 Indigenous nations along the coast. The partnership is intended to develop and implement plans for marine uses on the north Pacific coast (MaPP 2021).

The Environmental Stewardship Initiative (ESI) was established in 2014 between the Province of BC, Kitsumkalum First Nation, and other coastal First Nations (Government of British Columbia n.d.; FDMS 2018). The ESI aimed to build relationships among the participating groups through the cooperative development of projects centered on ecosystem assessment, monitoring, restoration, enhancement, research, and knowledge exchange and on stewardship education and training (Government of British Columbia 2016). Kitsumkalum First Nation also entered into an agreement and signed a Letter of Understanding (LOU) regarding the LNG ESI in 2016 (Government of British Columbia 2016). In 2018, the ESI agreement was modified to include the North Coast Cumulative Effects Demonstration Project Agreement; the revised agreement stipulated that the ESI was a collaborative government to government initiative between the Province of BC and the signatory First Nations and was "intended to generate a positive environmental stewardship legacy" (Government of British Columbia 2018a). Shortly after the ESI agreement was modified, the ESI North Coast Ecosystem Restoration Project Agreement was signed by the Province of BC, Kitsumkalum First Nation, and other coastal First Nations (Government of British Columbia 2018b). The ESI North Coast Ecosystem Restoration Project Agreement was established to support the collaborative design and implementation of various Nation-specific Indigenous Stewardship Projects for terrestrial and aquatic ecosystems within each Nation's traditional territory (Government of British Columbia 2018b).

Kitsumkalum First Nation signed the North Coast Strategic Land Use Planning Agreement with the Province of British Columbia (**BC**) in 2006, designed to manage allowable uses for the land within the

designated Land and Resource Management Plan boundary (Kitsumkalum First Nation and the Province of British Columbia 2006).

In 2019, Kitsumkalum First Nation entered the Kitsumkalum First Nation LNG Coastal Fund Agreement and the Kitsumkalum First Nation LNG Benefits Agreement with the Province of BC (Kitsumkalum First Nation and Province of British Columbia 2019a, 2019b). The LNG Coastal Fund Agreement asserted Kitsumkalum First Nation's interest in the LNG industry development in BC, provided the interests of Kitsumkalum First Nation were met. This includes addressing issues related to Indigenous rights, impacts on natural and cultural resources, social and economic impacts, and the cumulative impacts of development (Kitsumkalum First Nation and Province of British Columbia 2019a). The LNG Benefits Agreement was made to ensure that LNG Canada Project and other LNG Projects meet the interests of Kitsumkalum First Nation, including issues related to Indigenous Rights and cumulative impacts and assert Kitsumkalum First Nation interest in LNG Canada Projects and other LNG Projects if these issues are addressed (Kitsumkalum First Nation and Province of British Columbia 2019b).

More recently in 2020, Kitsumkalum First Nation signed the Reconciliation Framework Agreement for Bioregional Oceans Management and developed a Land Code. The Reconciliation Framework Agreement encourages more effective approaches to manage the protection of the water in the north Pacific coast (BC Treaty Commission 2021; Government of Canada 2019). The Land Code, designed to enhance environmental protection, replaced 32 sections of the *Indian Act* pertaining to land and resource management on-reserve lands (Kitsumkalum First Nation 2020).

Kitsumkalum First Nation is part of the Tsimshian First Nations Treaty Society which is negotiating within the BC treaty process on behalf of its five member bands that are either in Stage 4 or 5 of the treaty process (Government of British Columbia 2022). Kitsumkalum First Nation is currently in Stage 5 (negotiating to finalize) of the BC treaty process (Government of British Columbia 2022). Kitsumkalum First Nation has also signed an Agreement-in-Principle with Canada and BC (Government of British Columbia 2022).

The Proponents are not aware of any existing agreements made directly between Kitsumkalum First Nation and other Indigenous nations regarding governance of areas of territory overlap, as relevant to the Project.

14.4.1.2 Population and Reserves

The current registered population of Kitsumkalum First Nation is 849 as of July 2023, comprised of 410 men and 439 women (CIRNAC 2023a). There are approximately 244 Kitsumkalum First Nation residents at Kitsumkalum village (Indigenous Reserve [**IR**] 1), which is located a short distance west of Terrace situated where the Skeena River intercepts with the Kitsumkalum River (CIRNAC 2023b; Cedar 2022). Approximately 598 Kitsumkalum First Nation members (281 men and 317 women), 70% of Kitsumkalum First Nation's registered population, live throughout cities in BC, primarily Terrace, Prince Rupert and Port Edward (CIRNAC 2023a; Cedar 2022; Kitsumkalum First Nation 2023). The

remaining 253 Kitsumkalum First Nation members live on Kitsumkalum First Nation reserves or other Nations' reserves (CIRNAC 2023a).

Kitsumkalum First Nation has four IRs which span approximately 597 ha of land, these include Dalk-Ka-Gila-Quoeux (IR 2), Kitsumkalum (IR 1), Port Essington (IR 4), and Zimagord (IR 3) (CIRNAC 2023b). Kitsumkalum (IR 1) is the largest reserve and totals 449.9 ha (CIRNAC 2023b). One of the Nation's reserves in Port Essington (Spookshuut) is jointly administered with Kitselas First Nation. A list of Kitsumkalum First Nation reserve lands is provided in Table 14.4–1 and the Nation's reserves are shown on Figure 14.16-1.

Kitsumkalum First Nation stated that the creation of the Indigenous reserve system impacted their ability to access coastal and other culturally important areas of their territory (Kitsumkalum First Nation 2023). Kitsumkalum First Nation stated that the reserves do not represent traditional galts'ap, as the reserve boundaries were allocated based on European perceptions of Tsimshian land use and reflect the location of important village sites (such as Kitsumkalum Village and Dałk Gyilakyaw), but do not encompass the entirety of Kitsumkalum's seasonal round or laxyuup (Kitsumkalum First Nation 2023). Additionally, Kitsumkalum First Nation stated that as part of the Tsimshian Nation, the coast and coastal sites and resources were utilized by Kitsumkalum First Nation's, and that their pre-contact use of their Territory was not limited to the areas that have since been designated as reserves (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation stated that in addition to the creation of reserves, the Grand Trunk Pacific Railway impacted several historic village sites, including important sites along Kitsumkaylum and Zimagord reserves, as well as Casey Point, Barrett Rock, and Dzagaedil's Village on the coast (Kitsumkalum First Nation 2023).

Table 14.4–1 – Kitsumkalum First Nation Reserves

Number	Name	Location	Size (ha)	Valued Component Assessment Areas Overlapping Reserve Lands	Distance to Project Footprint (km)	Distance to OWAA (km)	Distance to MSR (km)
07647	DALK-KA-GILA-QUOEUX 2	COAST DISTRICT RANGE 5, ON THE RIGHT BANK OF THE KITSUMKALUM RIVER, 6 MILES NORTHWEST OF TERRACE	114.10	Community Health and Wellness RAA; Employment and Economy RAA; Infrastructure and Services RAA	107.11	138.5	93.3
07646	KITSUMKAYLUM 1	COAST DISTRICT RANGE 5, ON RIGHT BANK OF THE SKEENA RIVER AT MOUTH OF THE KITSUMKALUM RIVER 3 MILES WEST OF TERRACE	449.90	Community Health and Wellness RAA; Employment and Economy RAA; Infrastructure and Services RAA	109.38	137.6	95.8

Number	Name	Location	Size (ha)	Valued Component Assessment Areas Overlapping Reserve Lands	Distance to Project Footprint (km)	Distance to OWAA (km)	Distance to MSR (km)
07649	PORT ESSINGTON	COAST DISTRICT, RANGE 5, PORT ESSINGTON TOWNSITE, ON LEFT BANK OF THE SKEENA RIVER, AT MOUTH OF THE ECSTALL RIVER	2	N/A	96.22	49.4	26.5
07648	ZIMAGO RD 3	COAST DISTRICT, RANGE 5, ON RIGHT BANK OF THE SKEENA RIVER, AT REMCO C.N. STATION	31	Community Health and Wellness RAA; Employment and Economy RAA; Infrastructure and Services RAA	109.30	134	96.1

14.4.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation governance. Changes to Kitsumkalum First Nation governance could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.4.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation governance. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Air Quality (Section 7.02)
- Acoustic (Section 7.03)
- Wildlife and Wildlife Habitat (Section 7.07)
- Marine Resources (Section 7.09)
- Employment and Economy (Section 7.10)
- Marine Use (Section 7.11)
- Human Health (Section 7.14)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation governance.

14.4.4 PROJECT RESIDUAL EFFECT

As described in Section 14.2.4, residual effects are anticipated on Kitsumkalum First Nation marine harvest and consumption during all phases due to alteration of the harvesting experience through change in air quality and increased sound levels and change in the abundance and distribution of harvested species in the vicinity of the Project footprint and within the applicable VC LAAs, the OWAA and MSR (inclusive of timing considerations due to the seasonal movements of migratory species).

As described in Section 14.3.4, residual effects on Kitsumkalum First Nation terrestrial harvest and consumption are anticipated along terrestrial areas (harvesting sites) adjacent the MSR and OWAA that are accessed by Kitsumkalum First Nation due to potential changes in overall quality of experience (increased noise level and change in air quality associated with marine shipping activities). Kitsumkalum First Nation governance may therefore be affected through a related change in the status and position of hereditary leaders and change in the production of foods from discrete house territories overlapped by applicable VC LAAs, the MSR, the OWAA and in the vicinity of the Project footprint.

As described in Section 14.2.4, a measurable change in Kitsumkalum First Nation marine access and ability to make decisions regarding vessel traffic in the OWAA and the MSR is predicted to occur due to the increase in LNG carrier transits occurring each year during the operation phase (30 years). However, as the Project is expected to comply with existing marine use plans and participate in federal initiatives and requirements (e.g., development and implementation of recommendations from a Navigational Safety Assessment), it is not expected to create a change or disruption that widely reduces or restricts Kitsumkalum First Nation present marine access and use activities to a point where they cannot continue at current activity levels (Section 7.11). The increase in marine shipping activities within the applicable VC LAAs, the OWAA and the MSR may however result in changes in Kitsumkalum First Nation ability to uphold the Nation's management principles in these areas.

Residual effects are also anticipated on regional business and regional economy during all Project phases (construction, operation, and decommissioning) within the Employment and Economy LAA (Section 7.10). Adverse effects on regional business stem from increased competition for labour and upward pressure on wages due to Project-related wages being greater than existing conditions and due to the potential for Project employment to be deemed more desirable than other forms of employment in the Employment and Economy LAA (Section 7.10). Upward pressure on wages can lead businesses to increase the price of consumer goods (consumables) to cover increased operating expenses contributing to an increased cost of living (change in regional economy). Real estate speculation and increased demand for housing from in-migrating workers to the Employment and Economy LAA (primarily during the operation phase of the Project) are anticipated to contribute to increased housing costs (Section 7.10).

With the implementation of mitigation measures outlined in Table 14.2–1 and Appendix A, residual effects on Kitsumkalum First Nation interests related to governance during all Project phases are anticipated to

be moderate in magnitude within the applicable VC LAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal movements of migratory species and seasonal activities at sacred places and heritage sites and potential seasonal recreational activities of the Project workforce (e.g., fly fishing, trail use). Residual effects are short-term during the construction and decommissioning phases and will occur as multiple irregular events. Residual effects are long-term (lasting for longer than one generation [25 years]) during the operation phase and will occur as multiple regular events. Residual effects are considered reversible during all Project phases; effects associated with marine shipping cease once the FLNG barges and LNG carriers and tugboats pass through the applicable VC LAAs, the MSR and OWAA, noise levels will return to current conditions once noise-generating activities cease, and employment and labour income impacts cease upon Project completion. The risk of a residual effect on Kitsumkalum First Nation governance is moderate (moderate consequence, high likelihood) during all Project phases, with moderate uncertainty due to unknown external variables.

14.5 Changes to Kitsumkalum First Nation Social and economic Conditions

This section provides the assessment of potential Project effects on Kitsumkalum First Nation social and economic conditions.

14.5.1 BACKGROUND AND EXISTING CONDITIONS

Kitsumkalum First Nation has reported that community engagement is essential across each phase of a Project's development and that proponents should adhere to culturally appropriate engagement processes and information-sharing measures that include stakeholder collaboration and development of partnerships with impacted communities (Kitsumkalum First Nation 2022a).

14.5.1.1 Housing, Education and Employment Services

Kitsumkalum First Nation has a Housing and Property Maintenance Department and Housing Committee to provide infrastructure, new homes and rental accommodation to support the needs of Kitsumkalum First Nation residents (Kitsumkalum First Nation 2020). The Housing Department manages social housing and band-owned rentals, offering opportunities for residents to own their rental units over time, as well as financial assistance to fund the purchase of a new home, and for repairs for homeowners and renters, to meet the requirements under Indigenous and Northern Affairs Canada, and the Canadian Mortgage and Housing Corporation (Kitsumkalum First Nation 2020). A recent (2019/2020) Social and economic and Housing Study commissioned by Kitsumkalum First Nation identified that on-reserve socioeconomic indicators were consistently lower than off-reserve socioeconomic indicators, particularly in relation to housing and employment opportunities (Kitsumkalum First Nation 2022b). Additionally, Kitsumkalum First Nation stated that on-reserve housing was limited (Kitsumkalum First Nation 2023). The Kitsumkalum Education Department provides quality educational programs and services, including registration and academic advising to Kitsumkalum members to help them obtain their educational goals (Kitsumkalum First Nation 2020). Programs offered through the Kitsumkalum Education Department, such as the Post Secondary Education Program, helps support Kitsumkalum community members financially if they wish to attend college or University.

The 'Na Aksa Gyilak' Yoo school is supported by Kitsumkalum Band Council, is located within Kitsumkalum (Reserve No. 1), and offers unique, holistic approaches to education from kindergarten through to grade 12 and is available to any students from neighbouring communities or cultural background (Cedar 2022). The safe, nurturing environment provided at 'Na Aksa Gyilak' Yoo are intended to help foster student growth and potential (Kitsumkalum First Nation 2020).

Kitsumkalum Band Council has two main departments to help serve Kitsumkalum members with opportunities to access employment and training, the Kitsumkalum Social Development Department and the Kitsumkalum Employment and Training Services Department. The Kitsumkalum Social Development Department focuses mainly on reducing the poverty experienced by Kitsumkalum members living on reserves and has developed a variety of programs and services for dependent and eligible residents, such as family violence prevention, adult in-home care, National Child Benefit reinvestment services, and community services (Cedar 2022). The Kitsumkalum Employment and Training Services Department focuses mainly on assisting Kitsumkalum members with training, such as resumes, counselling, and funding for necessary licenses or certificates, and support sourcing opportunities for employment. Training is available for youths and adults through afterschool programs, and tutoring (Cedar 2022; Kitsumkalum First Nation 2020).

Kitsumkalum First Nation is concerned about the impacts of rapid industrial expansion on band membership (Kitsumkalum First Nation 2022b). The recent (2019/2020) Social and economic and Housing Study commissioned by Kitsumkalum First Nation identified several social and economic and well-being issues faced by Kitsumkalum First Nation members, including barriers to affordable housing, particularly for younger generations, high rates of unemployment, inequitable pay, barriers to achieving employment and educational goals, including racism, and continuing economic disadvantages faced by those community members living on-reserve (Kitsumkalum First Nation 2022b). When compared to the results of a similar study commissioned by Kitsumkalum First Nation in 2016, Kitsumkalum First Nation unemployment rates appear to have declined over time, although the 2020 low-income ratio remains high (Kitsumkalum First Nation 2022b).

Kitsumkalum-owned businesses are one of the main providers of employment and job training for Kitsumkalum First Nation members (Kitsumkalum First Nation 2022b). These businesses have experienced rising costs and supply shortages throughout the COVID-19 pandemic and will continue to do so for the foreseeable future (Kitsumkalum First Nation 2022b).

Kitsumkalum First Nation members reported that they are disproportionately unable to access long-term career opportunities, despite the relatively high number of available positions in the region (Kitsumkalum First Nation 2022b). Kitsumkalum First Nation Employment and Training Coordinator emphasized that Kitsumkalum members need access to 'careers' (long-term, well-paid, satisfactory employment), not 'jobs' (short-term, poorly paid, unsatisfactory employment) (Kitsumkalum First Nation 2022b). Kitsumkalum First Nation Employment and Training Coordinator reported that many Kitsumkalum members face barriers to meaningful career opportunities due to a "mismatch" between their skillsets/education and labour market demands (Kitsumkalum First Nation 2022b).

Kitsumkalum First Nation seek to determine if a Project is likely to provide career opportunities to Kitsumkalum members, and note the potential for such employment to adversely impact the existing careers of Kitsumkalum commercial fishers (Kitsumkalum First Nation 2022b).

Kitsumkalum First Nation has developed the Kitsumkalum Land Code which supports the Nation's economy and employment rate. The Land Code creates favourable conditions for local businesses and identifies opportunities to partner with companies, industries, and municipalities. Kitsumkaylum IR 1 is the primary residential and commercial hub for Kitsumkalum First Nation, including the House of Sim-oi-Ghets gift shop, Kalum Ventures Ltd. which manages Kitsumkalum's forestry activities, the Kitsumkalum Health Centre, the Kitsumkalum Band Office, and the 'Na Aksa Gyilak'yoo School, which teaches children from kindergarten to Grade 12 (Kitsumkalum First Nation 2023). Kitsumkalum First Nation also operates several businesses, including Kalum Rock Quarry and Logistics Park, and Kitsumkalum Tempo Gas Bar and RV Park (Cedar 2022).

Kitsumkalum First Nation reported 22 Commercial Values associated with marine use activities within the LSA (MSR), which primarily included salmon and halibut commercial fishing areas in addition to trapping and other commercial uses (Kitsumkalum First Nation 2023). Kitsumkalum First Nation stated that the "commercial fisheries [including those within the Portland Canal, Portland Inlet, and surrounding area] are vital to the livelihoods of Kitsumkalum fishers and to the food security of the community…[and that members]… provide hundreds of pounds of free bycatch to community members every year, with a particular focus on supporting vulnerable and off-reserve Kitsumkalum First Nation members who may be otherwise unable to access marine foods" (Kitsumkalum First Nation 2023:71). Kitsumkalum First Nation indicated in their ILMU study that the fact that almost the entire LSA (MSR) is covered by Commercial Values is indicative of how integral the area is to their livelihoods and community food security (Kitsumkalum First Nation 2023).

Through Project engagement, Kitsumkalum First Nation has stated that the Nation has developed an economic development team comprised of a Board representing stakeholders, with a member for every hereditary house. Kitsumkalum First Nation has recently completed the construction of a new school and is in the process of designating reserve land in Terrace for future economic endeavours.

14.5.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation social and economic conditions. Changes to Kitsumkalum First Nation social and economic conditions could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.5.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation social and economic conditions. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Employment and Economy (Section 7.10)
- Infrastructure and Services (Section 7.12)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation social and economic conditions.

14.5.4 PROJECT RESIDUAL EFFECT

As described in Section 14.4.4, residual effects are anticipated on regional business and regional economy during all Project phases (construction, operation, and decommissioning) within the Employment and Economy LAA.

Adverse residual effects are also anticipated on utilities and waste management, emergency services, housing availability, and transportation infrastructure within the Infrastructure and Services LAA (Section 7.12), and Kitsumkalum First Nation may experience an alteration of access to regional infrastructure and services (e.g., health centers, shopping centers) and associated travel routes (marine and terrestrial), including those that they rely upon in Prince Rupert and Terrace. However, with the application of mitigation and enhancement measures, including the use of the self-contained floatel and other permanent on-Site accommodations to house the Project workforce during construction and operation, and the implementation of Project-specific management plans, such as those for waste and traffic, residual effects are not predicted to result in an exceedance of available capacity, or a decrease in the quality of a service provided, on a persistent and ongoing basis (Section 7.12).

With the implementation of mitigation measures outlined in Table 14.2–1 and Appendix A, residual effects on Kitsumkalum First Nation interests related to social and economic conditions during all Project phases are anticipated to be moderate in magnitude within the applicable VC LAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal movements of migratory species, seasonal activities at sacred places and heritage sites, and the potential seasonal recreational activities of the Project workforce (e.g., fly fishing, trail use). Residual effects are short-term during the construction and decommissioning phases and will occur as multiple irregular events. Residual effects are long-term (lasting for longer than one generation [25 years]) during the operation phase and will occur as multiple regular events. Residual effects are considered reversible during all Project phases; effects associated with marine shipping cease once the FLNG barges and LNG carriers and tugboats pass through the applicable VC LAAs, the MSR and OWAA, noise levels will return to current conditions once noise-generating activities cease, and employment and labour income impacts cease upon Project completion. The risk of a residual effect on Kitsumkalum First Nation social and economic conditions is

moderate (moderate consequence, high likelihood) during all Project phases, with moderate uncertainty due to unknown external variables.

14.6 Changes to Kitsumkalum First Nation Sacred Places and Heritage Sites

This section provides the assessment of potential Project effects on Kitsumkalum First Nation sacred places and heritage sites.

14.6.1 BACKGROUND AND EXISTING CONDITIONS

Kitsumkalum First Nation considers sacred and culturally important sites and landscape features as gathering places, burial places, ceremonial areas, story places, medicinal and sacred plant gathering sites, teaching areas, and other sites within their *laxyuup* that are associated with spiritual values. Kitsumkalum First Nation has reported that changes in marine vessel traffic along the coast may result in impacts to the use and integrity of Kitsumkalum cultural and sacred sites along the coast or access through marine and coastal travel routes (Cedar 2022; Vopak 2021). Kitsumkalum First Nation reported that several historic village sites, including important coastal sites such as Barrett Rock and Casey Point, were destroyed by the Grand Trunk Pacific Railway (Kitsumkalum First Nation 2023). Development at Casey Point is an example of impacted heritage sites, in which canoe runs were filled, middens were deposited into culverts due to erosion, and ancestral remains were disturbed and exposed (Cedar 2022). Kitsumkalum First Nation also reported the forced relocation of ancestral peoples residing at a former village site that was "obliterated" as a result of the construction of the Grand Trunk Pacific Railway (Kitsumkalum First Nation 2023: 47).

