Kitimat LNG

Project Description

Kitimat LNG Expansion Project

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KITIMAT LNG EXPANSION PROJECT

Project Description

Kitimat LNG
LNG Plant

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ABBREVIATIONS

BC	British Columbia
BCEAA	British Columbia *Environmental Assessment Act*, S.B.C. 2002, c. 43
BCEAO	British Columbia Environmental Assessment Office
Bcfd	Billion cubic feet per day
BEC	Biogeoclimatic Ecosystem Classification
bpd	barrels per day
BC Hydro	BC Hydro and Power Authority
CEAA 2012	*Canadian Environmental Assessment Act*, S.C. 2012, c. 19
CEA Agency	Canadian Environmental Assessment Agency
Chevron	Chevron Canada Limited
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CHN	Council of Haida Nation
CWH	Coastal Western Hemlock
DFO	Fisheries and Oceans Canada
DMP	Decommissioning Management Plan
DMR	Dual Mixed Refrigerant
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAC E06-01	Environmental Assessment (EA) Certificate E06-01
ECCC	Environment and Climate Change Canada
ECCS (formerly MOE)	British Columbia Ministry of Environment and Climate Change Strategy (formerly Ministry of Environment (MOE))
FEED	Front End Engineering Design
FID	Final investment decision
FLNRORD (formerly FLNRO)	British Columbia Ministry of Forests, Lands and Natural Resource Operations and Rural Development (formerly Ministry of Forests, Lands and Natural Resource Operations (FLNRO))
FNLP	First Nations Limited Partnership
former CEAA	*Canadian Environmental Assessment Act*, S.C. 1992, c. 37
FSR	Forest Service Road
Gitga'at	Gitga'at Nation
Gitxaala	Gitxaala Nation
ha	hectares

HAZID	Hazard Identification
HC	Hydrocarbon
HES	Health, Environment, Safety
HNS	Hazardous and Noxious Substances
INAC	Indigenous and Northern Affairs Canada (now Crown-Indigenous Relations and Northern Affairs Canada)
IMO	International Maritime Organization
ISBL	Inside Battery Limits
Kitselas	Kitselas First Nation
Kitsumkalum	KitsumkalumFirst Nation
KLNG Expansion Project	Kitimat LNG Expansion Project
KLNG Foundation Project	Kitimat LNG Foundation Project (Compact E-drive Design)
KLNG Project	Kitimat LNG Project
km	kilometre
km^2	Square kilometre
KM LNG	KM LNG Operating General Partnership
kV	kilovolt
L/s	litres per second
Lax Kw'alaams	Lax Kw'alaams Band
LBW	Land Backed wharf
LNG	Liquified Natural Gas
m	metre
m^3	cubic metre
m^3/d	cubic metres per day
m^3/hr	cubic metres per hour
Mm^3	Million cubic metres
MEMPR (formerly MEM)	British Columbia Ministry of Energy Mines, and Petroleum Resources (formerly Ministry of Energy and Mines (MEM))
Metlakatla	Metlakatla First Nation
MMcfd	Million cubic feet per day
MNBC	Metis Nation of BC
MTPA	Million tonnes per annum

NEB	National Energy Board
NGL	Natural Gas Liquids
OGC	British Columbia Oil and Gas Commission
OSBL	Outside Battery Limits
PPT	parts per thousand
Pre-FEED	Preliminary Front End Engineering Design (*i.e.*, concept definition)
PTP	Pacific Trail Pipeline
ROW	Right-of-way
TC	Transport Canada
TUS	Traditional Use Study
TERMPOL	Technical Review Process of Marine Terminal Systems and Transshipment Sites
TRP	TERMPOL Review Process
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
USGC	United States Gulf Coast
VC	Valued Component
WCSB	Western Canadian Sedimentary Basin
Woodside	Woodside Energy International (Canada) Limited
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Guide to Preparing a Description of a Designated Project under the Canadian Environmental Assessment Act, 2012

Project Description Requirements		Section in this Project Description	Notes
1.0	General Information and Contact(s)		
1.1	Describe the nature of the designated project, and proposed location (2–3 paragraphs; note additional location details are to be provided in section 3).	1.1 Project Summary	
1.2	Proponent information		
1.2.1	Name of the designated project.	1.1 Project Summary	
1.2.2	Name of the proponent.	1.3 Proponent Contact	
1.2.3	Address of the proponent.		
1.2.4	Chief Executive Officer or equivalent (include name, official title, email address and telephone number).		
1.2.5	Principal contact person for purposes of the project description (include name, official title, email address and telephone number).		
1.3	Provide a list of any jurisdictions and other parties including Aboriginal groups and the public that were consulted during the preparation of the project description. (A description of the result of any consultations undertaken is to be provided in sections 7 and 8).	1.4 Jurisdictions and Parties Consulted	
1.4.1	Provide information on whether the designated project is subject to the environmental assessment and/or regulatory requirements of another jurisdiction(s).	1.5 Regulatory History and Context	
1.4.2	Provide information on whether the designated project will be taking place in a region that has been the subject of an environmental study. Proponents are advised to contact the Agency during the preparation of the project description for information regarding any regional environmental studies that may be relevant.	1.5 Regulatory History and Context	A Kitimat Airshed Study has been completed but no regional environmental study has completed for the Kitimat or Douglas Channel area
2.0	Project Information		
2.1	Provide a general description of the project, including the context and objectives of the project.	2.1 Project Purpose and Rationale	