Kitsumkalum First Nation members are stewards of their *laxyuup*, and Tsimshian way of life. Kitsumkalum members access heritage sites, spiritual sites, oral history, and laws to encourage self-determination, and to govern, and enrich Kitsumkalum members utilizing access to the waters and lands of their traditional territory. Impacts to Kitsumkalum First Nation's ability to access *laxyuup,* sacred and culturally important heritage sites can limit and possibly prevent the exercise cultural rights, affected by land appropriation and industrial development; consequently, without access to these important sites, the transmission of knowledge and maintenance of historical and contemporary lifeways are prevented (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation reported two ILMU values within the LSA (MSR), an orientation point and a traditional marine boundary which delineates the resource use areas between different Indigenous communities (Kitsumkalum First Nation 2023). Two traditional place names also were reported by Kitsumkalum First Nation, Łgw'a'ots (Pearse Island), which means wild carrots, and Ts'msadaax (Wales Island), and both are outside of the LSA (MSR) (Kitsumkalum First Nation 2023). Additionally, 12 Habitation Values associated with past and present habitation activities were identified in the LSA (MSR), including village sites, homes, anchorages, and campsites (Kitsumkalum First Nation 2023).

14.6.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation sacred places and heritage sites. Changes to Kitsumkalum First Nation sacred places and heritage sites could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.6.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation sacred places and heritage sites. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Air Quality (Section 7.02)
- Acoustic (Section 7.03)
- Marine Use (Section 7.11)
- Human Health (Section 7.14)
- Archaeological and Heritage Resources (Section 7.15)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation sacred places and heritage sites.

14.6.4 PROJECT RESIDUAL EFFECT

As described in Section 14.2.4, changes in air quality and noise are predicted at the applicable VC LAAs, the Project footprint and along the MSR and OWAA during all Project phases and may alter the quality of experience at sacred places and heritage sites.

As described in Section 14.2.4, a measurable change in Kitsumkalum First Nation marine access, and therefore Kitsumkalum First Nation ability to access sacred places and heritage sites, is expected within the Marine Use LAA, along the MSR and the OWAA, and in the vicinity of the Project footprint, due to the increase in LNG carrier transits occurring during the operation phase (30 years). However, as the Project is expected to comply with existing marine use plans and participate in federal initiatives and requirements (e.g., development and implementation of recommendations from a Navigational Safety Assessment), it is not expected to create a change or disruption that widely reduces or restricts Kitsumkalum First Nation ability to access sacred places and heritage sites to a point where they cannot continue at current activity levels.

As described in Section 7.15, 12 archaeological sites and 18 historic Culturally Modified Tree sites are located within the Archaeological and Heritage Resources LAA (Nisga'a Category A lands). After implementation of mitigation measures identified in Section 7.15 and engagement with Nisga'a Nation

and other affected Indigenous groups, no adverse residual effects on Archaeological and Heritage Resources are anticipated within the VC LAA. As described in Section 7.11, wave heights generated by transiting LNG carriers and escort tugs are anticipated to be within the range of natural wave conditions. Therefore, wake waves are not expected to have adverse effects on sacred places and heritage sites within marine, intertidal, or shoreline areas and are therefore not carried forward in the assessment.

Kitsumkalum First Nation may, however, encounter reduced quality of experience and increased avoidance at sacred places and heritage sites within applicable VC LAAs, and adjacent the MSR, the OWAA, and in the vicinity of the Project footprint due to real or perceived sensory disturbances associated with the increase in LNG carriers and associated change in air quality and noise levels (primarily during the operation phase). If Kitsumkalum First Nation experience qualitative disconnect from their sacred places and heritage sites, they may also experience loss or alteration of the ability to share knowledge and history with current and future generations.

With the implementation of mitigation measures outlined in Table 14.2–1 and Appendix A, residual effects on Kitsumkalum First Nation interests related to sacred places and heritage sites during all Project phases are anticipated to be moderate in magnitude within the applicable VC LAAs, the MSR, the OWAA, and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of sacred places and heritage sites. Residual effects are short-term during the construction and decommissioning phases and will occur as multiple irregular events. Residual effects are long-term (lasting for longer than one generation [25 years]) during the operation phase and will occur as multiple regular events. Residual effects are considered reversible during all Project phases as effects associated with marine shipping cease once the vessels pass through the applicable VC LAAs, the MSR and OWAA. During all Project phases, the risk of a residual effect on Kitsumkalum First Nation sacred places and heritage is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. However, Project activities will occur within an established shipping route where access to sacred places and heritage sites will be able to safely continue in a manner that is generally consistent with existing conditions and direct impacts to Kitsumkalum First Nation sacred places and heritage sites are not anticipated.

14.7 Changes to Kitsumkalum First Nation Health and Well-being

This section provides the assessment of potential Project effects on Kitsumkalum First Nation health, well-being and safety.

14.7.1 BACKGROUND AND EXISTING CONDITIONS

Health, well-being and safety can be influenced by several contributing factors that can affect quality of life, including housing, employment, education, income, and community cohesion (discussed in Section 14.4.1; Section 14.5.1, Section 7.13), as well as crime rates, access to health care, and overall conditions of human health, which can include various sensory components such as light, noise, and quality of air (odours).

Kitsumkalum's Health Director provides support to Kitsumkalum's health staff, meets with stakeholders and external agencies, and works with industry and government to understand development-related impacts to the health and well-being of Kitsumkalum's membership (Kitsumkalum First Nation 2022b). Healthcare programs offered at Kitsumkalum are funded by the First Nations Health Authority, apart from long-term care services, which are provided by Indigenous and Northern Affairs Canada (Cedar 2022; Kitsumkalum First Nation 2020). The Kitsumkalum Health Centre helps Kitsumkalum members to secure funding for healthcare services and care programs and provides public transportation for community members to attend medical appointments. Kitsumkalum members can also access flu clinics, and community events (online) through the Health Centre (Cedar 2022; Kitsumkalum First Nation 2020). Kitsumkalum First Nation previously expressed concern about the influx of temporary workers increasing the demand on community healthcare services and increased wait times (Vopak 2021), and these concerns remain applicable to this Project as well (Kitsumkalum First Nation 2022b).

Kitsumkalum First Nation has previously expressed concern about the reduced enjoyment or avoidance of important areas due to development, undermining Kitsumkalum First Nation traditional governance and impacting the behaviour of members (Vopak 2021). Kitsumkalum First Nation also previously expressed concern that the perception of potential health or safety risks may cause members to decline participation in cultural events (Vopak 2021). Changes to the air quality may cause a decrease in the desire of Kitsumkalum members to harvest in their traditional territory. Kitsumkalum First Nation has also previously expressed concern about the perceived impact on health of eating contaminated country foods and the impact of changes in light levels within their traditional territory (Vopak 2021). All of these concerns remain applicable to this Project as well (Kitsumkalum First Nation 2022b).

Kitsumkalum First Nation has stated that changes to social determinants of health and community well-being could be the result of social effects from temporary workforces (Kitsumkalum First Nation 2022b). Kitsumkalum First Nation has expressed concern about the adverse effects on social cohesion due to employment on projects, reducing time for community volunteering and community events (Kitsumkalum First Nation 2022b). Additionally, Kitsumkalum First Nation has identified concerns regarding the adverse impact on mental health and personal well-being as well as diminished cultural identity and physical health due to the inability to practice cultural activities and diminishment in the quality of experience (Cedar 2022; Kitsumkalum First Nation 2022b; Vopak 2021).

Kitsumkalum First Nation reported that there is presently a shortage of physicians, particularly specialists, in the Terrace area, and that levels of access to health care can vary significantly (e.g., consistent access to a family doctor provides a different quality of health care than inconsistent access to a walk-in clinic or reliance on emergency care) (Kitsumkalum First Nation 2022b). Kitsumkalum First Nation reported an increase presence of transient populations during the "boom" times within their territory that has led to homelessness, drug use, and other issues, which impacts the safety of their community (Kitsumkalum First Nation 2022b).

Kitsumkalum First Nation has reported that there is limited local capacity to respond to emergency scenarios due to an overburdened system and an understaffed service. This limited capacity has impacted

the ability for prompt emergency response along Highway 113/Nisg̲a'a Highway. Increased industrial traffic along highways due to additional planned projects in the area will impact community safety (Kitsumkalum First Nation 2022a). Additionally, as noted in Section 14.3.1, Kitsumkalum First Nation also reported that Highway 113/Nisg̲a'a Highway is included in their assessment as increased traffic caused by the Project and related infrastructure will have direct impacts on Kitsumkalum First Nation's ILMU and rights, including impacts of increased emergencies on already over-taxed local emergency response services (Kitsumkalum First Nation 2023). Highway 113/Nisg̲a'a Highway is within the Employment and Economy LAA (Section 7.10).

Kitsumkalum First Nation has noted the need to expand cell service in the area and increase funding to emergency services to adequately improve infrastructure, specifically risks and impacts associated with Highway 113/Nisg̲a'a Highway and supporting roadways. Kitsumkalum First Nation recommends that a requirement be put in place for any proponents to engage in intense lobbying to the Government of BC to enhance current emergency services, including providing additional resources to improve access and availability of critical services when needed by both development projects and communities. Further, Kitsumkalum recommends that proponents support emergency preparedness by collaborating with local emergency services to provide necessary resources to help build local capacity (Kitsumkalum First Nation 2022a).

Kitsumkalum First Nation has recommended that proponents work towards the goal of preventing traffic accidents and minimizing injuries suffered by Project personnel and the public using measures (Kitsumkalum First Nation 2022a), such as:

- Emphasizing safety practices among drivers
- Improving driving skills and requiring licensing of drivers
- Adopting limits for trip duration and arranging driving rosters to avoid excessive fatigue
- Avoiding dangerous routes and times of day to minimize risk of accidents
- Use of speed control devices on larger Project vehicles and remote monitoring of driver actions; and
- Conducting regular maintenance of vehicles and manufacturer approved part to reduce potentially serious accidents caused by equipment malfunction

Kitsumkalum First Nation stated that the "commercial fisheries [including those within the Portland Canal, Portland Inlet, and surrounding area] are vital…to the food security of the community…[and that members]… provide hundreds of pounds of free bycatch to community members every year, with a particular focus on supporting vulnerable and off-reserve Kitsumkalum First Nation members who may be otherwise unable to access marine foods" (Kitsumkalum First Nation 2023:71). Kitsumkalum First Nation indicated in their ILMU study that the fact that almost the entire LSA (MSR) is covered by Commercial Values is indicative of how integral the area is to their livelihoods and community food security (Kitsumkalum First Nation 2023). Kitsumkalum First Nation reported that the Project would have significant effects to their food security, particularly vulnerable and off-reserve populations, and could impact the nutrition levels of members who rely on marine foods (Kitsumkalum First Nation 2023).

The Proponents understand that sites associated with resources and cultural values support the health and well-being of Kitsumkalum First Nation. For this assessment, community cohesion is defined as the social attachment and/or sense of belonging that Indigenous people may express within their unique communities (e.g., common identity, interpersonal and/or intergroup trust, norms of reciprocity, participation in community/cultural events, intergenerational solidarity and social networks of emotional, and social and spiritual support) (Northern Health 2018; Statistics Canada 2016).

14.7.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation health, well-being and safety. Changes to Kitsumkalum First Nation health and well-being could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.7.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation health and well-being. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Air Quality (Section 7.02)
- Acoustic (Section 7.03)
- Wildlife and Wildlife Habitat (Section 7.07)
- Marine Resources (Section 7.09)
- Marine Use (Section 7.11)
- Infrastructure and Services (Section 7.12)
- Community Health and Well-being (Section 7.13)
- Human Health (Section 7.14)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation health and well-being.

14.7.4 PROJECT RESIDUAL EFFECT

As described in Sections 14.2.4, 14.3.4, and 14.4.4, residual effects are anticipated on Kitsumkalum First Nation marine and terrestrial harvest and consumption during all phases due to alteration of the harvesting experience through increased sound levels and changes in air quality associated with marine shipping activities. Change in the abundance and distribution of harvested species in the vicinity of the Project footprint and within the OWAA and MSR (inclusive of timing considerations

due to the seasonal movements of migratory species) are also anticipated. Change in the abundance and distribution of harvested species in applicable VC LAAs, in the vicinity of the Project footprint, the OWAA and MSR (inclusive of timing considerations due to the seasonal movements of migratory species) are also anticipated. Changes in harvest and consumption are connected to food security and connection to place and are therefore connected to Kitsumkalum First Nation overall health and well-being.

A measurable change in Kitsumkalum First Nation marine access is also expected along the Marine Use LAA, the MSR, the OWAA, and in the vicinity of the Project footprint, due to the increase in LNG carrier transits occurring during the operation phase. If Kitsumkalum First Nation experience qualitative disconnect from their sacred places and heritage sites adjacent the OWAA, MSR, the Project footprint and applicable VC LAAs, they may also experience loss or alteration of the ability to share knowledge and history with current and future generations. However, as the Project is expected to comply with existing marine use plans and participate in federal initiatives and requirements (e.g., development and implementation of recommendations from a Navigational Safety Assessment), it is not expected to create a change or disruption that widely reduces or restricts Kitsumkalum First Nation marine access to a point where they cannot continue at current activity levels.

As described in Section 14.6.4, residual effects on Kitsumkalum First Nation interests related to sacred places and heritage sites are also anticipated during all Project phases within the MSR, the OWAA, and in the vicinity of the Project footprint due to change in quality of experience. However, Project activities will occur within an established shipping route where access to sacred places and heritage sites will be able to safely continue in a manner that is generally consistent with existing conditions and direct impacts to Kitsumkalum First Nation sacred places and heritage sites are not anticipated.

Social and economic conditions, and health and well-being can be influenced by several contributing factors that can affect quality of life, including housing, employment, education, income, and community cohesion (discussed in Section 7.13), as well as crime rates, access to health care, and overall conditions of human health, which can include various sensory components such as light, noise, and quality of air (odours).

As described in Section 14.5.4, adverse residual effects are anticipated on utilities and waste management, emergency services, housing availability, and transportation infrastructure within the Infrastructure and Services LAA (Section 7.12), and Kitsumkalum First Nation may experience an alteration of access to regional infrastructure and services (e.g., health centers, shopping centers) and associated travel routes (marine and terrestrial), including those that they rely upon in Prince Rupert and Terrace. However, with the application of mitigation and enhancement measures, including the use of the self-contained floatel and other permanent on-Site accommodations to house the Project workforce during construction and operation, and the implementation of Project-specific management plans, such as those for waste and traffic, residual effects are not predicted to result in an exceedance of available capacity, or a decrease in the quality of a service provided, on a persistent and ongoing basis (Section 7.12).

Adverse residual effects on change in community health, community wellness, food security, and health and medical infrastructure and services are predicted to occur in the Community Health and Wellness LAA due to Project-related population growth, change in demographics, employment opportunities and potential income advancement, and potential Project workforce risk behaviours (Section 7.13). Residual effects in the Community Health and Wellness LAA represent outside stressors that may result in a change in Kitsumkalum First Nation sense of safety and overall health and well-being, and expression of community cohesion. However, as described in Section 7.13, the Proponents will provide its workforce with access to on-Site primary care and personnel programs. These services may provide health and medical services to workers without regular access in their home communities or whose home communities do not have adequate service capacity, including Indigenous communities in the Community Health and Wellness LAA.

With the implementation of mitigation measures outlined in Section 7.13, Table 14.2–1 and Appendix A, residual effects on Kitsumkalum First Nation interests related to health and well-being during all Project phases are anticipated to be moderate in magnitude within the applicable VC LAAs, the MSR, the OWAA, and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of sacred places and heritage sites, the seasonal movements of migratory species, and potential seasonal recreational activities of the Project workforce (e.g., fly fishing, trail use). Residual effects are short-term during the construction and decommissioning phases and long-term during the operation phase, lasting for longer than one generation (25 years). Residual effects will occur as multiple irregular events during the construction and decommissioning phases and multiple regular events during the operation phase. Residual effects are considered reversible during all Project phases. Effects associated with marine shipping cease once the vessels pass through the applicable VC LAAs, the MSR and OWAA, noise levels and air quality will return to current conditions once Project activities cease, and Project workforce recreational activities and use of local infrastructure and services cease once the Project is decommissioned. The risk of a residual effect on Kitsumkalum First Nation community health and well-being is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables.

14.8 Changes to Kitsumkalum First Nation Transmission of Knowledge

This section provides the assessment of potential Project effects on Kitsumkalum First Nation cultural identity.

14.8.1 BACKGROUND AND EXISTING CONDITIONS

Kitsumkalum First Nation reported that policies such as the *Indian Act* as well as residential schools (particularly the Port Essington Day School), has led to land and resource dispossession, the loss of intergenerational knowledge, and aspects of Kitsumkalum culture and lifeways (Kitsumkalum First Nation 2023). Kitsumkalum First Nation has emphasized that the ability to engage in cultural transmission is implied through the sharing of traditional knowledge, oral history, and narratives. These elements connect members to the lands and waters of the territory and, though impacted by colonial policies, land-based learning and continued transmission has persisted (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation has the Wap Sigatgyet Aboriginal Education service which offers Sm'algyax language classes from grades 5 through 12 in Prince Rupert and Port Edward, as well as a part of the all-day kindergarten program in Prince Rupert (Cedar 2022). Kitsumkalum First Nation's Language Revitalization Program seeks to increase the amount of Sm'algyax language speakers. The program has online resources to support Nation members who are increasing their knowledge and fluency of Sm'algyax (Cedar 2022). The 'Na Aksa Gilak'yoo School in Kitsumkalum village offers holistic education programs for students with a goal of creating an environment that encourages students' academic, cultural and personal potential (Cedar 2022).

Kitsumkalum First Nation's *laxyuup* (traditional territory) enables community members to connect with their families and maintain social ties, as well as teaching children how to behave, exchange cultural knowledge and oral histories about their ancestors which is connected to their *laxyuup*. Important sites, both culturally and sacred, as well as landscape features are used as teaching areas (Cedar 2022). The ability to continue teaching and sharing traditions, participation in harvesting activities, and the use of language is important to Kitsumkalum First Nation and closely related to social and community networks (Kitsumkalum First Nation 2022b, 2023; Vopak 2021). Kitsumkalum First Nation has indicated that its hereditary government system that follow *ayaawx* (laws of traditional Tsimishian governance) is necessary to Tsimshian culture and society (Cedar 2022). Named places, habitation sites, archaeological sites, and other important cultural sites are important aspects of Kitsumkalum First Nation's connection to the land and are intrinsically linked to individual and cultural identity and the community's relationship with the land and water (Kitsumkalum First Nation 2022b, 2023; Vopak 2021).

Over time, industrial and colonial development within and near Kitsumkaleum *laxyuup,* such as the Grand Trunk Pacific Railway, the *Indian Act*, and residential schools, have had adverse impacts on Kitsumkalum transference of knowledge, which has disrupted Kitsumkalum ways of life (Kitsumkalum First Nation 2023). Kitsumkalum First Nation indicated that their seasonal movement patterns between the Kitsumkalum and Zimacord Valleys, and marine harvesting and winter village sites on the coast, were disrupted by colonial legislation, impacting resource management practices and resulting in a loss of knowledge and disruption and erosion of matrilineal social order (Kitsumkalum First Nation 2023). The resurgence and revitalization of the *Sm'algyax*, and opportunities to teach and share knowledge related to seasonal rounds is important to Kitsumkalum First Nation members, who are committed to reinstating traditional forms of governance to maintain and pass important knowledge and information onto future generations (Kitsumkalum First Nation 2023). Kitsumkalum First Nation reported that reduced access to important sites such as harvesting sites, named places, and safe travel routes could undermine the ability of their members to teach and share their culture and pass knowledge from one generation to the next (Kitsumkalum First Nation 2023).

14.8.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation transmission of knowledge. Changes to Kitsumkalum First Nation transmission of knowledge could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.8.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation transmission of knowledge. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Air Quality (Section 7.02)
- Acoustic (Section 7.03)
- Wildlife and Wildlife Habitat (Section 7.07)
- Marine Resources (Section 7.09)
- Marine Use (Section 7.11)
- Infrastructure and Services (Section 7.12)
- Human Health (Section 7.14)
- Archaeological and Heritage Resources (Section 7.15)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation transmission of knowledge.

14.8.4 PROJECT RESIDUAL EFFECT

As described in Sections 14.2.4 to 14.5.6 residual effects are anticipated on Kitsumkalum First Nation marine and terrestrial harvest and consumption and sacred places and heritage sites during all Project phases due to alteration of the quality of experience and change in sense of place through increased sound levels and changes in air quality associated with marine shipping activities. Change in the abundance and distribution of harvested species in applicable VC LAAs, and in the vicinity of the Project footprint, the OWAA and MSR (inclusive of timing considerations due to the seasonal movements of migratory species) are also anticipated; this may result in a reduction of house status due to loss or alteration of harvested resources within discrete house territories that overlap these areas. A measurable change in Kitsumkalum First Nation marine access is also expected along Marine Use LAA, the MSR, the OWAA, and in the vicinity of the Project footprint, due to the increase in LNG carrier transits occurring during the operation phase. However, as the Project is expected to comply with existing marine use plans and participate in federal initiatives and requirements (e.g., development and implementation of recommendations from a Navigational Safety Assessment), it is not expected to create a change or disruption that widely reduces or restricts Kitsumkalum First Nation marine access to a point where they cannot continue at current activity levels. These changes may nevertheless result in an alteration of Kitsumkalum First Nation cultural practices and opportunities for cultural transference in these areas of

their traditional territory. If Kitsumkalum First Nation experience qualitative disconnect from their harvesting sites and sacred places and heritage sites, they may also experience a reduction or alteration of cultural practices tied to identity and loss or alteration of the ability to transmit knowledge and history to current and future generations.

With the implementation of mitigation measures outlined in Table 14.2–1 and Appendix A, residual effects on Kitsumkalum First Nation interests related to transmission of knowledge during all Project phases are anticipated to be moderate in magnitude within the applicable VC LAAs, the MSR, the OWAA, and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of sacred places and heritage sites and the seasonal movements of migratory species. Residual effects are short-term during the construction and decommissioning phases and will occur as multiple irregular events. Residual effects are long-term (lasting for longer than one generation [25 years]) during the operation phase and will occur as multiple regular events. Residual effects are considered reversible during all Project phases. Effects associated with marine shipping cease once the vessels pass through the applicable VC LAAs, the MSR and OWAA, and noise levels and air quality will return to current conditions once Project activities cease. The risk of a residual effect on Kitsumkalum First Nation transmission of knowledge is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables.

14.9 Changes to Kitsumkalum First Nation Access and Travel

This section provides the assessment of potential Project effects on Kitsumkalum First Nation access and travel.

14.9.1 BACKGROUND AND EXISTING CONDITIONS

Kitsumkalum First Nation relies on important trails and travel routes to access cultural sites, resources, and resource harvesting areas within their *laxyuup*. The *laxyuup* is an economic source for Nation members and has helped Kitsumkalum First Nation generate industries within *laxyuup* for economic well-being. Kitsumkalum First Nation members historically relied on access and travel routes to travel long distances throughout the territory, and surrounding watersheds including the Kitsumkalum and Zymachord watersheds, from the Skeena River to Prince Rupert, up to the Portland Inlet, and down to Chathan Sound. Travel routes present a historical tie to the land, and outer coastal regions. This relationship was evident in Tsimshian history and is referenced in oral histories (*adawx*) and in narratives of ancestors traveling to other communities in the province and learning Indigenous and non-Indigenous languages following contact (Kitsumkalum First Nation 2020). Access and travel routes have also perpetuated Kitsumkalum seasonal rounds, providing strategic movement through their *laxyuup* to access seasonal fishing and hunting sites, harvesting sites, cultural and ceremonial sites, and trading sites (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation maintains ongoing connection the waters, and lands within their *laxyuup*, however, this relationship is dependent on their ability to use and access these waters and lands (Kitsumkalum First Nation 2023). Over time, industrial development within and surrounding Kitsumkalum First Nation *laxyuup* has alienated community members from many important sites within

their *laxyuup*. For example, the Grand Trunk Pacific Railway, originally established at Casey point in the early 1900's forced the relocation of Kitsumkalum villages, created impacts to heritage sites, and prevented Kitsumkalum members from accessing several harvesting areas (Kitsumkalum First Nation 2023). Provisions under the *Indian Act* and the creation of residential schools perpetuated the oppression of Indigenous people, which attempted to disrupt Kitsumkalum lifeways, including colonial legislation intended to separate Kitsumkalum people from their lands, and cultural practices (e.g., potlatch ban) (Kitsumkalum First Nation 2023). For example, the implementation of the *Forest Act* made it illegal for Kitsumkalum members to harvest bark and other resources (sap and timber) without the Crown's permission, and prevented the use of controlled fires for the management of ecosystem health (Kitsumkalum First Nation 2023).

Important marine harvesting areas accessed via travel routes include Casey Point, *Spa Xkuutks, Lax Spa Suunt*, *Kwel'Mass*, the Kistumkalum watershed, as well as several places along the Skeena River. Areas identified as key harvesting areas that may be affected by marine vessel traffic includes the waters of Chatham Sound, which includes the outer coastal waters between Dundas Island and the Tsimpsean Peninsula and transportation routes in and around Pearse Island and the MSR (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation has identified that changes to employment and economy within Kitsumkalum traditional territory can create challenges for Kitsumkalum members to practice seasonal rounds and maintain important travel routes within Kitsumkalum *laxyuup.* Increases to regional populations, increased travelling and recreational use adding strain to Kitsumkalum resources. Other projects within the Kitsumkalum traditional territory have also negatively affected Kitsumkalum land and waters and created changes to air and water quality surrounding development (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation reported that the three most common reasons for travelling on the highways are for recreational purposes, participation in cultural activities such as harvesting, hunting, and fishing, and to visit family and friends. Highways 113, 37, and 16 are major roadways that Kitsumkalum First Nation members travel to reach areas such as Kitimat, New Aiyansh, Gingolx, and the Yukon (Kitsumkalum First Nation 2022a). As noted in Section 14.3.1, Kitsumkalum First Nation also reported that Highway 113/Nisg̲a'a Highway is included in their assessment as increased traffic caused by the Project and related infrastructure (i.e., the transmission line through the Nass Valley) will have direct impacts on Kitsumkalum First Nation's ILMU and rights, including impacts of increased safety concerns, increased noise/disturbance, and increased non-Indigenous access to the Kitsumkalum Valley (Kitsumkalum First Nation 2023). Kitsumkalum First Nation reported their dependence on access from Highway 113/Nisg̲a'a Highway to ILMU values within the Kitsumkalum Valley (Kitsumkalum First Nation 2023). Highway 113/Nisg̲a'a Highway is within the Employment and Economy LAA and Wildlife RAA (Section 7.10 and Section 7.07).

Kitsumkalum residents have noted that the infrastructure quality of Highway 113/Nisg̲a'a Highway is poor due to the lack of shoulder, rumble strips, potholes, poor lighting, and lack of passing lanes and a number reported that the highway was considered dangerous to drive. In particular, the lack of road signage is a

health and safety concern. Kitsumkalum First Nation expressed that highway sections from Kitsumkalum village to New Alyansh were unsafe to travel. There is also concern that increased Project vehicle traffic will cause continued decline in the state of roadways. The number of incidents or natural disasters such as wildfire, and subsequent closures of roadways are considered a major concern as the community has limited roadways that provide access to service centers (Kitsumkalum First Nation 2022a).

Kitsumkalum First Nation has noted the importance of the addition of alternative routes to ensure community members in need have access to critical or emergency infrastructure. Kitsumkalum First Nation has recommended that the Cranberry Connector be upgraded, road signage increased, improved lighting and road reflectors are installed, road markings are enhanced, guardrails are installed, and road erosion is addressed. These are seen as particularly important improvements as industrial traffic continues increase on the highways (Kitsumkalum First Nation 2022a).

Kitsumkalum First Nation has expressed support for the development of a robust traffic management plan to maintain traffic safety in communities impacted by Project activities and to avoid risks and impacts related to increased traffic patterns, particularly during the construction phase of the Project. Kitsumkalum First Nation considers a detailed risk assessment for all proponents utilizing Highway 113/Nisga'a Highway and its supporting roadways as important and has recommended that regulators make it a requirement for all projects underway or planned in the area (Kitsumkalum First Nation 2022a).

14.9.2 PROJECT PATHWAYS

All phases of the Project (construction, operation, decommissioning) have the potential to affect Kitsumkalum First Nation access and travel. Changes to Kitsumkalum First Nation access and travel could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.9.3 MITIGATION AND ENHANCEMENT MEASURES

Mitigation measures were selected based on the considerations described in Section 14.1.8 and are intended to be implemented in combination with Project design considerations and measures to mitigate and enhance potential effects of the Project on environmental resources and conditions that support Kitsumkalum First Nation access and travel. A complete listing of measures can be found in Appendix A and additional details can be found in the following VC sections:

- Marine Use (Section 7.11)
- Infrastructure and Services (Section 7.12)

Table 14.2–1 provides the additional mitigation and enhancement measures to avoid or reduce impacts to Kitsumkalum First Nation access and travel.

14.9.4 PROJECT RESIDUAL EFFECT

As described in Section 14.2.4, sensory disturbances (changes in air quality and noise levels) are predicted in the vicinity of the Project footprint and within the OWAA and MSR during all Project phases which may result in an alteration to Kitsumkalum First Nation use of preferred harvesting locations, sacred places and heritage sites and access routes.

A measurable change in Kitsumkalum First Nation marine access and travel is also expected in the Marine Use LAA, and in the vicinity of the Project footprint, and the OWAA and MSR due to the increase in LNG carrier transits during the operation phase. However, as the Project is expected to comply with existing marine use plans and participate in federal initiatives and requirements (e.g., development and implementation of recommendations from a Navigational Safety Assessment), it is not expected to create a change or disruption that widely reduces or restricts Kitsumkalum First Nation ability to access and travel to a point where they cannot continue at current activity levels.

As described in section 14.6.4, adverse residual effects are anticipated on transportation infrastructure within the Infrastructure and Services LAA (Section 7.12), and Kitsumkalum First Nation may experience an alteration of access to terrestrial travel routes, including those that they rely upon in Prince Rupert and Terrace. However, with the application of mitigation and enhancement measures, including the implementation of Project-specific management plans, such as those for traffic, residual effects are not predicted to result in an exceedance of available capacity, or a decrease in the quality of a service provided, on a persistent and ongoing basis for Kitsumkalum First Nation (Section 7.12).

With the implementation of mitigation measures outlined in Table 14.2–1 and Appendix A, residual effects on Kitsumkalum First Nation interests related to access and travel during all Project phases are anticipated to be moderate in magnitude within the applicable VC LAAs, the MSR, the OWAA, and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of sacred places and heritage sites and the seasonal movements of migratory species. Residual effects are short-term during the construction and decommissioning phases and will occur as multiple irregular events. Residual effects are long-term (lasting for longer than one generation [25 years]) during the operation phase and will occur as multiple regular events. Residual effects are considered reversible during all Project phases. Effects associated with marine shipping cease once the vessels pass through the applicable VC LAAs, the MSR and OWAA, and noise levels and air quality will return to current conditions once Project activities cease. The risk of a residual effect on Kitsumkalum First Nation access and travel is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables.

14.10 Summary of Adverse Residual Effects

Table 14.10–1 summarizes Project residual effects on Kitsumkalum First Nation Indigenous interests. The assessment of disproportionately distributed residual effects on Kitsumkalum First Nation interests is provided following the table.

Table 14.10–1 – Project Residual Effects on Kitsumkalum First Nation Indigenous Interests

Project Phase	Mitigation and Enhancement Measures	Residual Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Changes to Kitsumkalum First Nation marine harvest and consumption										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Operation		M	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M
Decommissioning		M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Changes to Kitsumkalum First Nation terrestrial harvest and consumption										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	L	PF; OWAA; LAAs; MSR	A	ST	R	S	DD	M	M
Operation		L	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M
Decommissioning		L	PF; OWAA; LAAs; MSR	A	ST	R	S	DD	M	M

Table 14.10–1 – Project Residual Effects on Kitsumkalum First Nation Indigenous Interests

Project Phase	Mitigation and Enhancement Measures	Residual Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Changes to Kitsumkalum First Nation governance										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Operation		M	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M
Decommissioning		M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Changes to Kitsumkalum First Nation social and economic conditions										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Operation		M	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M
Decommissioning		M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M

Table 14.10–1 – Project Residual Effects on Kitsumkalum First Nation Indigenous Interests

Project Phase	Mitigation and Enhancement Measures	Residual Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Changes to Kitsumkalum First Nation sacred places and heritage sites										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Operation		M	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M
Decommissioning		M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Changes to Kitsumkalum First Nation health and well-being										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Operation		M	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M
Decommissioning		M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Changes to Kitsumkalum First Nation transmission of knowledge										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Operation		M	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M

Table 14.10–1 – Project Residual Effects on Kitsumkalum First Nation Indigenous Interests

Project Phase	Mitigation and Enhancement Measures	Residual Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Decommissioning		M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Changes to Kitsumkalum First Nation access and travel										
Construction	Mitigation IN-1; Applicable mitigations in Appendix A	M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M
Operation		M	PF; OWAA; LAAs; MSR	A	LT	R	MR	DD	M	M
Decommissioning		M	PF; OWAA; LAAs; MSR	A	ST	R	MIR	DD	M	M

KEY

See Table 14.1–4 for detailed definitions

Magnitude:
NMC: No Measurable Change
L: Low
M: Moderate
H: High

Geographic Extent:
PF: Project Footprint
LAAs: Local Assessment Area
MSR: marine shipping route
OWAA: Open Water Assessment Area
BR: Beyond Regional

Timing:
N/A: Not Applicable
A: Applicable

Duration:
ST: Short-term
MT: Medium-term
LT: Long-term

Reversibility:
R: Reversible
PR: Partially reversible
I: Irreversible

Frequency:
S: Single event
MIR: Multiple irregular event MR: Multiple regular event
C: Continuous

Affected Sub-Populations:
E: Evenly distributed
DD: Disproportionally distributed

Risk (Likelihood and Consequences)
L: Low
M: Moderate
H: High

Uncertainty:
L: Low
M: Moderate
H: High

14.10.1 DISPROPORTIONATELY DISTRIBUTED RESIDUAL EFFECTS ON KITSUMKALUM FIRST NATION SUBGROUPS

Based on the predicted residual effects, the Project may disproportionately affect Kitsumkalum First Nation subgroups in the following ways:

- reduced quality of the marine and terrestrial harvesting experience, as well as access to fishing or shoreline harvesting sites, which may disproportionately affect Kitsumkalum First Nation members who rely more heavily on these environments and their resources for FSC purposes and or to provide for Elders, hereditary leaders, and others in the community, as well as for feasting or other culturally important events, and for other purposes (e.g., spiritual, trade)
- reduced decision-making and reduced access to areas where social and economic activities occur (e.g., commercial fishing), which may disproportionately affect Kitsumkalum First Nation members who rely more heavily on these environments and their resources for income or FSC purposes and for other purposes (e.g., cultural, economic, spiritual, trade)
- reduced access and quality of experience at sacred places and heritage sites, which may disproportionately affect Kitsumkalum First Nation members who rely more heavily on these places for knowledge transmission, sharing cultural teachings and history, and spirituality
- reduced access and travel, which may disproportionately affect Kitsumkalum First Nation members who rely more heavily on established travel and access routes for safe navigation (e.g., seasonal considerations), or to access marine and terrestrial harvesting sites and sacred places and heritage sites, or for the maintenance of trade relationships, or for income or FSC purposes and for other purposes (e.g., spiritual, trade)

If Kitsumkalum First Nation decision-making is reduced, or if access and travel routes are altered, or the quality of experience at marine harvesting sites, sacred places and cultural sites is altered, or if the quality and quantity of resources available is diminished, the culture, identity, mental health and physical health, and well-being of Kitsumkalum First Nation sub-groups may be impacted.

Adverse effects on Kitsumkalum First Nation may also be disproportionately distributed across the Employment and Economy LAA. Employers within Nisga'a Lands and communities outside larger population centres in the Employment and Economy LAA, such as Gitaus IR 1 and Kulspai IR 6, are expected to experience more pronounced effects of labour scarcity and resultant wage inflation. As such, these communities are also expected to experience more pronounced effects of regional consumer good price inflation. Effects of real estate speculation and increased demand for housing from in-migrating workers (and in some cases families) on housing costs is expected to be more pronounced in communities closest the Project, including for members of Kitsumkalum First Nation residing off-reserve. Within these communities, Kitsumkalum First Nation individuals and families that fall within low-income brackets are most likely to experience economic hardship associated with regional changes in the cost-of-living.

Residual effects within the Community Health and Wellness LAA may be disproportionately experienced by Kitsumkalum First Nation subgroups (e.g., Kitsumkalum women requiring specific health services, low-income families requiring housing) that already experience challenges in accessing infrastructure and

services and housing in larger centers in Terrace and Prince Rupert. These subgroups may be more adversely affected than other groups by the increased competition for such services resulting from a Project-related temporary increase in the population. With the use of mitigation and enhancement measures described throughout the Application, including the development and implementation of a feedback process to hear concerns from residents of the Infrastructure and Services LAA and members of vulnerable groups, the Proponents aim to reduce the differential effects on Kitsumkalum First Nation sub-groups.

As described in Section 7.13, statistics at the provincial and national levels indicate that Indigenous Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Intersex, and Asexual Plus (2SLGBTQQIA+) communities are disproportionally affected by gender-based violence and intimate partner violence. For example, 82% of 2SLGBTQQIA+ First Nations, Métis, and Inuit people in Canada have been sexually or physically assaulted by the age of 15 compared to 41% of non-2SLGBTQQIA+ non-Indigenous people (Perreault 2022). Members of Kitsumkalum First Nation who identify as 2SLGBTQQIA+ may be disproportionately susceptible to sexual or physical assault. As a primary means to avoid Project effects in communities, Project personnel during construction and operation will be housed at the Site, limiting the effects of transient workers. For those successful in procuring employment, they may be more prone to workplace violence and harassment. To address workplace harassment and violence, the Proponents will develop and implement a policy that speaks to discrimination, bullying and harassment in the workplace with relevant training. The Proponents will also provide cultural awareness trainings. The Proponents will develop and implement disease and infection management measures as part of its Health Management Services Plan. As a result of the disease and infection management measures, subpopulations who are disproportionately affected by communicable diseases, such as Indigenous 2SLGBTQQIA+ populations, will potentially be protected.

With the use of mitigation and enhancement measures described throughout the Application, including the development and implementation of a feedback process to hear concerns from residents and members of vulnerable groups, the Proponents aim to reduce the differential effects on Kitsumkalum First Nation sub-groups.

14.10.2 SUMMARY OF POTENTIAL ADVERSE RESIDUAL EFFECTS IDENTIFIED FOR THE TLAA

As the transmission line is proposed to be located within Kitsumkalum First Nation traditional territory, potential adverse residual effects on Kitsumkalum First Nation interests are anticipated. As described in Section 14.3.1, Kitsumkalum First Nation indicated that the construction and / or operation of the transmission line will have direct impacts on Kitsumkalum First Nation's ILMU and Rights (Kitsumkalum First Nation 2023). Potential direct impacts to ILMU and Rights identified by Kitsumkalum First Nation include changes to commercial fishing, food security, way of life, ability to transmit knowledge and livelihoods to their children, and their ability to safely, and consistently, access resources (Kitsumkalum First Nation 2023). Members of Kitsumkalum First Nation interviewed for the ILMUS "emphasised that any underwater infrastructure [i.e., the sub-sea cable for the transmission line] would directly interfere with their long line halibut fishing by preventing them from setting lines or

dropping anchors" in the immediate area (Kitsumkalum First Nation 2023:75-76). Kitsumkalum First Nation further identified that "easy access for non-Indigenous hunters/recreationists to areas that are currently remote will increase pressure on local resources, require additional monitoring for illegal activities such as dumping/littering, and impact Kitsumkalum members' sense of place and enjoyment of the Valley" (Kitsumkalum First Nation 2023:72).

This assessment conservatively assumes that construction and/or operation of the transmission line may result in the same or similar potential effects on Kitsumkalum First Nation interests as those identified in Section 14.1.4. Potential pathways for changes to Kitsumkalum First Nation interests are therefore the same as those identified in Table 14.1–2. Some examples include loss or alteration of access to preferred harvesting areas and / or sacred places and heritage sites if present within the TLAA, alteration of necessary conditions, change in the quality and quantity (real or perceived) of culturally important species and country foods, alteration of management principles and ability to make decisions regarding land and marine use, and alteration of community practices tied to identity, community cohesion, and cultural transference opportunities in the territory.

As a third-party will ultimately design, implement, and operate the transmission line, the Proponents are not able to commit to mitigation measures specific to the transmission line in relation to adverse residual effects on Kitsumkalum First Nation interests. Legal processes during future permit applications (e.g., a *Fisheries Act* Authorization [Section 7.10] and provincial permitting) are in place to formally commit specific mitigation measures to the transmission line, as applicable, and are expected to be tailored to suit environmental concerns associated with the route selected and equipment to be used based on the final design.

Environmental assessments conducted for the Vancouver Island Transmission Reinforcement, Sea Breeze Juan de Fuca Cable, Northwest Transmission Line (NTL), and Interior-Lower Mainland Transmission Line projects, considered similar types of potential interactions and mitigation measures and it was determined that the adverse residual effects arising from these projects could be adequately managed. In each of the above-mentioned projects, the BC EAO determined in their assessment report that there would be no significant adverse residual effects associated with construction and operation of these transmission lines.

14.11 Summary of Positive Residual Effects

As described in Section 7.11, the addition of aids to navigation near the Site will have a positive effect on marine navigation. The installation of aids to navigation will not only mark dangers and obstructions related to the Project but assist marine users in determining their position and course, warn marine users of other dangers or obstructions, and advise marine users of the location of the best or preferred route (Section 7.09).

Positive effects are anticipated within Nisga'a villages, Terrace and Prince Rupert (i.e., Infrastructure and Services LAA and the community health and wellness LAA) through regional gains in employment and income, business and improvements to municipal services, housing, utilities, and transportation

infrastructure. As described in Section 14.4.1.2, most Kitsumkalum First Nation members reside off-reserve, largely in cities in BC, including Terrace, Prince Rupert and Port Edward. Although members of Kitsumkalum First Nation reside in towns located within the Infrastructure and Services LAA and the Community Health and Wellness LAA, direct positive effects Kitsumkalum First Nation interests are anticipated to be limited.

Increased employment opportunities in the Employment and Economy LAA may have positive effects on Kitsumkalum First Nation unemployment rates, increase income levels for Kitsumkalum First Nation individuals (and families) who secure employment with the Project and will provide valuable employment experience that can be leveraged by workers to secure employment with other projects/employers following completion of Project-related work. The Project may also serve to diversify the economic base of the Employment and Economy LAA increasing the economic resiliency of the region.

Given existing labour force characteristics it is likely that a larger percentage of non-Indigenous men will be employed on the Project than other subpopulations. Mitigation and enhancement measures described in Table 14.2–1, Section 7.10, and Appendix A, will be implemented to increase participation among underrepresented groups on the Project, however, given the estimated size of the Project's workforce, measurable changes in employment equity across the Employment and Economy LAA are not expected.

Although the social and economic assessment areas overlap with Kitsumkalum First Nation reserve lands and broader traditional territory, direct positive effects on Kitsumkalum First Nation interests will be limited when compared to existing conditions. The Proponents are committed to working directly with Kitsumkalum First Nation to identify opportunities for Kitsumkalum First Nation to realize potential benefits from the Project that can be used to both offset potential adverse effects and create positive effects for the Nation.

14.12 Cumulative Effects Assessment

This section provides the assessment of potential cumulative effects on Kitsumkalum First Nation interests.

14.12.1 PROJECT RESIDUAL EFFECTS LIKELY TO INTERACT CUMULATIVELY WITH KITSUMKALUM FIRST NATION INTERESTS

The Project residual effects identified in Sections 14.2 to 14.9 likely to act cumulatively with those projects and physical activities found in Table 6.9-1, Section 6.9.1 (Project and Physical Activities Inclusion List) are listed in Table 14.12–1. Where residual effects from the Project act cumulatively with residual effects from other projects and physical activities, a cumulative effects assessment is carried out. Effects identified in Table 14.12–1 as not likely to interact cumulatively with residual effects of other projects and physical activities (no check mark) are not discussed further. The assessment of the cumulative effects that are likely to result from the Project in combination with other projects and physical activities are discussed in subsequent sections.

Since not all reasonably foreseeable projects and physical activities may proceed, the cumulative effects assessment should be considered conservative.

Table 14.12–1 – Interactions with the Potential to Contribute to Cumulative Effects on Kitsumkalum First Nation Interests

Other Projects and Physical Activities with Potential for Cumulative Effects	Kitsumkalum First Nation Interests							
	Changes to marine harvest and consumption	Changes to terrestrial harvest and consumption	Changes to governance	Changes to social and economic conditions	Changes to sacred places and heritage sites	Changes to health and well-being	Changes to transmission of knowledge	Changes to access and travel
Past and Present Projects and Physical Activities								
Port of Prince Rupert	✓	✓	✓	✓	✓	✓	✓	✓
LNG Canada Export Terminal	✓	✓	✓	✓	✓	✓	✓	✓
Prince Rupert Airports	-	-	✓	✓	-	✓	✓	✓
Northwest Regional Airport Terrace-Kitimat (YXT)	-	-	✓	✓	-	✓	✓	✓
Swamp Point – Sand and Gravel	✓	✓	✓	✓	✓	✓	✓	✓
Stewart Bulk Terminals	✓	✓	✓	✓	✓	✓	✓	✓
Stewart World Port	✓	✓	✓	✓	✓	✓	✓	✓
Port of Hyder, Alaska	✓	✓	✓	✓	✓	✓	✓	✓
Kitsault Mine	✓	✓	✓	✓	✓	✓	✓	✓
Tru Grit Abrasives	✓	✓	✓	✓	✓	✓	✓	✓
All West Trading	✓	✓	✓	✓	✓	✓	✓	✓
Various forestry activities	-	✓	✓	✓	✓	✓	✓	✓
Various fishing and aquaculture activities	✓	-	✓	✓	✓	✓	✓	✓
Marine shipping activities	✓	✓	✓	✓	✓	✓	✓	✓
Coastal GasLink	✓	✓	✓	✓	✓	✓	✓	✓
Reasonably Foreseeable Future Projects and Physical Activities								
Third-party powerline	✓	✓	✓	✓	✓	✓	✓	✓
Port of Prince Rupert	✓	✓	✓	✓	✓	✓	✓	✓
Port Edward Small Scale LNG (Port Edward LNG)	✓	✓	✓	✓	✓	✓	✓	✓
Prince Rupert Gas Transmission Project (TransCanada Corp.)	✓	✓	✓	✓	✓	✓	✓	✓
Westcoast Connector Gas Transmission Project (Enbridge Inc.)	✓	✓	✓	✓	✓	✓	✓	✓
Kinskuch Lake Hydro (Wind River Power Corporation)	-	-	-	-	-	-	-	-
Cedar LNG	✓	✓	✓	✓	✓	✓	✓	✓

Table 14.12–1 – Interactions with the Potential to Contribute to Cumulative Effects on Kitsumkalum First Nation Interests

Other Projects and Physical Activities with Potential for Cumulative Effects	Kitsumkalum First Nation Interests							
	Changes to marine harvest and consumption	Changes to terrestrial harvest and consumption	Changes to governance	Changes to social and economic conditions	Changes to sacred places and heritage sites	Changes to health and well-being	Changes to transmission of knowledge	Changes to access and travel
Skeena LNG	✓	✓	✓	✓	✓	✓	✓	✓
Totem LNG	✓	✓	✓	✓	✓	✓	✓	✓
BC Hydro Transmission Line Upgrades	-	-	✓	✓	-	✓	-	✓

14.12.2 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION MARINE HARVEST AND CONSUMPTION

Kitsumkalum First Nation report "that the Nation's use and occupancy within Tsimshian Territory was profoundly impacted by the combined forces of reserve creation, the influx of non-Indigenous settlers to the abundant fisheries of the north-west coast, the construction of the Grand Trunk Pacific Railway, and by colonial land and resource management policies that eroded the rights of Indigenous peoples" (Kitsumkalum First Nation 2023:47). These and other changes experienced by Kitsumkalum First Nation are reported to have altered Kitsumkalum's seasonal practices, prompting many community members to move permanently or semi-permanently to the coast (Kitsumkalum First Nation 2023). Kitsumkalum First Nation reported that their practices of trade and seasonal harvesting at coastal village sites like Casey Point on Kaien Island were impacted by these developments, and that "this shift marked a new phase in Kitsumkalum's Seasonal Round that would last until the 1960s" (Kitsumkalum First Nation 2023:47).

Kitsumkalum First Nation stated that private and industrial development that has spread across their *laxyuup* has resulted in members becoming increasingly reliant on the few remaining areas that still provide relatively abundant resources (Kitsumkalum First Nation 2023). Kitsumkalum First Nation indicated that the loss of resources impacted the ability of Kitsumkalum First Nation members to practice activities that are integral to their culture and way of life (Kitsumkalum First Nation 2023). Kitsumkalum First Nation noted that the cumulative effects impacting their *laxyuup* and areas relied on for sustenance are rooted in colonial policies and areas are now subject to industrial logging, LNG development, road and pipeline rights-of-way, marine shipping routes, and private land ownership (Kitsumkalum First Nation 2023). The importance of ILMU practices, including marine harvesting, was emphasized by Kitsumkalum First Nation who noted that barrier to accessing resources has impacted the

way they are able to support their livelihoods and provide food security to members (Kitsumkalum First Nation 2023). Kitsumkalum First Nation noted that cumulative impacts to marine resources are interrelated to land based resources, as a loss of one results in members becoming more reliant on the other resource (Kitsumkalum First Nation 2023).

14.12.2.1 Cumulative Effect Pathways

As summarized in Table 14.12–1, past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic within the Project footprint, MSR and OWAA has altered the current regional marine areas, contributing to existing cumulative effects on Kitsumkalum First Nation marine harvest and consumption.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation marine harvest and consumption. Cumulative effects on Kitsumkalum First Nation marine harvest and consumption could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

The conclusions in this section are informed by the results of engagement with Kitsumkalum First Nation, the literature review, and related biophysical VC assessments presented in the Application.

14.12.2.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation marine harvest and consumption are described in Table 14.2–1 and Appendix A, and additional details can be found in the following VC sections:

- Air Quality (Section 7.02)
- Acoustic (Section 7.03)
- Wildlife and Wildlife Habitat (Section 7.07)
- Marine Resources (Section 7.09)
- Marine Use (Section 7.11)
- Human Health (Section 7.14)

Mitigation measures include legislation, best practices, and guidelines applicable to limiting cumulative effects within the region, such as:

- Federal legislation related to marine shipping and navigation (e.g., *Canada Shipping Act*, 2001, *Canadian Navigable Waters Act*)
- Project-specific management plans developed in accordance with federal and provincial legislation, regulations, and best practices

The Proponents have identified their willingness to collaborate in the following initiatives or programs regarding cumulative effects in the region:

- Develop and implement, subject to navigation safety, speed profiles for marine shipping to prevent or reduce the risk of collision between LNG carriers and marine vessels and mammals, fishers and other marine users (Section 7.09
- Programs planned and developed by government and in conjunction with other proponents, stakeholders, and Indigenous nations regarding regional management of potential cumulative effects of underwater noise on marine mammals in the MSR (e.g., Transport Canada Cumulative Effects of Marine Shipping [CEMS] initiative; Section 7.09)
- Government-led initiatives with respect to cumulative effects on marine navigation, marine fisheries, and other uses in the MSR (Section 7.11; e.g., the ESI with respect to cumulative effects on marine and terrestrial ecosystems within Kitsumkalum First Nation traditional territory [Government of British Columbia 2018a] [Figure 14.4.1.1])

It is expected that proponents of future projects that require regulatory approval will develop mitigation measures like those proposed for this Project. The Proponents are committed to working with Kitsumkalum First Nation to explore opportunities to further mitigate adverse effects to Kitsumkalum First Nation marine harvest and consumption and enhance Project benefits. The Proponents are committed to working directly with Kitsumkalum First Nation to identify opportunities for Kitsumkalum First Nation to realize potential benefits from the Project that can be used to both offset potential adverse effects and create positive effects for the Nation.

14.12.2.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation marine harvest and consumption. The general presence of vessels and increased number of vessels on the water within the MSR, the OWAA, and in the vicinity of the Project footprint, may result in reduced access, interference, community concerns, and safety constraints on the water, which may affect Kitsumkalum First Nation's marine harvest and consumption activities.

As described in Sections 7.02, 7.03, and 7.14, residual cumulative effects are anticipated on air quality but not on noise levels within the applicable VC RAAs, the MSR, the OWAA, and at the Project footprint. Residual effects on air quality are predicted to be close to the LNG carriers within the OWAA and MSR, and at the Project facility, however, the change to air quality is predicted to be low to moderate magnitude (within normal variability or within regulatory criteria) within the Air Quality RAA (Sections 7.02 and 7.14). There are no contributing cumulative effects on noise from past projects and physical activities as any noise effects will have ceased after the activities are complete (Section 7.03). Present or reasonably foreseeable projects and physical activities that are located along the applicable VC RAAs, the OWAA, the MSR, and at the Project footprint are not expected to interact cumulatively with noise levels, as noise from shipping activities is expected to attenuate to levels well below the background level within 3 km of

their source and there are no other noise sources within this area (3 km) to interact with (Sections 7.03 and 7.14).

As described in Section 7.07, residual cumulative effects on marine bird habitat, movement, and mortality risk are predicted within the Wildlife and Wildlife Habitat Marine Terminal RAA, the OWAA, and the MSR. The primary contributors to cumulative effects on marine bird movement within the Wildlife and Wildlife Habitat RAA, the MSR and OWAA are marine traffic associated with export facilities, other industrial projects, and passenger transport. The primary contributors to future cumulative effects on marine bird mortality risk within the Wildlife and Wildlife Habitat RAA, the MSR and OWAA are infrastructure within the assessment areas (e.g., Port of Prince Rupert) and marine traffic associated with export facilities, other industrial Projects, and passenger transport. Overall, the Project is not expected to affect the long-term sustainability of regional marine bird populations.

As described in Section 7.09, residual cumulative effects on marine resources are predicted within the Marine Resources RAA, the OWAA and the MSR due to increased marine vessel traffic and associated underwater noise related behavioural changes in marine mammals and fish as well as increased risk of marine mammal vessel strikes. Residual cumulative effects on marine resources are also predicted at the Project footprint due to marine construction and operation activities and associated change in water quality, habitat, behaviour (e.g., sensory disturbance from pile installation, infilling), and increased injury or mortality risk (e.g., fish crushing or burial).

As described in Section 7.11, residual cumulative effects on marine access are predicted within the Marine Use RAA, the MSR, the OWAA and in the vicinity of the Project footprint as the Project will contribute approximately 148 to 172 additional large vessels to the present and reasonably foreseeable future marine traffic. The Project will contribute up to 160 LNGCs, or approximately 5.9% to the total present and future large marine vessel traffic predicted for the region if all present and future projects and physical activities are built and proceed to operation.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation marine harvest and consumption is expected to be moderate in magnitude within the applicable VC RAAs, the OWAA, the MSR and at the Project footprint, inclusive of timing considerations due to the seasonal movements of migratory species. Residual cumulative effects are long-term, lasting for longer than one generation (25 years), and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and associated effects. However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation members who have already experienced alienation and dispossession from harvesting areas within the applicable VC RAAs, the OWAA, MSR, and in the vicinity of the Project footprint, as these experiences are likely to increase in the future rather than decrease and require regional initiatives and programs to be addressed. The risk of a residual cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. The Proponents have identified their willingness to collaborate in government-led initiatives

with respect to cumulative effects on marine navigation and marine fisheries which may assist with reducing further perceptions of barriers and alienation.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation marine harvest and consumption. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information regarding the assessment of cumulative effects on Kitsumkalum First Nation marine harvest and consumption.

14.12.3 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION TERRESTRIAL HARVEST AND CONSUMPTION

The quality and quantity of harvested goods have been cumulatively impacted due to industrial developments within Kitsumkalum First Nation's seasonal round has been disrupted, particularly by the Grand Trunk Pacific Railway, built between 1908 and 1914, which resulted in the relocation of Kitsumkalum communities, and which impacted harvesting sites (Cedar 2022). Industrial developments have had lasting impacts on ground pollution, changes in air quality, as well as changes to vegetation (Cedar 2022).

Kitsumkalum First Nation stated that private and industrial development that has spread across their *laxyuup* has resulted in members becoming increasingly reliant on the few remaining areas that still provide relatively abundant resources (Kitsumkalum First Nation 2023). Kitsumkalum First Nation indicated that the loss of resources impacted the ability of Kitsumkalum First Nation members to practice activities that are integral to their culture and way of life (Kitsumkalum First Nation 2023). Kitsumkalum First Nation noted that the cumulative effects impacting their *laxyuup* and areas relied on for sustenance are rooted in colonial policies and areas are now subject to industrial logging, LNG development, road and pipeline rights-of-way, and private land ownership (Kitsumkalum First Nation 2023). The importance of ILMU practices, including terrestrial harvesting, was emphasized by Kitsumkalum First Nation who noted that barrier to accessing resources has impacted the way they are able to support their livelihoods and provide food security to members (Kitsumkalum First Nation 2023). Kitsumkalum First Nation noted that cumulative impacts to marine resources are interrelated to land based resources, as a loss of one results in members becoming more reliant on the other resource (Kitsumkalum First Nation 2023).

14.12.3.1 Cumulative Effect Pathways

As summarized in Table 14.12–1, past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic in the vicinity of the Project footprint, the MSR and OWAA has altered the current regional marine and adjacent terrestrial lands, contributing to existing cumulative effects on Kitsumkalum First Nation terrestrial harvest and consumption.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation terrestrial harvest and consumption. Cumulative effects on Kitsumkalum First Nation terrestrial harvest and consumption could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

14.12.3.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation terrestrial harvest and consumption are described Section 14.12.2.2, as well as in Table 14.2–1, and Appendix A.

14.12.3.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation terrestrial harvest and consumption. The general presence of vessels and increased number of vessels on the water within the applicable VC RAAs, the MSR, the OWAA, and in the vicinity of the Project footprint, may result in reduced access, interference, community concerns, changes to preferred conditions, and safety constraints on the water, which may affect Kitsumkalum First Nation's terrestrial harvest and consumption activities.

As described in Section 14.12.2.3, residual cumulative effects are anticipated for air quality within the Air Quality RAA, the OWAA, the MSR, and at the Project footprint due to increased marine vessel traffic.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation terrestrial harvest and consumption is expected to be moderate in magnitude within the applicable VC RAAs, the MSR, the OWAA, and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal movements of migratory species. Residual cumulative effects are long-term, lasting for longer than one generation (25 years), and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and associated effects. However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation members who have already experienced alienation and dispossession from terrestrial harvesting areas within the applicable VC RAAs, the OWAA, the MSR, and in the vicinity of the Project footprint, as these experiences are likely to increase in the future rather than decrease and require regional initiatives and programs to be addressed. The risk of a residual cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation terrestrial harvest and consumption. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information regarding the assessment of cumulative effects on Kitsumkalum First Nation terrestrial harvest and consumption.

14.12.4 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION GOVERNANCE

Kitsumkalum First Nation indicated that multiple development projects have cumulatively impacted Indigenous governance systems (Vopak 2021).

Kitsumkalum First Nation stated that their traditional territory is subject to industrial activity and development resulting in incompatible forms of land and resource use, which have "undermined Kitsumkalum's lifeways, including cultural knowledge transmission; language; traditional networks; economic, social, and political institutions; and stewardship practices" (Kitsumkalum First Nation 2023:96). Kitsumkalum First Nation also indicated that industrial activity, development, and privatization has continued within their traditional territory without Kitsumkalum's free, prior, and informed consent, and often in direct opposition to their wishes (Kitsumkalum First Nation 2023).

14.12.4.1 Cumulative Effect Pathways

As summarized in Table 14.12–1, past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic within the Project footprint, MSR and OWAA has altered the current regional marine areas, contributing to existing cumulative effects on Kitsumkalum First Nation governance.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation governance. Cumulative effects on Kitsumkalum First Nation governance could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

14.12.4.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation governance are described Section 14.12.2.2, as well as in Table 14.2–1 and Appendix A.

14.12.4.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation governance. The general presence of vessels and increased number of vessels on the water within the applicable VC RAAs, the OWAA, the MSR, and in the vicinity of the Project footprint may result in reduced decision-making, interference, community concerns, and safety constraints on the water, which may affect Kitsumkalum First Nation mental and physical health, consumption of marine and terrestrial resources, quality of fishing, hunting, and cultural sites, trade and traditional journey routes, the transmission of cultural knowledge, the strengthening of family ties, and tourism, all of which are connected to Kitsumkalum First Nation governance.

As described in Section 14.12.2.3, residual cumulative effects are anticipated on air quality, marine birds, marine resources, and marine access within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint due to increased marine vessel traffic. Kitsumkalum First Nation governance may therefore be affected through a related change in the status and position of hereditary leaders and change in the production of foods from discrete house territories overlapped by the applicable VC RAAs, the OWAA, the MSR, and in the vicinity of the Project footprint.

As described in Section 7.10, residual cumulative effects are anticipated on regional business and economy in the Employment and Economy RAA. Project spending will combine with expenditures made by current and reasonably foreseeable projects and activities to create contracting and business opportunities within the Employment and Economy RAA. If multiple projects are built concurrently, demand and competition for labour may be exacerbated and increase the probability of labour shortages and localized wage inflation within Employment and Economy RAA communities. Over the longer term, the cumulative effects case may result in a larger and more diversified economic base within the employment and economy RAA. Project expenditures on labour, goods, and services may also combine with those of current and reasonably foreseeable future projects and activities creating economic activity and cumulatively increasing demand for labour in the Employment and Economy RAA.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation governance is expected to be moderate in magnitude within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal movements of migratory species and seasonal activities at sacred places and heritage sites. Residual cumulative effects are long-term, lasting for longer than one generation (25 years), and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and economic developments which are reversible following each phase (construction, operation, decommissioning). However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation decision-making and commercial fishers who have already experienced alienation and dispossession from harvesting areas, and for Kitsumkalum First Nation members who have experienced alienation from sacred places and heritage sites within the applicable VC RAAs, the OWAA, the MSR and at the Project footprint, as these experiences are likely to increase in the future rather than decrease and require regional initiatives and programs to be addressed. The risk of a residual cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. The Proponents have identified their willingness to collaborate in government-led initiatives with respect to cumulative effects on marine navigation and marine fisheries as well as those on regional business and economy, which may assist with reducing further perceptions of barriers and alienation.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation governance. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information regarding the assessment of cumulative effects on Kitsumkalum First Nation governance.

14.12.5 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION SOCIAL AND ECONOMIC CONDITIONS

Kitsumkalum First Nation has expressed concern about cumulative impacts to human health, infrastructure and services, and employment and economy due to changes in land use, population, pollution, access, increased homelessness, and other social and economic impacts and stressors (Cedar 2022; Vopak 2021).

Kitsumkalum First Nation stated that private and industrial development that has spread across their *laxyuup* has resulted in members becoming increasingly reliant on the few remaining areas that still provide relatively abundant resources (Kitsumkalum First Nation 2023). Kitsumkalum First Nation indicated that the loss of resources impacted the ability of Kitsumkalum First Nation members to practice activities that are integral to their culture and way of life (Kitsumkalum First Nation 2023). Kitsumkalum First Nation's *laxyuup*, which was once carefully managed and sustainably harvested by the community, is now subject to industrial activity and development resulting in incompatible forms of land and resource use, which have "undermined Kitsumkalum's lifeways, including cultural knowledge transmission; language; traditional networks; economic, social, and political institutions; and stewardship practices" (Kitsumkalum First Nation 2023:96). Kitsumkalum First Nation also indicated that industrial activity, development, and privatization has continued within their traditional territory without Kitsumkalum's free, prior, and informed consent, and often in direct opposition to their wishes (Kitsumkalum First Nation 2023).

14.12.5.1 Cumulative Effect Pathways

As summarized in Table 14.12–1, past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic within the Project footprint, MSR and OWAA has altered the current regional marine areas, contributing to existing cumulative effects on Kitsumkalum First Nation social and economic conditions. Increased development in regional business in the Employment and Economy RAA and associated demand on infrastructure, services, accommodation and transportation in the Infrastructure and Services RAA has also contributed to existing cumulative effects on Kitsumkalum First Nation social and economic conditions.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation social and economic conditions. Cumulative effects on Kitsumkalum First Nation social and economic conditions could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

14.12.5.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation social and economic conditions are described Section 14.12.2.2, as well as in Table 14.2–1 and Appendix A.

14.12.5.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation social and economic conditions. The general presence of vessels and increased number of vessels on the water within the applicable VC RAAs, the OWAA, the MSR, and in the vicinity of the Project footprint may result in reduced decision-making, interference, community concerns, and safety constraints on the water, which may affect Kitsumkalum First Nation mental and physical health, consumption of marine and terrestrial resources, quality of fishing, hunting, and cultural sites, trade and traditional journey routes, the transmission of cultural knowledge, the strengthening of family ties, and tourism, all of which are connected to Kitsumkalum First Nation social and economic conditions.

As described in Section 14.12.2.3, residual cumulative effects are anticipated on air quality, marine birds, marine resources, and marine access within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint due to increased marine vessel traffic. Kitsumkalum First Nation social and economic conditions may be affected through a related change in the abundance and distribution of species harvested for commercial purposes (e.g., commercial herring fisheries), and potential disruptions to commercial fishing activities due to increased marine vessel traffic.

As described in Section 14.12.4.3, residual cumulative effects are anticipated on regional business and economy in the Employment and Economy RAA which may result in a change in Kitsumkalum First Nation employment and training opportunities for youth and the existing workforce.

As described in Section 7.10, residual cumulative effects are anticipated on regional business and economy in the Employment and Economy RAA. Project spending will combine with expenditures made by current and reasonably foreseeable projects and activities to create contracting and business opportunities within the Employment and Economy RAA. If multiple projects are built concurrently, demand and competition for labour may be exacerbated and increase the probability of labour shortages and localized wage inflation within Employment and Economy RAA communities. Over the longer term, the cumulative effects case may result in a larger and more diversified economic base within the Employment and Economy RAA. Project expenditures on labour, goods, and services may also combine with those of current and reasonably foreseeable future projects and activities creating economic activity and cumulatively increasing demand for labour in the Employment and Economy RAA.

As described in Section 7.11, residual cumulative effects on transportation infrastructure and infrastructure and services within the Infrastructure and Services RAA are not expected to result in an exceedance of available capacity, or a decrease in the quality of a service provided, on a persistent and ongoing basis, which cannot be mitigated with current or anticipated programs, policies, or mitigation measures.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation social and economic conditions is expected to be moderate in magnitude within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal movements of migratory species and seasonal activities at sacred places and heritage sites.

Residual cumulative effects are long-term, lasting for longer than one generation (25 years), and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and economic developments which are reversible following each phase (construction, operation, decommissioning). However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation decision-making and commercial fishers who have already experienced alienation and dispossession from harvesting areas, and for Kitsumkalum First Nation members who have experienced alienation from sacred places and heritage sites within the applicable VC RAAs, the OWAA, the MSR and at the Project footprint, as these experiences are likely to increase in the future rather than decrease and require regional initiatives and programs to be addressed. The risk of a residual cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. The Proponents have identified their willingness to collaborate in government-led initiatives with respect to cumulative effects on marine navigation and marine fisheries as well as those on regional business and economy, which may assist with reducing further perceptions of barriers and alienation.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation social and economic conditions. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information regarding the assessment of cumulative effects on Kitsumkalum First Nation social and economic conditions.

14.12.6 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION SACRED PLACES AND HERITAGE SITES

Kitsumkalum First Nation previously reported that their ability to undertake traditional activities, feel a sense of place, and interact with their history has decreased through regional land appropriation and industrial activity (Cedar 2022; Kitsumkalum First Nation 2023). Kitsumkalum First Nation indicated that multiple development projects have cumulatively impacted physical and cultural heritage (Kitsumkalum First Nation 2023). In addition, resource development projects and associated marine shipping have also cumulative decreased the access and use of spiritual and cultural sites, impacted social conditions, and affected visual quality, noise, and resources, which impacts the cultural identity of Kitsumkalum First Nation members (Kitsumkalum First Nation 2023).

Kitsumkalum First Nation stated that private and industrial development that has spread across their *laxyuup* has resulted in a loss of sense of place and opportunities for cultural transmission (Kitsumkalum First Nation 2023).

14.12.6.1 Cumulative Effect Pathways

As summarized in Table 14.12–1, past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also

anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic in the vicinity of the Project footprint, the MSR and OWAA has altered the current regional marine and adjacent terrestrial lands, contributing to existing cumulative effects on Kitsumkalum First Nation sacred places and heritage sites.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation sacred places and heritage sites. Cumulative effects on Kitsumkalum First Nation sacred places and heritage sites could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

14.12.6.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation sacred places and heritage sites are described Section 14.12.2.2, as well as in Table 14.2–1, and Appendix A.

14.12.6.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation sacred places and heritage sites. The general presence of vessels and increased number of vessels on the water in the applicable VC RAAS, the MSR, the OWAA, and in the vicinity of the Project footprint may result in interference, community concerns, and safety constraints on the water, which may affect communities' mental and physical health, the transmission of cultural knowledge, and Kitsumkalum First Nation ability to access, or maintain the current quality of experience, at Kitsumkalum First Nation's sacred places and heritage sites.

As described in Section 14.12.2.3, residual cumulative effects are anticipated on air quality and marine access in the vicinity of the Project footprint, the MSR, the OWAA, and applicable VC RAAs due to increased marine vessel traffic. If Kitsumkalum First Nation experience qualitative disconnect from their sacred places and heritage sites adjacent the Project footprint, the MSR, the OWAA and the applicable VC RAAs, they may also experience loss or alteration of the ability to share knowledge and history with current and future generations.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation sacred places and heritage sites is expected to be moderate in magnitude within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of sacred places and heritage sites. Residual cumulative effects are long-term, lasting for longer than one generation (25 years), and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and associated effects. However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation members who have already experienced alienation and dispossession from sacred places and heritages sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint as these experiences are likely to increase in the future rather than decrease and require regional initiatives and programs to be addressed. The risk of a residual

cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. The Proponents have identified their willingness to collaborate in government-led initiatives with respect to cumulative effects on marine navigation which may assist with reducing further perceptions of barriers and alienation for access to sacred places and heritage sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation sacred places and heritage sites. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information regarding the assessment of cumulative effects on Kitsumkalum First Nation sacred places and heritage sites.

14.12.7 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST HEALTH AND WELL-BEING

Kitsumkalum First Nation has expressed concern about cumulative impacts to human health, infrastructure and services, and employment and economy due to changes in land use, population, pollution, access, increased homelessness, and other social and economic impacts and stressors (Cedar 2022). Industrial developments have had lasting impacts on water pollution, ground pollution, changes in air quality, as well as changes to water quality, vegetation, and human health (Cedar 2022).

Kitsumkalum First Nation stated that private and industrial development that has spread across their *laxyuup* has resulted in a loss of sense of place and opportunities for cultural transmission for members, and impacted community food security (Kitsumkalum First Nation 2023).

14.12.7.1 Cumulative Effect Pathways

As summarized in Table 14.12–1 past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic in the vicinity of the Project footprint, the MSR and OWAA has altered the current regional marine environment, contributing to existing cumulative effects on Kitsumkalum First Nation health and well-being.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation health and well-being. Cumulative effects on Kitsumkalum First Nation health and well-being could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

14.12.7.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation health and well-being sites are described Section 14.12.2.2, as well as in Table 14.2–1, and Appendix A Residual Cumulative Effects

14.12.7.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation health and well-being. The general presence of vessels and increased number of vessels on the water in the vicinity of the Project footprint, the MSR and OWAA may result in interference, community concerns, and safety constraints on the water, which may affect communities' mental and physical health, the transmission of cultural knowledge, and Kitsumkalum First Nation ability to access, or maintain the current quality of experience, at Kitsumkalum First Nation's harvesting sites and sacred places and heritage sites all of which are connected to Kitsumkalum First Nation overall health and well-being.

As described in Section 14.12.2.3, residual cumulative effects are anticipated on air quality, marine birds, marine resources, and marine access within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint due to increased marine vessel traffic. These residual cumulative effects may result in changes in community health and Nation members' well-being due to changes to related interest (e.g., change in harvest and consumption, change in cultural identity).

As described in Section 7.13, adverse and positive residual cumulative effects are anticipated on community health, community wellness, food security, health and medical infrastructure and services, and expression of community cohesion in the Community Health and Wellness RAA. The Proponents will provide its workforce with access to on-Site primary care and personnel programs. These services may provide health and medical services to workers without regular access in their home communities or whose home communities do not have adequate service capacity, including Indigenous communities in the Community Health and Wellness RAA. These measures may have a positive effect on access to health and medical infrastructure and services for subpopulations employed by the Project. However, given the size of the Project's workforce relative to the size of the Community Health and Wellness RAA and the likelihood that some workers will be hired for the Project from outside the RAA, these measures are not expected to reduce existing inequalities in access to health and medical infrastructure and services between subpopulations in the Community Health and Wellness RAA.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation health and well-being is expected to be moderate in magnitude within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of harvesting sites, sacred places and heritage sites, and potential seasonal recreational activities of workers from various projects in the region (e.g., fly fishing, trail use). Residual cumulative effects are long-term, lasting for longer than one generation (25 years), and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and associated effects. However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation members who have already experienced alienation and dispossession from harvesting sites and sacred places and heritages sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint as these experiences are likely to increase in the future rather than decrease and require regional initiatives and

programs to be addressed. The risk of a residual cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. The Proponents have identified their willingness to collaborate in government-led initiatives with respect to cumulative effects on marine navigation which may assist with reducing further perceptions of barriers and alienation for access to harvesting sites and sacred places and heritage sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation health and well-being. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information regarding the assessment of cumulative effects on Kitsumkalum First Nation health and well-being.

14.12.8 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION TRANSMISSION OF KNOWLEDGE

Kitsumkalum First Nation previously indicated that multiple development projects have cumulatively impacted their physical and cultural heritage (Kitsumkalum First Nation 2023). Kitsumkalum First Nation noted that regional projects and marine shipping have resulted in decreased access and use of their spiritual and cultural sites, in turn, this has resulted in changes to visual quality, noise, and resources harvesting with implications for Kitsumkalum First Nation cultural identity (Kitsumkalum First Nation 2023). Over time, industrial and colonial development within and near Kitsumkaleum *laxyuup,* such as the Grand Trunk Pacific Railway, the *Indian Act*, and residential schools, have had adverse impacts on Kitsumkalum transference of knowledge, which has disrupted Kitsumkalum ways of life (Vopak 2021; Kitsumkalum First Nation 2023). Kitsumkalum First Nation previously expressed concern that reduced access to important sites such as harvesting sites, named places, and safe travel routes could undermine their ability to teach and share their culture and pass knowledge from one generation to the next (Vopak 2021; Kitsumkalum First Nation 2023).

14.12.8.1 Cumulative Effect Pathways

As summarized in Section 14.9, past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic in the vicinity of the Project footprint, the MSR and OWAA has altered the current regional marine environment, contributing to existing cumulative effects on Kitsumkalum First Nation transmission of knowledge.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation transmission of knowledge. Cumulative effects on Kitsumkalum First Nation transmission of knowledge could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

14.12.8.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation transmission of knowledge are described Section 14.12.2.2, as well as in Table 14.2–1, and Appendix A.

14.12.8.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation transmission of knowledge. The general presence of vessels and increased number of vessels on the water in the vicinity of the Project footprint, the MSR and OWAA may result in interference, community concerns, and safety constraints on the water, which may affect communities' mental and physical health, and Kitsumkalum First Nation ability to access, or maintain the current quality of experience, at Kitsumkalum First Nation's harvesting sites and sacred places and heritage sites, all of which are connected to Kitsumkalum First Nation transmission of knowledge.

As described in Section 14.12.2.3, residual cumulative effects are anticipated on air quality, marine birds, marine resources, and marine access within applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint due to increased marine vessel traffic. These residual cumulative effects may result in changes to Kitsumkalum First Nation conditions for connection to their territory, and changes to cultural practices such as traditional funerals, feasts, resource sharing, and teaching.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation transmission of knowledge is expected to be moderate in magnitude within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of harvesting sites, sacred places and heritage sites. Residual cumulative effects are long-term, lasting for longer than one generation (25 years), and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and associated effects. However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation members who have already experienced alienation and dispossession from harvesting sites and sacred places and heritages sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint as these experiences are likely to increase in the future rather than decrease and require regional initiatives and programs to be addressed. The risk of a residual cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. The Proponents have identified their willingness to collaborate in government-led initiatives with respect to cumulative effects on marine navigation which may assist with reducing further perceptions of barriers and alienation for access to harvesting sites and sacred places and heritage sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation transmission of knowledge. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional

information regarding the assessment of cumulative effects on Kitsumkalum First Nation transmission of knowledge.

14.12.9 ASSESSMENT OF CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION ACCESS AND TRAVEL

Kitsumkalum First Nation indicated that as major projects continue to be approved within Kitsumkalum territory, and the subsequent use of local highways for transporting major goods and Project-related services or resources increases, there is concern that increased traffic will occur and cause an increased frequency of collisions in the area. The increased collisions and accidents pose challenges to community members who rely on roadway infrastructure for access to and from primary service hubs and the community as well as increase strain on an already overburdened emergency system (Kitsumkalum First Nation 2022a).

14.12.9.1 Cumulative Effect Pathways

As summarized in Table 14.12–1, past and present project and physical activities that have been or are being carried out have contributed to the existing conditions for the Project footprint, MSR and OWAA and the exercise of Kitsumkalum First Nation rights and title. Reasonably foreseeable projects are also anticipated to contribute to the future conditions in the Project assessment areas. Overall, increased marine vessel traffic in the vicinity of the Project footprint, the MSR and OWAA has altered the current regional marine environment, contributing to existing cumulative effects on Kitsumkalum First Nation access and travel. Increased development and associated demand on infrastructure, services, accommodation and transportation in the Infrastructure and Services RAA has also contributed to existing cumulative effects on Kitsumkalum First Nation regional access and travel.

All phases of the Project (construction, operation, decommissioning) have the potential to contribute to cumulative effects on Kitsumkalum First Nation access and travel. Cumulative effects on Kitsumkalum First Nation access and travel could result through the pathways identified in Table 14.1–2 in Section 14.1.4.

14.12.9.2 Mitigation and Enhancement Measures for Cumulative Effects

Mitigation measures to limit residual cumulative effects to Kitsumkalum First Nation access and travel are described Section 14.12.2.2, as well as in Table 14.2–1, and Appendix A.

14.12.9.3 Residual Cumulative Effects

Cumulative effects from past, present, and reasonably foreseeable future projects in combination with the Project are predicted to adversely affect Kitsumkalum First Nation access and travel. The general presence of vessels and increased number of vessels on the water in the vicinity of the Project footprint, the MSR and OWAA may result in interference, community concerns, safety constraints on the water, and reduced access and travel activities within Kitsumkalum First Nation traditional territory.

As described in Section 14.12.2.3, residual cumulative effects are anticipated on air quality and marine access in the vicinity of the Project footprint, the MSR, the OWAA, and the applicable VC RAAs due to increased marine vessel traffic and this may result in an alteration of access to Kitsumkalum First Nation preferred marine harvesting locations and associated travel routes. It may also result in an alteration of access to sacred places and harvesting sites adjacent applicable VC RAAS, the Project footprint, the MSR and the OWAA.

As described in Section 14.12.4.3, residual cumulative effects are not anticipated on transportation infrastructure within the Infrastructure and Services RAA, therefore loss or alteration of access to regional infrastructure and services and associated terrestrial travel routes is not anticipated.

With mitigation, contribution of the Project to residual cumulative effects on Kitsumkalum First Nation access and travel is expected to be moderate in magnitude within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint, inclusive of timing considerations due to the seasonal use of harvesting sites, and sacred places and heritage sites. Residual cumulative effects are long-term, lasting for longer than one generation (25 years) and will occur as multiple regular events. Residual cumulative effects are considered partially reversible as they are primarily tied to Project marine shipping traffic and associated effects. However, residual effects of past, present, and reasonably foreseeable future projects and physical activities combined with the predicted residual effects of the Project are anticipated to be irreversible for Kitsumkalum First Nation members who have already experienced alienation and dispossession from harvesting sites and sacred places and heritages sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint as these experiences are likely to increase in the future rather than decrease and require regional initiatives and programs to be addressed. The risk of a residual cumulative effect is moderate (moderate consequence, high likelihood) with moderate uncertainty due to unknown external variables. The Proponents have identified their willingness to collaborate in government-led initiatives with respect to cumulative effects on marine navigation which may assist with reducing further perceptions of barriers and alienation for access to harvesting sites, and sacred places and heritage sites within the applicable VC RAAs, the OWAA, the MSR and in the vicinity of the Project footprint.

No additional mitigation measures are proposed for incremental Project contributions to the cumulative effects on the related VCs or on Kitsumkalum First Nation access and travel. The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information regarding the assessment of cumulative effects on Kitsumkalum First Nation access and travel.

14.13 Summary of Cumulative Effects

Table 14.13–1 summarizes cumulative effects on Kitsumkalum First Nation interests. The assessment of disproportionately distributed residual cumulative effects on Kitsumkalum First Nation interests is provided following the table.

Table 14.13–1 – Summary of Residual Cumulative Effects on Kitsumkalum First Nation Interests

Residual Cumulative Effect	Mitigation and Enhancement Measures	Residual Cumulative Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Changes to Marine Harvest and Consumption										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Changes to Terrestrial Harvest and Consumption										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M

Table 14.13–1 – Summary of Residual Cumulative Effects on Kitsumkalum First Nation Interests

Residual Cumulative Effect	Mitigation and Enhancement Measures	Residual Cumulative Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Changes to Governance										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Changes to Social and economic Conditions										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Changes to Sacred Places and Heritage Sites										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M

Table 14.13–1 – Summary of Residual Cumulative Effects on Kitsumkalum First Nation Interests

Residual Cumulative Effect	Mitigation and Enhancement Measures	Residual Cumulative Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty
Changes to Health and Well-being										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Changes to Transmission of Knowledge										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Changes to Access and Travel										
Residual cumulative effect with the Project	Mitigation IN-1; Applicable mitigations in Appendix A; Regional Initiatives and Programs	M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M
Project contribution to residual cumulative effects		M	OWAA; RAAs; MSR	A	LT	PR/I	MR	DD	M	M

Table 14.13–1 – Summary of Residual Cumulative Effects on Kitsumkalum First Nation Interests

Residual Cumulative Effect	Mitigation and Enhancement Measures	Residual Cumulative Effects Characterization Criteria								
		Magnitude	Geographic Extent	Timing	Duration	Reversibility	Frequency	Affected Sub-Populations	Risk (Likelihood and Consequences)	Uncertainty

KEY
See Table 14.1–4 for detailed definitions
Magnitude:
NMC: No Measurable Change
L: Low
M: Moderate
H: High
Geographic Extent:
RAAs: Regional Assessment Areas MSR: marine shipping route
OWAA: Open Water Assessment Area
BR: Beyond Regional

Timing:
N/A: Not Applicable
A: Applicable
Duration:
ST: Short-term
MT: Medium-term
LT: Long-term
Reversibility:
R: Reversible
PR: Partially reversible I: Irreversible

Frequency:
S: Single event
MIR: Multiple irregular event
MR: Multiple regular event
C: Continuous
Affected Sub-Populations:
E: Evenly distributed
DD: Disproportionally distributed
Risk (Likelihood and Consequences)
L: Low
M: Moderate
H: High
Uncertainty:
L: Low
M: Moderate
H: High

1

14.13.1 DISPROPORTIONATELY DISTRIBUTED RESIDUAL CUMULATIVE EFFECTS ON KITSUMKALUM FIRST NATION SUBGROUPS

Project activities in combination with activities associated with past/present and reasonably foreseeable projects are anticipated to result in the same disproportionately distributed effects on Kitsumkalum First Nation subgroups as those identified in Section 14.10.1. Disproportionately distributed cumulative effects on Kitsumkalum First Nation subgroups extend into the Marine Use, Marine Resources, Wildlife and Wildlife Habitat, Employment and Economy, Infrastructure and Services, and Community Health and Wellness RAAs (Sections 7.07, 7.09, 7.10, 7.11, 7.12, and 7.13) and may also be experienced within the OWAA, the MSR, and the vicinity of the Project footprint.

14.13.2 SUMMARY OF POTENTIAL ADVERSE RESIDUAL CUMULATIVE EFFECTS IDENTIFIED FOR THE TLAA

Members of Kitsumkalum First Nation that were interviewed for the ILMUS reported that “transmission lines have already disrupted their land use and access” and ability to exercise their Rights within the Kitsumkalum and Nass Valleys (Kitsumkalum First Nation 2023:81). Kitsumkalum First Nation identified that transmission lines that have been constructed within their traditional territory represent a type of “encumbrance […] that may impact a Kitsumkalum community member’s ability to access intact resources safely and consistently”, for example, “the construction of the NTL in the 2010s, […] facilitated easy access to resources in this area for non-Indigenous recreationists and hunters" (Kitsumkalum First Nation 2023:82-83). Kitsumkalum First Nation reported that “the areas that Kitsumkalum community members rely on for sustenance, good health, and well-being [i.e., Kitsumkalum *laxyuup*] continue to decrease through adverse and cumulative effects of each additional Crown-authorized development, including […] transmission lines (i.e., the NTL)” and that “these incompatible forms of land and resource use have undermined Kitsumkalum’s lifeways, including cultural knowledge transmission, language, traditional networks, economic, social and political institutions, stewardship practices, and access to hunting, fishing, and resource gathering areas” (Kitsumkalum First Nation 2023:96).

As the transmission line is proposed to be located within Kitsumkalum First Nation traditional territory, potential adverse residual effects are conservatively anticipated on Kitsumkalum First Nation interests resulting from construction and/or operation of the transmission line within the TLAA and these residual effects could act cumulatively with similar effects from other past, present, and likely projects or activities in the region. Cumulative effects on Kitsumkalum First Nation interests could result through the pathways identified in Table 14.1–2 in Section 14.1.4. As a third-party will ultimately design, implement, and operate the transmission line, the Proponents are not able to commit to mitigation measures specific to the transmission line in relation to potential adverse residual cumulative effects on Kitsumkalum First Nation interests. However, the Proponents are of the view that legislation, best practices, and guidelines applicable to limiting cumulative effects within the region, as well as legal processes requiring commitment to specific mitigation measures in relation to the transmission line, will be tailored to suit environmental concerns associated with the route selected and equipment to be used based on the final

design. It is expected that the same will be required for past, present and likely other projects and activities.

14.14 Summary

Section 14.10 and Section 14.11 provide a summary of the assessment for Kitsumkalum First Nation outlining the adverse and positive residual effects on Kitsumkalum First Nation interests for the BC EAO to consider when determining the overall seriousness of impact to the Nation's interests.

The following sections summarize the assessment's concordance to the statutory requirements under the federal *Impact Assessment Act*, the prediction confidence of the assessment overall and discussion regarding follow-up programs for the Project.

14.14.1 STATUTORY REQUIREMENTS UNDER THE FEDERAL IMPACT ASSESSMENT ACT

The Proponents understand that Kitsumkalum First Nation interests are intricately linked to one another and are also connected to the Nation's rights, culture, history, protocols, health and well-being.

Matters of interest to Kitsumkalum First Nation and the potential effects on those interests were identified for assessment through engagement with Kitsumkalum First Nation, a review of issues and concerns about the Project raised by Kitsumkalum First Nation (Section 14.1.2.2), and guidance from current federal and provincial acts, IA policies and best practices. Kitsumkalum First Nation interests and potential effects on those interests have been disaggregated according to the preference of Kitsumkalum First Nation. Collectively or independently, as applicable, these interests may inform certain factors for assessment under the federal IAA, as discussed below.

The Application's concordance to all statutory requirements under the federal IAA is provided in Section 24.0.

14.14.1.1 Factor 22 (1)(c): Changes to Kitsumkalum First Nation Rights Recognized and Affirmed by section 35 of the *Constitution Act*, 1982

Kitsumkalum First Nation is a First Nation and a band as defined in section 2(1) of the *Indian Act*. Kitsumkalum First Nation is in Stage 5 of negotiating independently (through the Tsimshian First Nations Treaty Society) with Canada and BC in the BC treaty process (Section 14.4.1.1; Government of British Columbia 2022), which means there is no treaty available to interpret or define section 35 rights specific to Kitsumkalum First Nation. Therefore, the Proponents' understanding of Kitsumkalum First Nation section 35 rights is informed both in part by interpretations of relevant case law and by the perspectives of Kitsumkalum First Nation regarding their rights, as identified through publicly available literature and through engagement on the Project. Of note, as EA is not a rights-determination process, this section of the Application has assessed Project-related effects on Kitsumkalum First Nation interests that are broader than the activities typically addressed by case law (e.g., hunting, fishing, trapping) to include any interests or matters of importance identified by Kitsumkalum First Nation.

As required under Section 22(1) of the *IAA*, the assessment of effects regarding to changes Kitsumkalum First Nation rights recognized and affirmed by section 35 of the *Constitution Act, 1982* focused on Kitsumkalum First Nation interests described in Section 14.1.4, as compiled by the methods described in Section 14.1.2 and Section 14.1.3. The findings of the assessment can be found in Sections 14.2 to 14.9 and 14.12 are the same for this federal factor, which are also summarized in Sections 14.10, 14.11 and 14.13.

14.14.1.2 Factor 22 (1)(g): Consideration of Indigenous Knowledge Provided with Respect to the Project

The development of this Application was influenced by the Proponents' consultation with Kitsumkalum First Nation. As discussed in Section 14.1.3, the Proponents recognize that Kitsumkalum First Nation is best positioned to identify the sources of information, including Indigenous knowledge, appropriate for this assessment.

Indigenous knowledge used in this Application is derived from ongoing engagement, Project-specific and nation-led studies, secondary sources, and publicly available information identified through engagement with Kitsumkalum First Nation. The treatment of Indigenous knowledge within this section of the Application is presented with any changes requested by Kitsumkalum First Nation following opportunities for review and comment. Refer to Section 14.1.3 for additional information.

Additionally, within each applicable assessment section of the Application, a summary of the key information, concerns and Indigenous knowledge shared with the Proponents is provided. This summary also describes the influence that the outcomes of this consultation and engagement has had on the respective assessment.

14.14.1.3 Factor 22(1)(l): Consideration of Changes to Kitsumkalum First Nation Culture

Changes to Kitsumkalum First Nation transmission of knowledge was identified as an interest and potential effect for assessment, as it encompasses broader and related changes to Kitsumkalum First Nation Culture. Accordingly, the assessment of changes to Kitsumkalum First Nation transmission of knowledge is provided in Section 14.8 and cumulative changes are assessed in Section 14.12.8.

14.14.1.4 Factor 22(1)(r): Consistency with any Plan or Study Prepared by Kitsumkalum First Nation that has been Provided for the Project (including any existing Land-Use or Marine-Use Plans)

As described in Section 14.1.5.3, Kitsumkalum First Nation's MUP outlines their management strategies and protocols for marine resources with the goal of maintaining a sustainable balance between cultural and social well-being and ecosystem health (Kitsumkalum First Nation 2014). The MUP identifies different management zone types in Kitsumkalum First Nation territory and describes allowable activities in each marine use zone (Kitsumkalum First Nation 2014). Kitsumkalum First Nation have identified five special management zones: Stephens Island, Arthur Island, Shellfish Aquaculture, Skeena Estuary, and Grenville Channel (Kitsumkalum First Nation 2014).

As described in Section 14.1.5.3, a small portion of the northeastern extent of the Skeena Estuary special management zone may be intersected by the materials and supply marine shipping route specifically) and has the potential to interact with Cultural and Natural areas around Digby Island and Kaien Island. Allowable activities within the Skeena Estuary special management zone include Kitsumkalum traditional fisheries and cultural practices, commercial fisheries (finfish line, trap and net; invertebrate dive and trap; however, salmon seine and crab fisheries are not permitted), recreational fisheries, shellfish aquaculture/algaculture, ecotourism, renewable energy projects, and education and research (Kitsumkalum First Nation 2014).

While the physical activities associated with Project construction, operation and decommissioning are not explicitly described within Kitsumkalum First Nation's MUP, the objectives of the MUP are not inconsistent with the Project given the Proponents' mitigation to limit potential effects on Kitsumkalum First Nation interests through the development and implementation of the Indigenous Engagement and Collaboration Plan, Marine Communication Management Plan, and commitment to working directly with Kitsumkalum First Nation to identify opportunities for Kitsumkalum First Nation to realize potential benefits from the Project that can be used to both offset potential adverse effects and create positive effects for the Nation.

14.14.1.5 Factor 22(1)(s): Disproportionate Effects on Distinct Human Populations (Intersections of Sex and Gender with Other Identity Factors)

Where appropriate and information has been available, disproportionate effects on Kitsumkalum First Nation are described in Sections 14.10.1 and 14.13.1. Additionally, Section 7.10 Employment and Economy, Section 7.12 Infrastructure and Services and Section 7.13 Community Health and Wellness assess potential disproportionate effects on distinct human populations, including those identified by sex, age, and other relevant identity factors. The outcomes of these assessments relative to Kitsumkalum First Nation are discussed within Sections 14.10.1 and 14.13.1, as applicable.

14.14.1.6 Effects under Section 2(b)(i): Changes to the Environment that would occur on Federal Lands

The Project is proposed to be built on Category A lands owned in fee simple by the Nisga'a Nation, one of the Proponents. It does not overlap with a national or provincial park, Crown land, land upon which there are other land tenure holders, or private property not owned by the Proponents. As such, there are no direct physical impacts such as vegetation clearing, and grading that would occur on federal lands used or accessed by Kitsumkalum First Nation. Kitsumkalum First Nation reserve lands are the federal lands in proximity to the Project footprint, the OWAA, and the MSR (refer to Table 14.4–1). None of the VCs that may result in changes to the environment have the potential to interact with Kitsumkalum First Nation federal lands.

14.14.1.7 Effects under Section 2(c)(i): Changes to Physical and Cultural Heritage

Changes to physical and cultural heritage and structures, sites or things of historical, archaeological, paleontological, or architectural significance consider all elements of cultural and historical importance to

Kitsumkalum First Nation, in addition to provincial heritage legislative requirements. The Proponents understand that there are tangible and intangible elements of physical and cultural heritage such as Indigenous language, place names, sacred, ceremonial or culturally important places and cultural landscapes. Tangible and intangible elements of physical and cultural heritage are considered aspects of each of Kitsumkalum First Nation's interests and potential effects identified for assessment. Therefore, the assessment of changes to Kitsumkalum First Nation physical and cultural heritage is provided in Sections 14.2 to 14.9 and cumulative changes to Kitsumkalum First Nation physical and cultural heritage are assessed in Section 14.12.

Additionally, Section 7.15 Archaeological and Heritage Resources 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. The outcomes of this assessment relative to Kitsumkalum First Nation are discussed within Sections 14.6 and 14.12.6, as applicable.

14.14.1.8 Effects under Section 2(c)(ii): Changes to Current Use of Lands and Resources for Traditional Purposes

Changes to Kitsumkalum First Nation Marine and Terrestrial Harvest and Consumption, Sacred Places and Heritage Sites, and Access and Travel were identified as interests and potential effects for assessment. Each of these interests are representative of Kitsumkalum First Nation's current use of land and resources for traditional purposes. The effects pathways evaluated for each of these interests are similarly focused on the conditions and resources that support traditional activities, such as, availability of harvested resources, ability to use and access lands and waters and sensory disturbances. The assessment of changes on each of these interests as they relate to Kitsumkalum First Nation's current use of land and resources for traditional purposes is provided in Sections 14.2, 14.3, 14.6 and 14.9. Cumulative changes to each of these interests are assessed in Section 14.12.

14.14.1.9 Effects under Section 2(c)(iii): Changes to any Structure, Site or Thing of Historical, Archaeological, Paleontological, or Architectural Significance

The findings of the assessment found in Section 14.14.1.7 are the same for this federal factor.

14.14.1.10 Effects under Section 2(d): Changes to the Health, Social or Economic Conditions of Kitsumkalum First Nation

Changes to Kitsumkalum First Nation Governance, Changes to Kitsumkalum First Nation Social and economic Conditions, and Changes to Kitsumkalum First Nation Health and Well-Being were identified as interests and potential effects for assessment. Accordingly, the assessment of changes to Kitsumkalum First Nation health, social and economic conditions is provided in Sections 14.4, 14.5 and 14.7, and more broadly in Sections 14.2, 14.3, 14.6, 14.8 and 14.9 as these conditions often relate to land-based practices that are intricately connected to health (physical, mental and social well-being) and social and economic conditions (language, culture, governance, land use planning, economic development and self-determination). Cumulative changes to Kitsumkalum First Nation health, social and economic conditions are assessed in Section 14.12.

Additionally, where appropriate and information has been available, the health, social and economic conditions for Kitsumkalum First Nation are described in Section 7.10 Employment and Economy, Section 7.11 Marine Use, Section 7.12 Infrastructure and Services, Section 7.13 Community Health and Wellness and Section 7.14 Human Health. The outcomes of these assessments relative to Kitsumkalum First Nation are discussed within Sections 14.2 to 14.9, as applicable.

14.14.2 PREDICTION CONFIDENCE

The predication confidence in the conclusions for Project residual effects and residual cumulative effects for Kitsumkalum First Nation interests is moderate and is based on the:

- Available information and feedback provided by Kitsumkalum First Nation
- The Suite of mitigation measures and management plans proposed
- Understanding that Kitsumkalum First Nation interests occur on lands and waters within the Project assessment areas that overlap with the Kitsumkalum First Nation traditional territory

Conservative assumptions regarding the Project were also made for VCs related to Kitsumkalum First Nation interests, as described through the Application, to overestimate the effects assessed.

14.14.3 FOLLOW-UP PROGRAM

The Proponents' follow-up programs that relate to Kitsumkalum First Nation interests includes those programs described in Sections 7.02 Air Quality, 7.04 Surface Water, 7.60 Vegetation and Wetlands, 7.07 Wildlife and Wildlife Habitat, Section 7.08 Freshwater Fish and Fish Habitat, 7.09 Marine Resources, 7.10 Employment and Economy, and 7.13 Community Health and Well-being, as well as the following planned engagement activities and commitments:

- Engaging with Kitsumkalum First Nation to develop a shared understanding of how the Project may affect their Indigenous interests
- Engaging with Kitsumkalum First Nation to discuss the Project and its effects, understand concerns that may arise and respond to those concerns
- Working directly with Kitsumkalum First Nation to identify opportunities for Kitsumkalum First Nation to realize potential benefits from the Project that can be used to both offset potential adverse effects and create positive effects for the Nation

The Proponents will remain available through Application review should Kitsumkalum First Nation bring forward additional information related to this assessment or should concerns arise or requests for alternate engagement approaches be requested by Kitsumkalum First Nation. Through ongoing engagement (i.e., throughout the life of the Project) the Proponents aim to maintain a positive long-term relationship with Kitsumkalum First Nation.

14.15 Kitsumkalum First Nation Views

This section was authored by the Proponents and reflects the Proponents' understanding of Kitsumkalum First Nation's views shared through engagement to date.

Section 14.1.2.1 provides a summary of past engagement activities with Kitsumkalum First Nation that have occurred since March 2021. Table 14.1–1 provides a summary of the key information, including Indigenous knowledge, concerns, and other views that the Proponents identified as part of their engagement efforts with Kitsumkalum First Nation, as well as a summary of the influence that the outcomes of this engagement had on the assessment. Section 14.1.2.2 and Table 14.1–1 summarize the Proponents' understanding of the feedback provided by Kitsumkalum First Nation regarding the assessment of the effects of the Project on Kitsumkalum First Nation's interests as well as other areas of interest related to the EA.

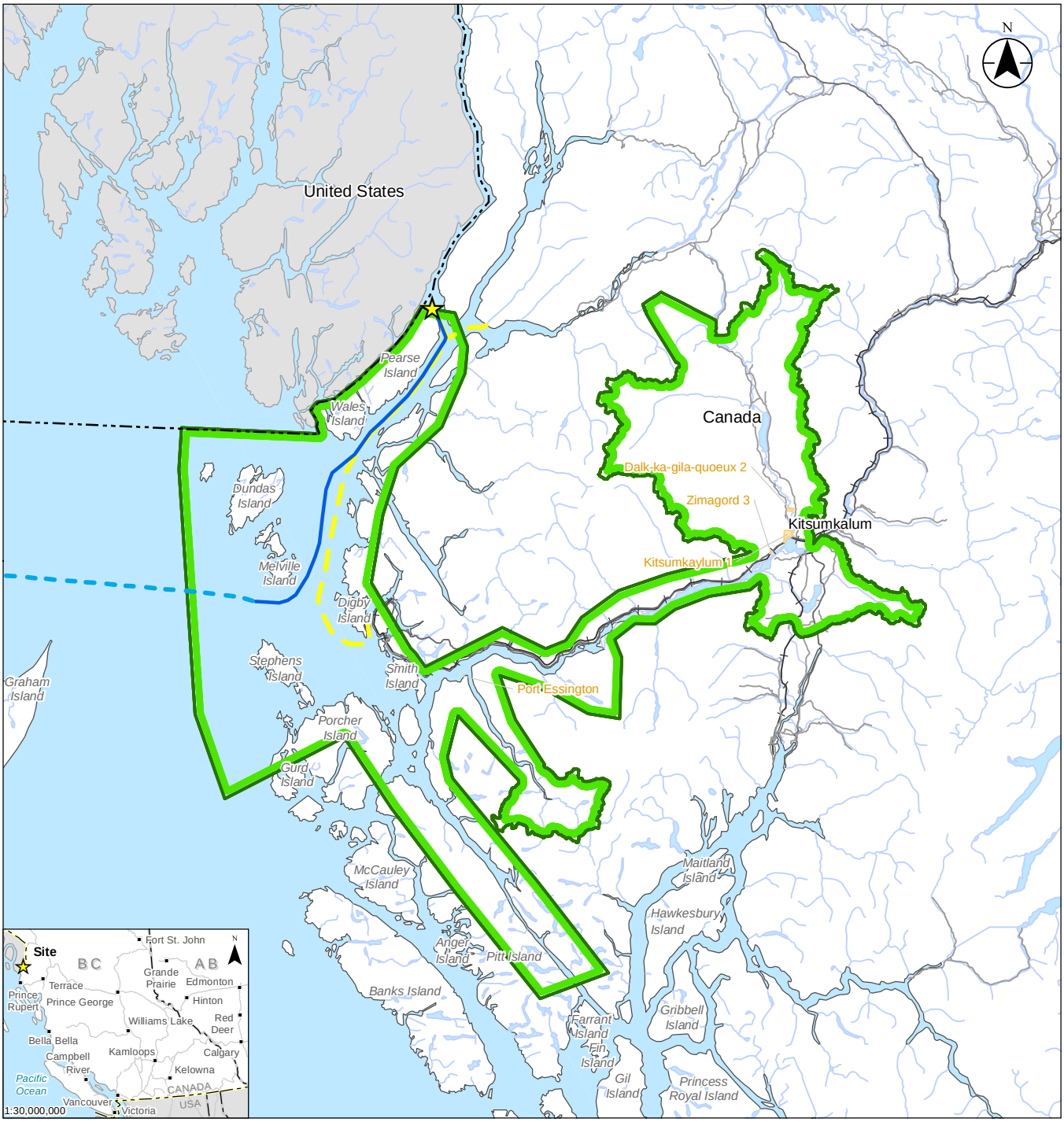
The Proponents have not identified any major points of disagreement raised by the Kitsumkalum First Nation about the conclusions set out in this chapter regarding the assessment of the effects of the Project on Kitsumkalum First Nation's interests that could not be resolved during the remainder of the EA. Therefore, the Proponents look forward to further engagement and collaboration with Kitsumkalum First Nation to continue building a mutual understanding of how the Project may impact Kitsumkalum First Nation's interests and to co-develop measures to reduce such impacts. The Proponents also plan to continue collaboration with Kitsumkalum First Nation to address any other issues or concerns the Nation may have with the Project or the EA.

The Proponents would particularly welcome further feedback from Kitsumkalum First Nation regarding: effects management; characterization of residual effects; and conclusions described in the assessment of the effects of the Project on Kitsumkalum First Nation's interests. The Proponents are also interested to receive feedback from Kitsumkalum First Nation regarding potentially new engagement and collaboration activities and suggested approaches to issue resolution that could be co-developed during the remainder of the EA process.

Further feedback provided by Kitsumkalum First Nation on the Application during the Application Review phase of the EA will be incorporated into the revised Application prior to submission to the BC EAO.

The Proponents understand that Kitsumkalum First Nation also intends to author its own chapter in the BC EAO's Assessment Report, which would provide the Nation an opportunity to directly express its views regarding the assessment of the effects of the Project on the Kitsumkalum First Nation's interests.

14.16 Figures



KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory
- International Boundary
- Railway
- Watercourse
- Waterbody
- Reserve Land

0 15 30 45 60 km
1:1,575,000 (at original document size of 8.5x11)

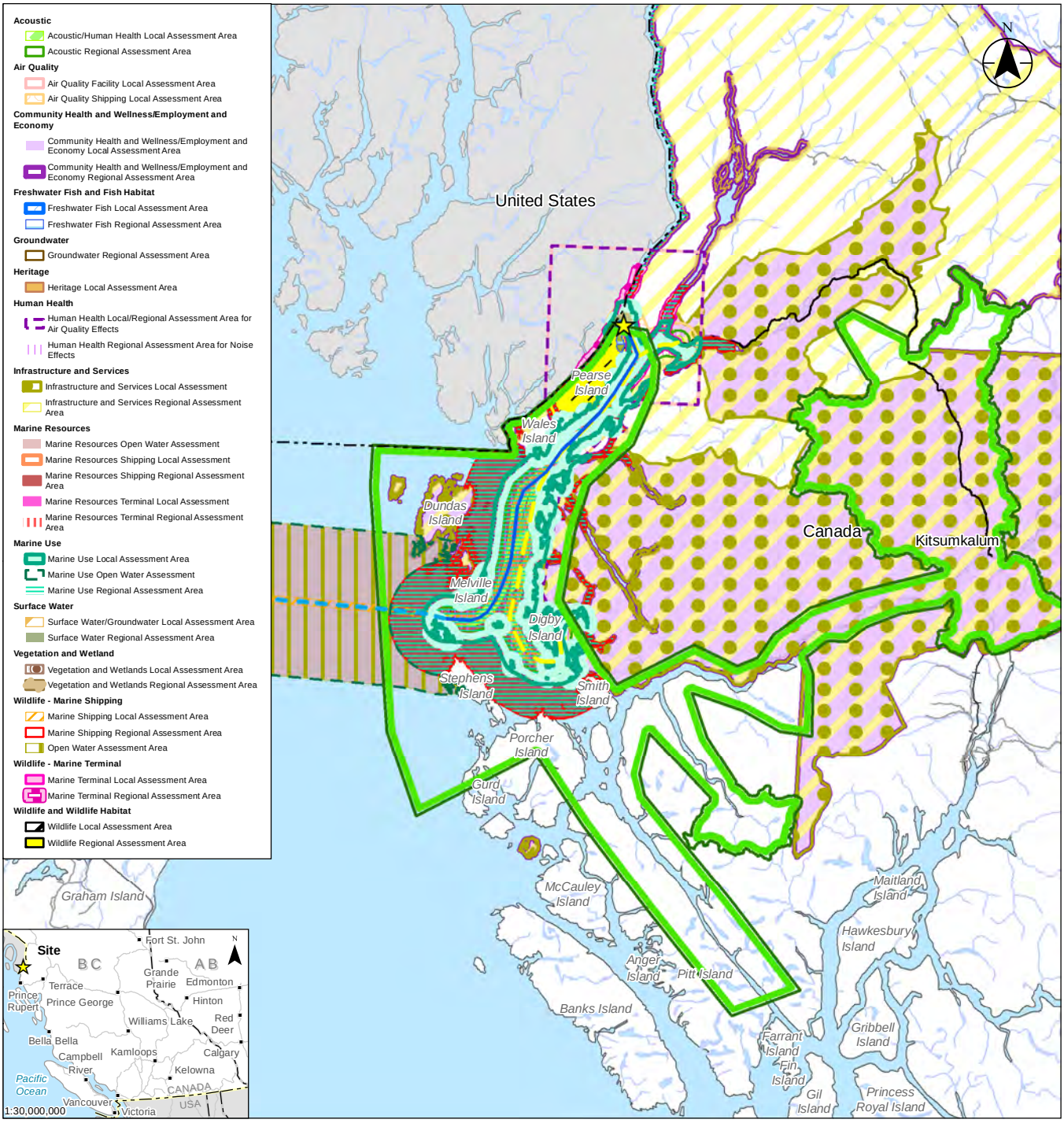
Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by TQUILICHINI on 20220916
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220916

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-1

Title
Kitsumkalum First Nation Traditional Territory Overview Map



Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

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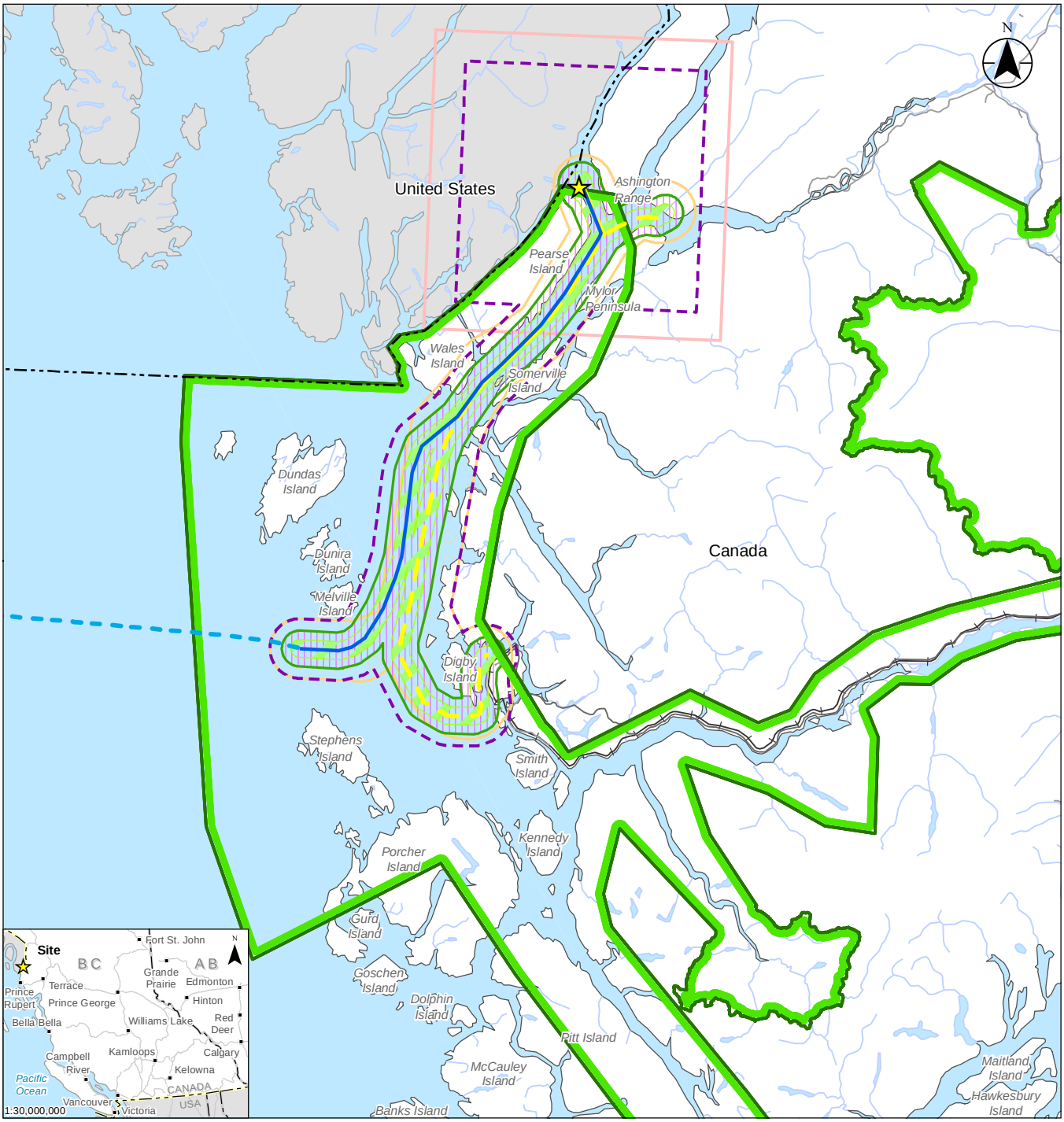


KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory

Acoustic
- Acoustic/Human Health Local Assessment Area
- Acoustic Regional Assessment Area

Air Quality
- Air Quality Facility Local Assessment Area
- Air Quality Shipping Local Assessment Area

Human Health
- Human Health Local/Regional Assessment Area for Air Quality Effects
- Human Health Regional Assessment Area for Noise Effects
- International Boundary
- Railway
- Watercourse
- Waterbody

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

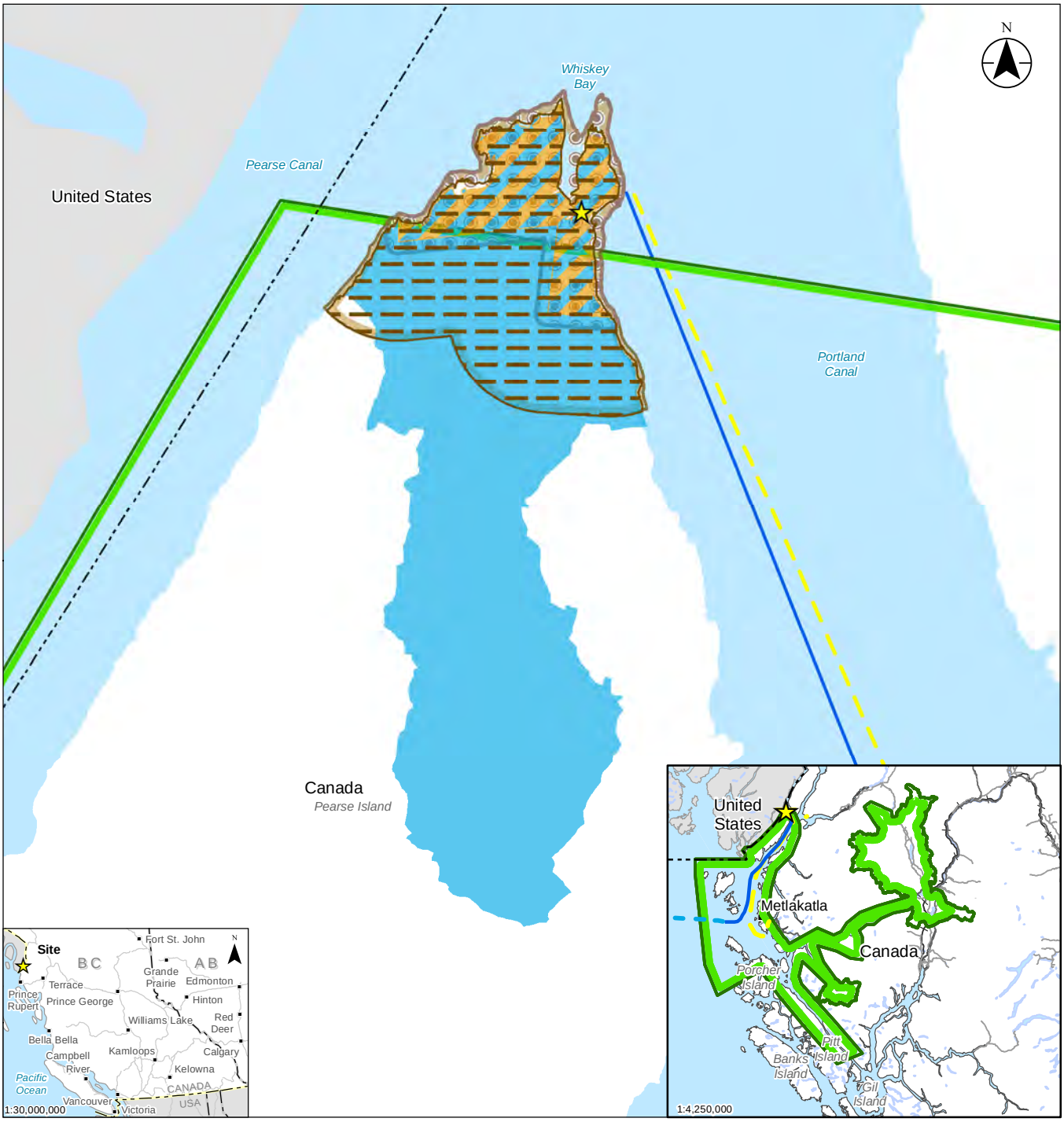
Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by CSPYKER on 20220902
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220902

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-3

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Key Map



KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory

Groundwater
- Groundwater Regional Assessment Area

Surface Water
- Surface Water/Groundwater Local Assessment Area
- Surface Water Regional Assessment Area

Vegetation and Wetland
- Vegetation Local Assessment Area
- Vegetation Regional Assessment Area
- International Boundary
- Waterbody

0 0.5 1 1.5 2 km
1:60,000 (at original document size of 8.5x11)

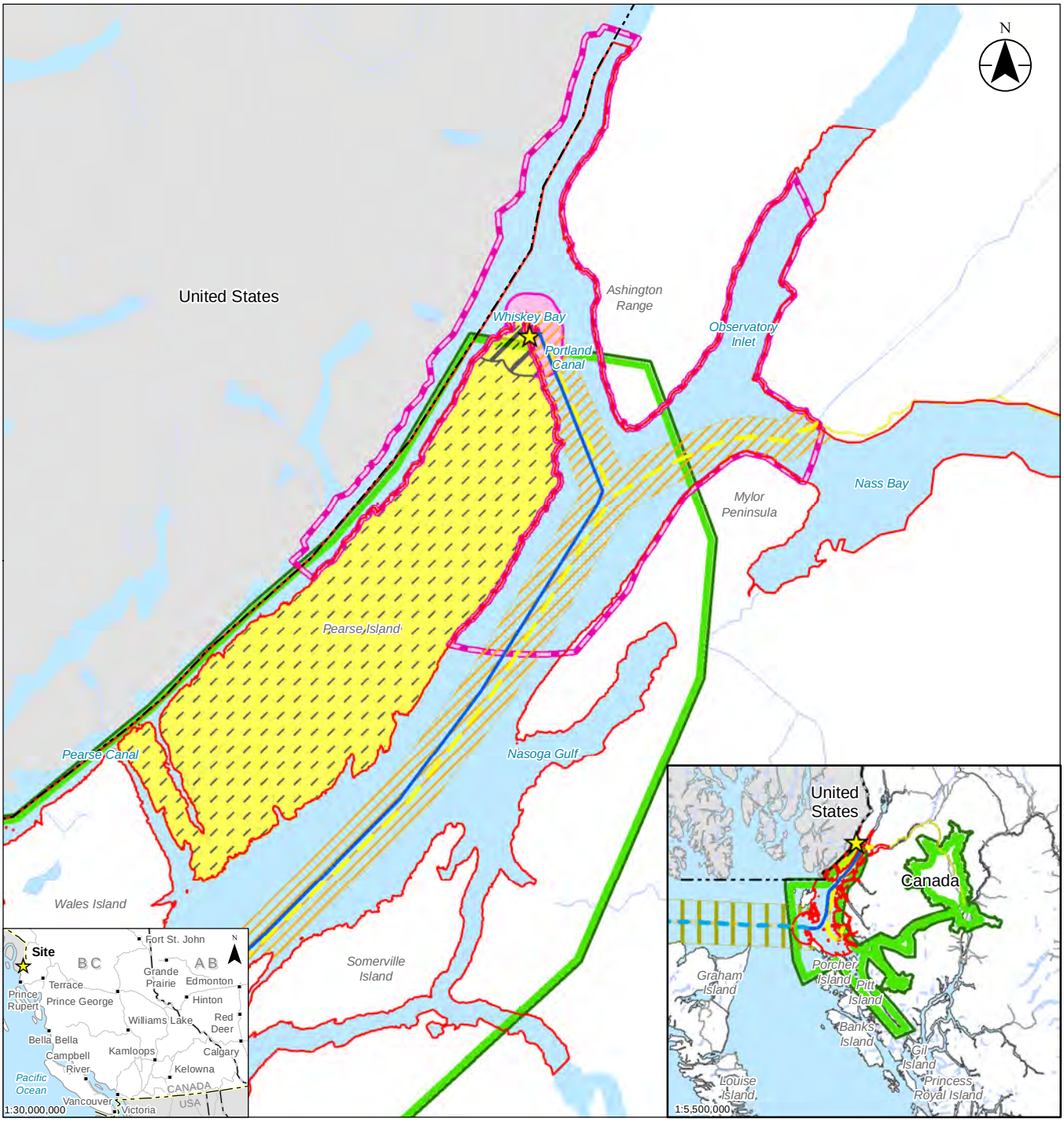
Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by TQUILICHINI on 20220916
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220916

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-4

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Surface Water, Groundwater, Vegetation and Wetlands



KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory

Wildlife - Marine Shipping
- Marine Shipping Local Assessment Area
- Marine Shipping Regional Assessment Area
- Open Water Assessment Area

Wildlife - Marine Terminal
- Marine Terminal Local Assessment Area
- Marine Terminal Regional Assessment Area

Terrestrial Wildlife and Wildlife Habitat
- Wildlife Local Assessment Area
- Wildlife Regional Assessment Area
- International Boundary
- Watercourse
- Waterbody

0 2.5 5 7.5 10 km
1:300,000 (at original document size of 8.5x11)

Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by TQUILICHINI on 20220916
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220916

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-5

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Wildlife and Wildlife Habitat

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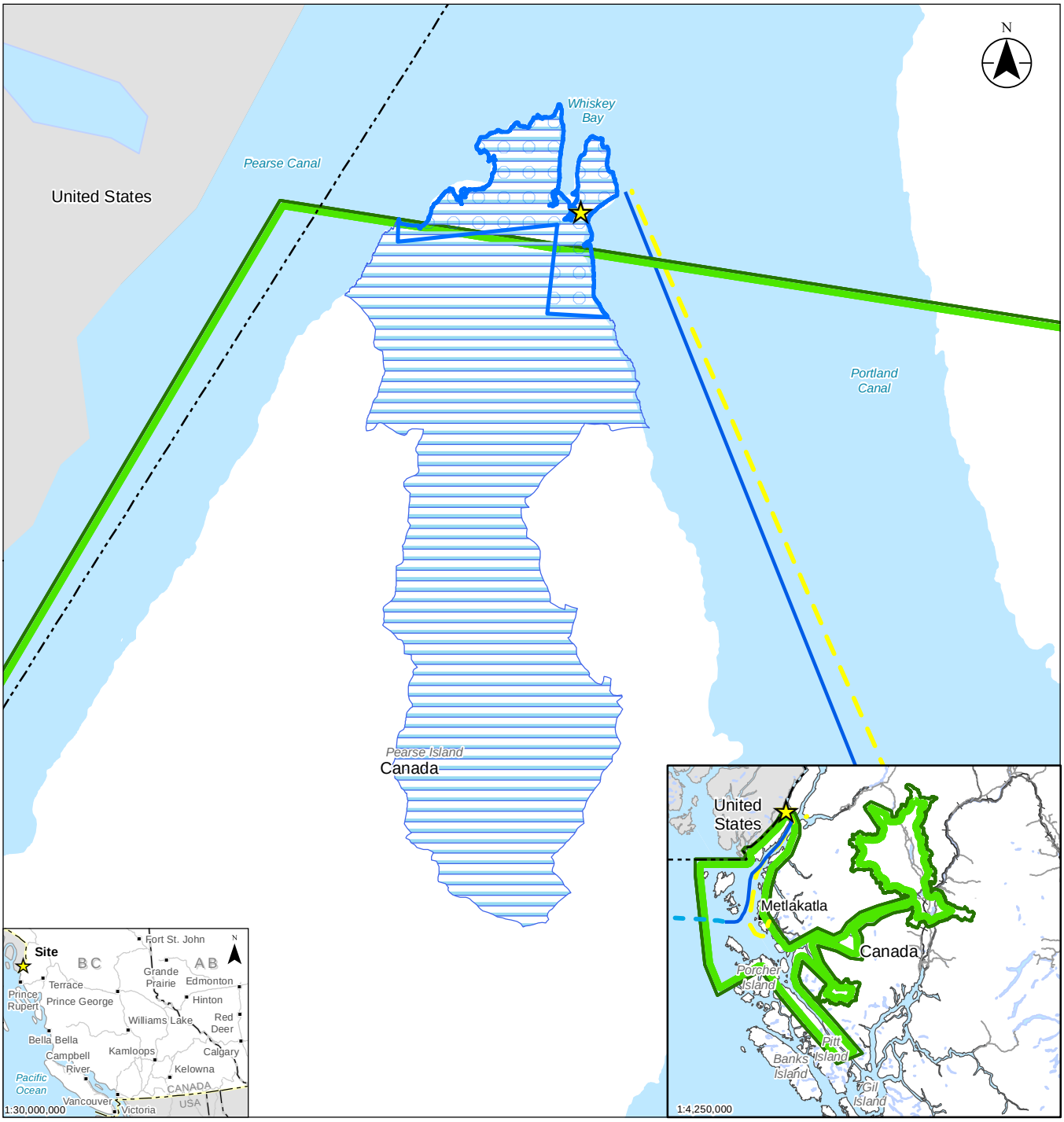


KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory

Freshwater Fish and Fish Habitat
- Freshwater Fish Local Assessment Area
- Freshwater Fish Regional Assessment Area
- International Boundary
- Waterbody

0 0.5 1 1.5 2 km
1:60,000 (at original document size of 8.5x11)

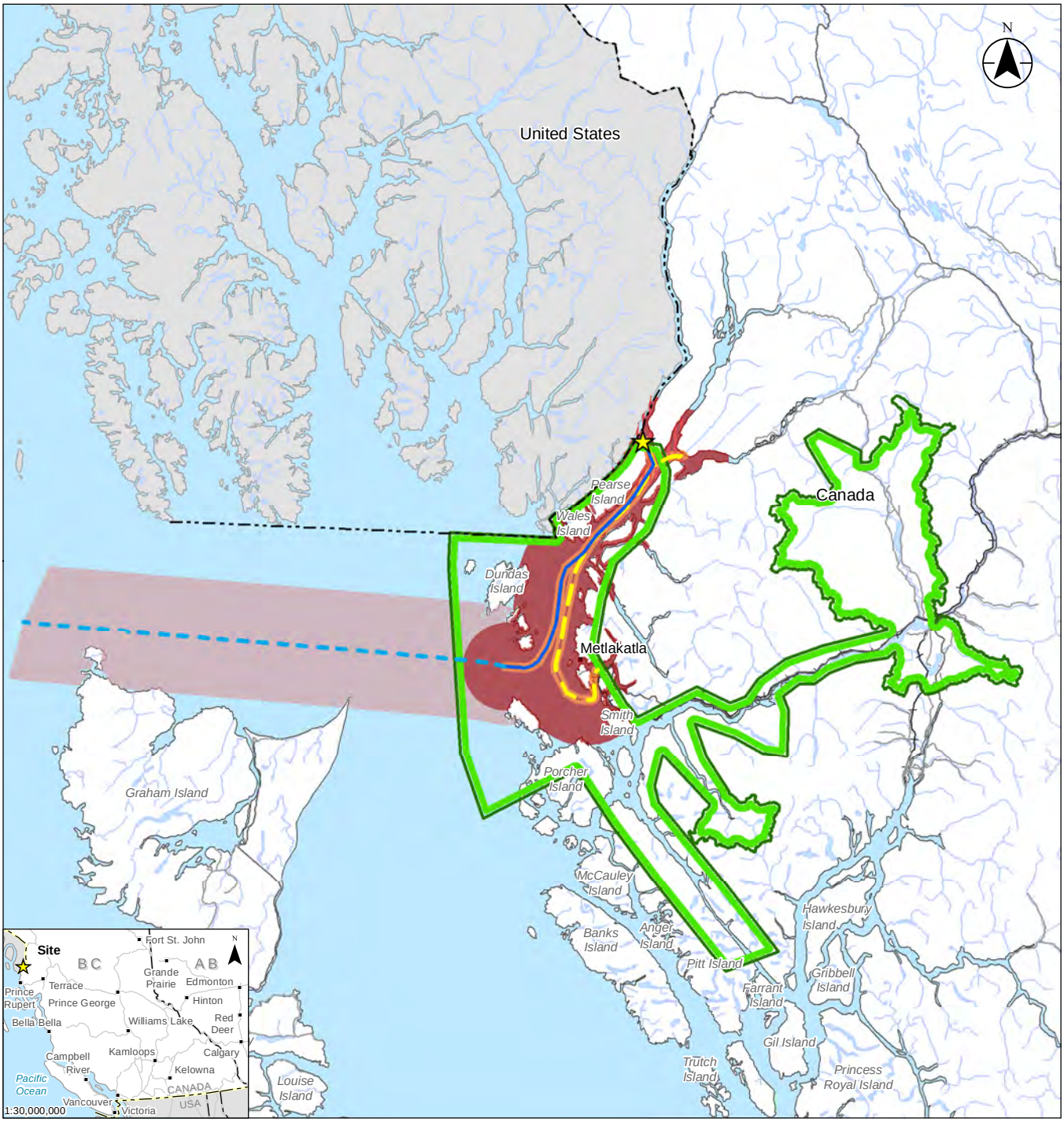
Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by TQUILICHINI on 20220916
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220916

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-6

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Freshwater Fish and Fish Habitat



KSI LISIMS LNG

Site
Marine Shipping Route
Open Water Marine Shipping Route
Materials and Supply Shipping Route
Kitsumkalum First Nation Traditional Territory

Marine Resources
- Marine Resources Open Water Assessment Area
- Marine Resources Shipping Local Assessment Area
- Marine Resources Shipping Regional Assessment Area
- Marine Resources Terminal Local Assessment Area
- Marine Resources Terminal Regional Assessment Area
- International Boundary
- Railway
- Watercourse
- Waterbody

0 15 30 45 60 km
1:2,050,000 (at original document size of 8.5x11)

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

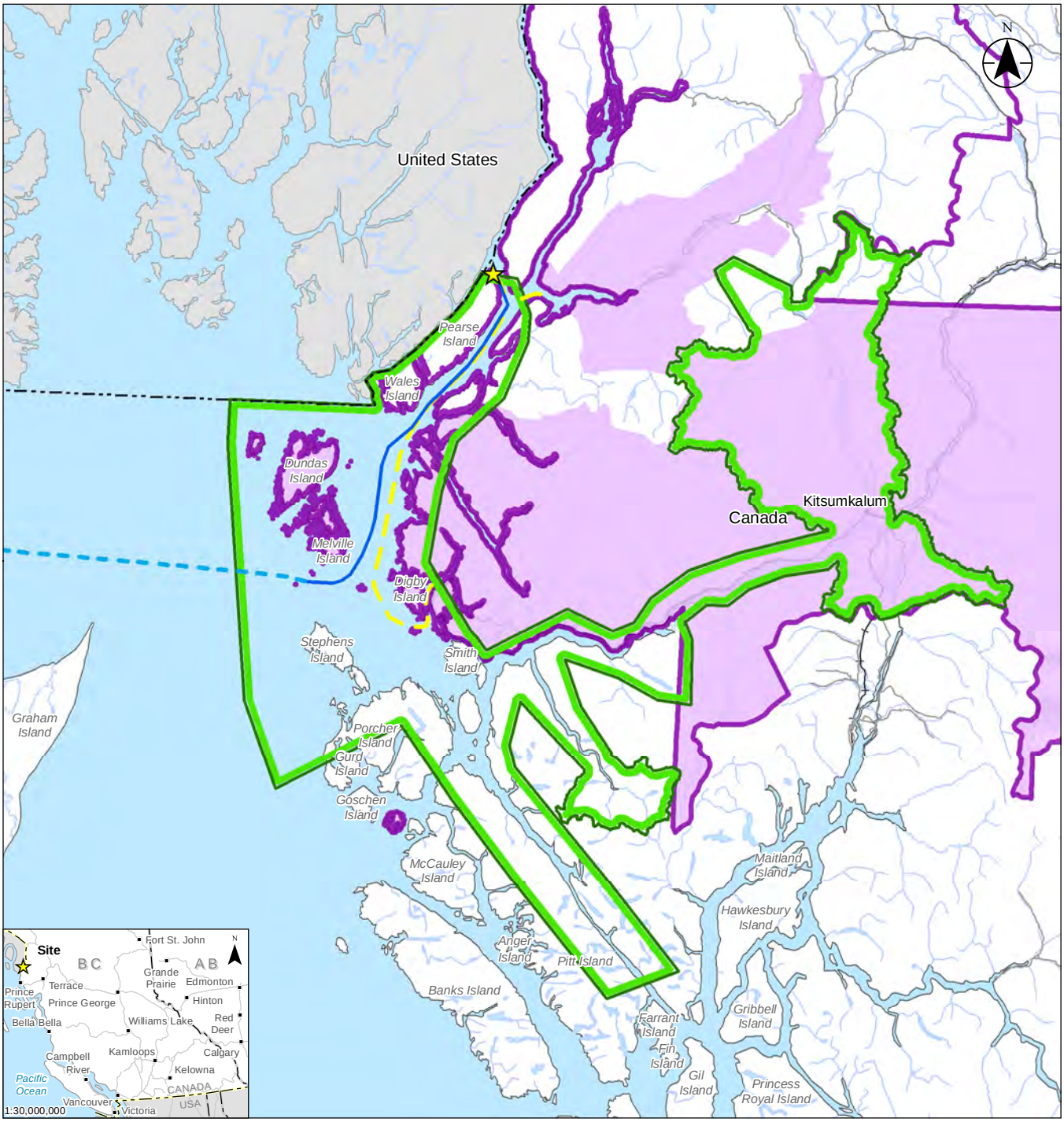
Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by TQUILICHINI on 20220916
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220916

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal Environmental Assessment - Impact Assessment

Figure No.
14.16-7

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Marine Resources



KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory

Community Health and Wellness/Employment and Economy

- Community Health and Wellness/Employment and Economy Local Assessment Area
- Community Health and Wellness/Employment and Economy Regional Assessment Area
- International Boundary
- Railway
- Watercourse
- Waterbody

0 15 30 45 60 km

1:1,500,000 (at original document size of 8.5x11)

Stantec

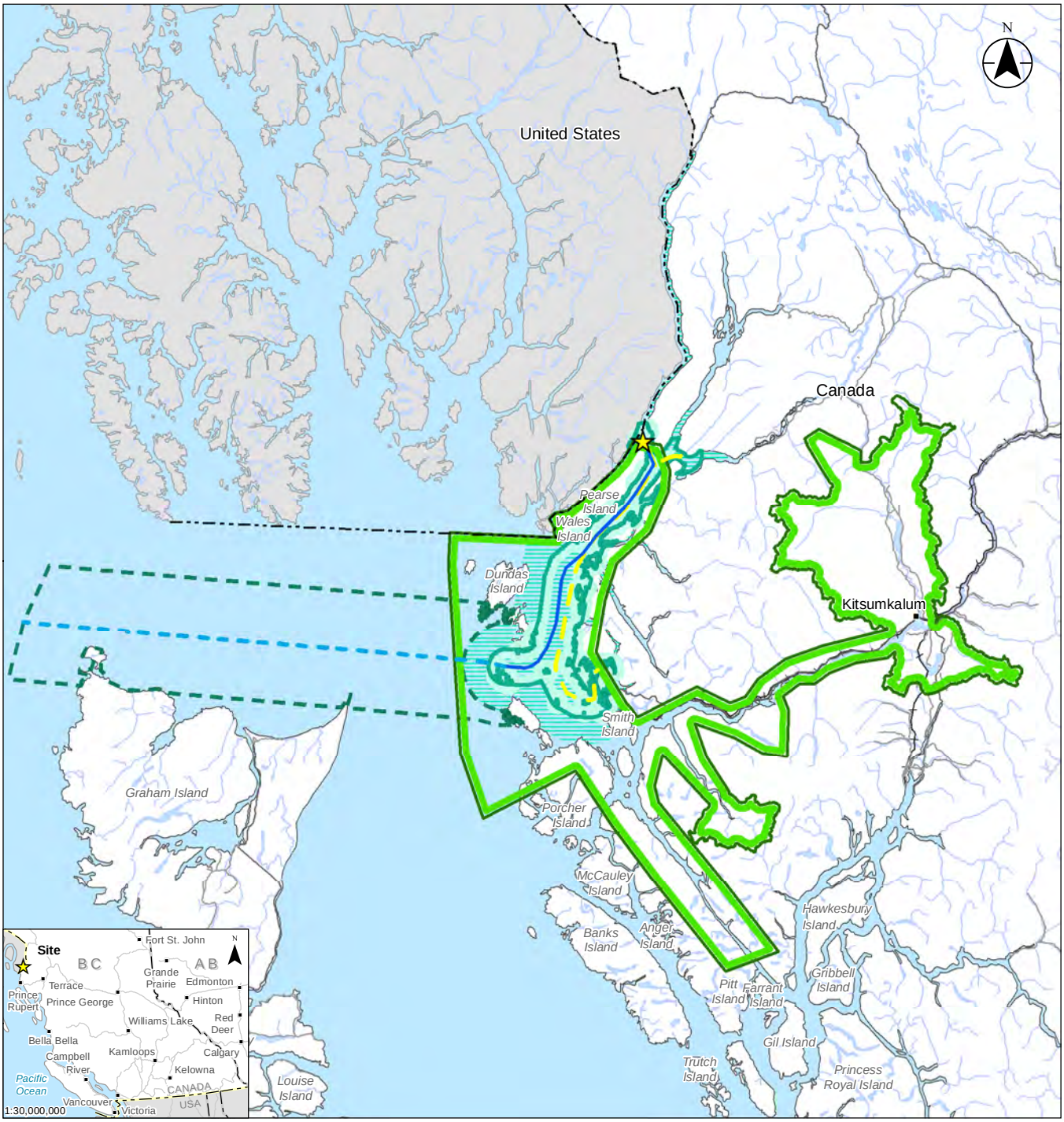
Project Location: Pearse Island, BC

Project Number: 123221820
Prepared by TQUILICHINI on 20220916
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220916

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-8

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Employment and Economy and Community Health and Wellness



KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory

Marine Use
- Marine Use Local Assessment Area
- Marine Use Open Water Assessment Area
- Marine Use Regional Assessment Area
- International Boundary
- Railway
- Watercourse
- Waterbody

0 15 30 45 60 km
1:2,050,000 (at original document size of 8.5x11)

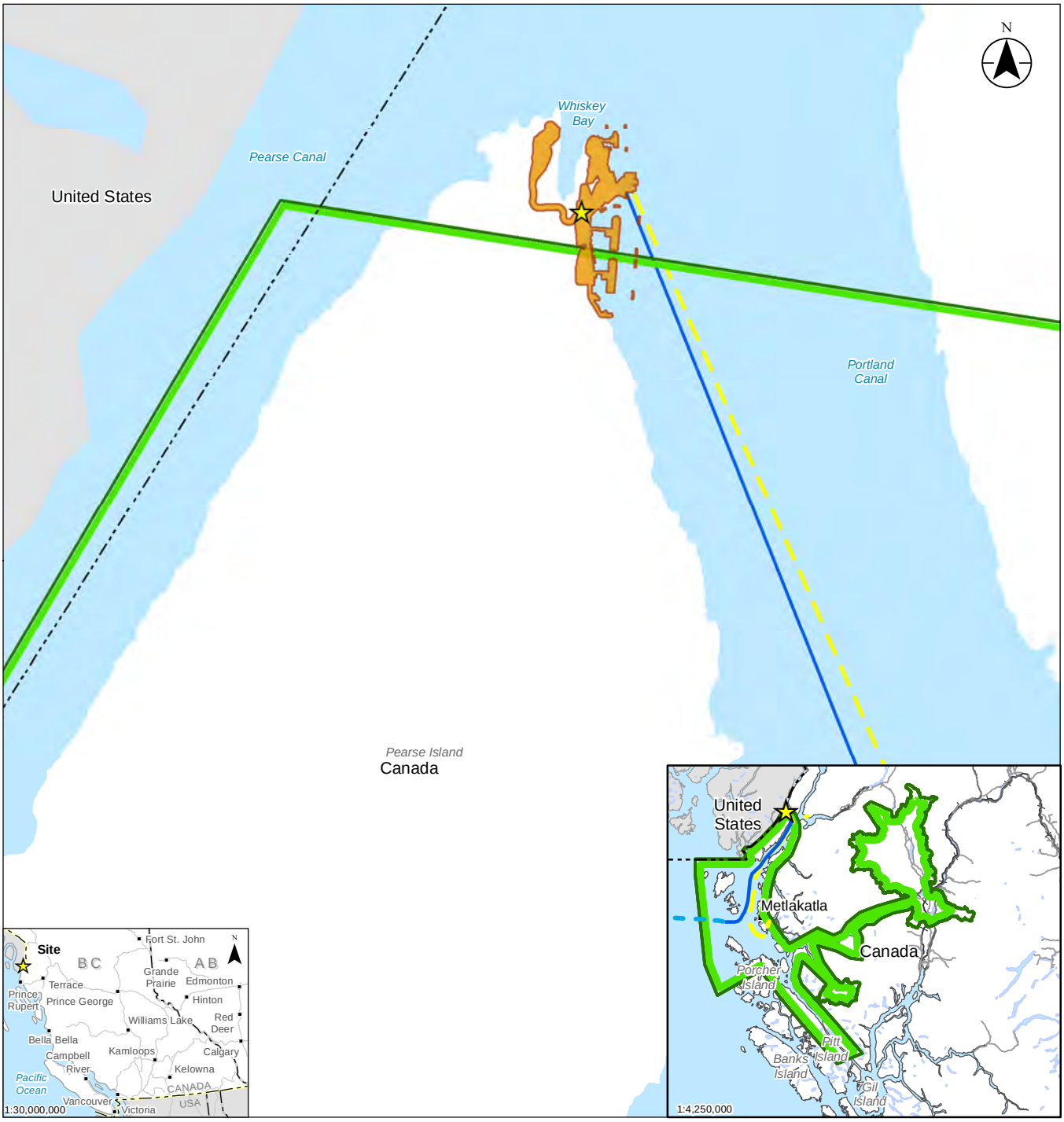
Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by SMOSS on 20230828
Requested by AGAUVREAU on 20220902
Checked by TQUILICHINI on 20230828

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-9

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Marine Use



KSI LISIMS LNG

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

- Site
- Marine Shipping Route
- Open Water Marine Shipping Route
- Materials and Supply Shipping Route
- Kitsumkalum First Nation Traditional Territory

Heritage
- Archaeological and Heritage Resources Local/Regional Assessment Area
- International Boundary
- Waterbody

0 0.5 1 1.5 2 km
1:60,000 (at original document size of 8.5x11)

Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by TQUILICHINI on 20220916
Requested by AGAUVREAU on 20220902
Checked by SMOSS on 20220916

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-10

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Archaeological Heritage and Resources

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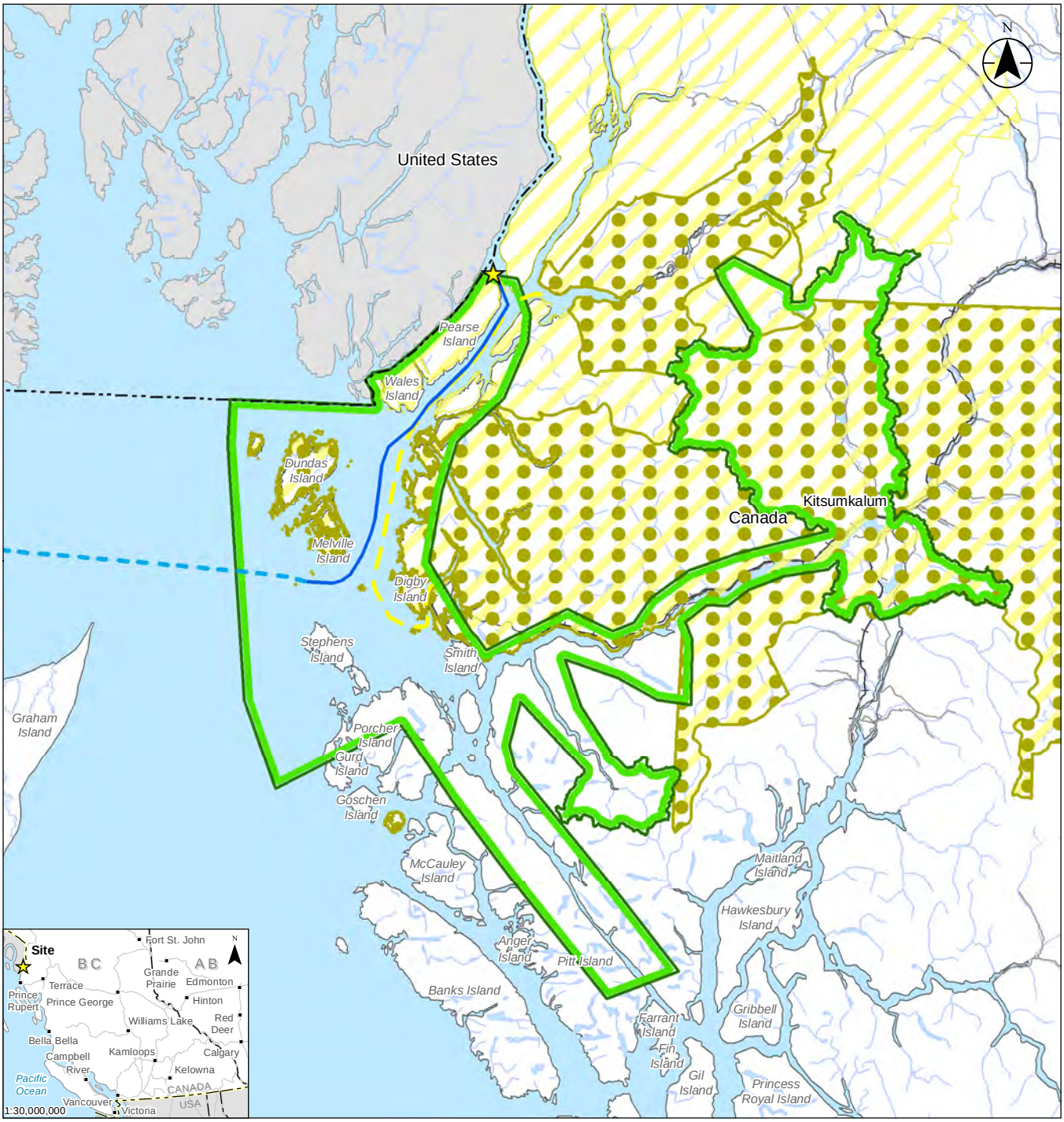


KSI LISIMS LNG

Site
Marine Shipping Route
Open Water Marine Shipping Route
Materials and Supply Shipping Route
Kitsumkalum First Nation Traditional Territory

Infrastructure and Services
Infrastructure and Services Local Assessment Area
Infrastructure and Services Regional Assessment Area
International Boundary
Railway
Watercourse
Waterbody

0 15 30 45 60 km
1:1,500,000 (at original document size of 8.5x11)

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

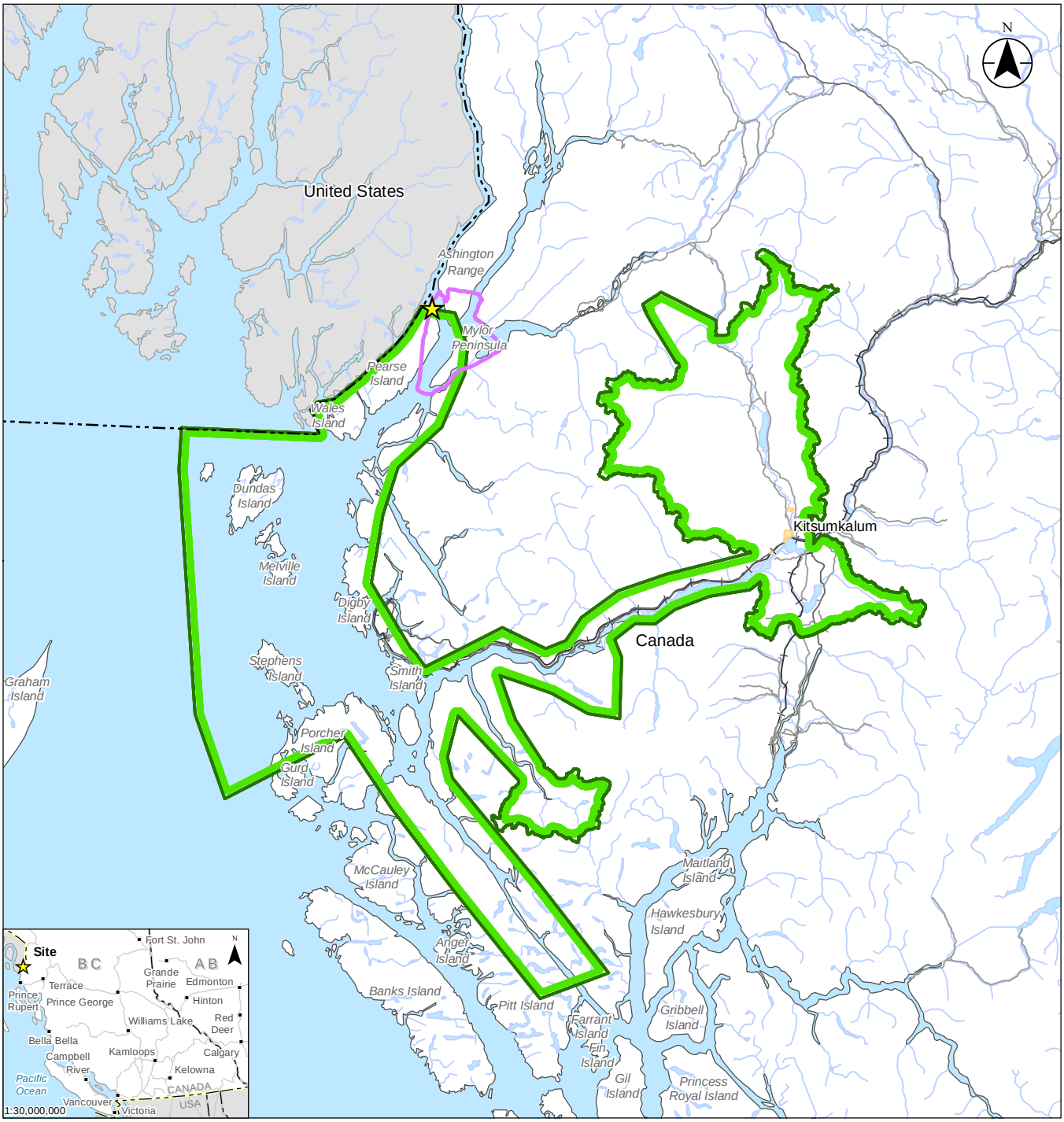
Stantec

Project Location: Pearse Island, BC
Project Number: 123221820
Prepared by TQUILICHINI on 20221202
Requested by AGAUVREAU on 20221121

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-11

Title
Assessment Boundaries for Kitsumkalum First Nation Traditional Territory Infrastructure and Services



KSI LISIMS LNG

Site

Kitsumkalum First Nation Traditional Territory

Transmission Line Assessment Area

International Boundary

Railway

Watercourse

Waterbody

Reserve Land

0 15 30 45 60 km

1:1,575,000 (at original document size of 8.5x11)

Notes
1. Coordinate System: NAD 1983 BC Environment Albers
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada, Maxar, Rockies LNG

Stantec

Project Location:
Pearse Island, BC

Project Number: 123221820
Prepared by TQUILICHINI on 20230710
Requested by AGAVREAU on 20230705
Checked by XX on 20230710

Client/Project/Report
Ksi Lisims LNG
Natural Gas Liquefaction and Marine Terminal
Environmental Assessment - Impact Assessment

Figure No.
14.16-12

Title
Transmission Line Assessment Area & Kitsumkalum First Nation Traditional Territory

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