Project Description Requirements		Section in this Project Description	Notes
2.2	Indicate the provisions in the Regulations Designating Physical Activities setting out the designated activities that describe the project in whole or in part.	2.2 Designated Physical Activities under *Canadian Environmental Assessment Act* (CEAA) 2012	
2.3	Components and activities Provide a description of the components associated with the designated project, including:	2.3 Project Components and Activities	
2.3.1	The physical works associated with the designated project (e.g., large buildings, other structures, such as bridges, culverts, dams, marine transport facilities, mines, pipelines, power plants, railways, roads, and transmission lines) including their purpose, approximate dimensions, and capacity. Include existing structures or related activities that will form part of or are required to accommodate or support the designated project.	2.3.1 Project Components	
2.3.2	Anticipated size or production capacity of the designated project, with reference to thresholds set out in the Regulations Designating Physical Activities, including a description of the production processes to be used, the associated infrastructure, and any permanent or temporary structures.	2.3.1 Project Components	
2.3.3	If the designated project or one component of the designated project is an expansion, the percent of increase in size or capacity from the existing project (relative to the thresholds set out in the Regulations Designating Physical Activities).	2.2 Designated Physical Activities under CEAA 2012	80% (+8 MTPA - from 10 MPTA to 18 MPTA)
2.3.4	A description of the physical activities that are incidental to the designated project.	2.3.2 Project Activities	
2.4	Emissions, discharges and waste Provide a description of any solid, liquid, gaseous or hazardous wastes likely to be generated during any phase of the designated project and of plans to manage those wastes, including the following:	2.3.2 Project Activities	
2.4.1	Sources of atmospheric contaminant emissions during the designated project phases (focusing on criteria air contaminants and greenhouse gases, or other non-criteria contaminants that are of potential concern) and location of emissions.	2.3.2 Project Activities	
2.4.2	Sources and location of liquid discharges.	2.3.2 Project Activities	

Project Description Requirements		Section in this Project Description	Notes
2.4.3	Types of wastes and plans for their disposal (e.g., landfill, licenced waste management facility, marine waters, or tailings containment facility).	2.3.2 Project Activities	
2.5	Construction, operation, decommissioning and abandonment phases and scheduling. Provide a description of the timeframe in which the development is to occur and the key project phases, including the following:	2.4 Project Schedule	
2.5.1	Anticipated scheduling, duration and staging of key project phases, including preparation of the site, construction, operation, decommissioning and abandonment.	2.4 Project Schedule	
2.5.2	Main activities in each phase of the designated project that are expected to be required to carry out the proposed development (e.g., activities during site preparation or construction might include, but are not limited to, land clearing, excavating, grading, de-watering, directional drilling, dredging and disposal of dredged sediments, infilling, and installing structures).	2.3.2 Project Activities	
3.0	Project Location		
3.1	Provide a description of the designated project's location including:		
3.1.1	Coordinates (i.e., longitude/latitude using international standard representation in degrees, minutes, seconds) for the centre of the facility or, for a linear project, provide the beginning and end points.	3 Project Location	
3.1.2	Site map/plan(s) depicting location of the designated project components and activities. The map/plan(s) should be at an appropriate scale to help determine the relative size of the proposed components and activities.	Figures 3-1 & 3-2	
3.1.3	Map(s) at an appropriate scale showing the location of the designated project components and activities relative to existing features, including but not limited to: ♦ watercourses and waterbodies with names where they are known;	Figures 3-1 & 3-2	
	♦ linear and other transportation components (e.g., airports, ports, railways, roads, electrical power transmission lines and pipelines);	Figures 3-1 & 3-2	

Project Description Requirements		Section in this Project Description	Notes
	♦ other features of existing or past land use (e.g., archaeological sites, commercial development, houses, industrial facilities, residential areas and any waterborne structures);	Figures 3-1 & 3-2	
	♦ location of Aboriginal groups, settlement land (under a land claim agreement) and, if available, traditional territory;	Appendix D	
	♦ federal lands[1] including, but not limited to National parks, National historic sites, and reserve lands;	Figures 3-1 & 3-2	
	♦ nearby communities;	Figures 3-1	
	♦ permanent, seasonal or temporary residences;	Figures 3-1	
	♦ fisheries and fishing areas (i.e., Aboriginal, commercial and recreational);	Figures 3-1 & 3-2	Fishing areas are throughout Douglas Channel but Aboriginal fishing areas are not identified at First Nations request
	♦ environmentally sensitive areas (e.g., wetlands, and protected areas, including migratory bird sanctuary reserves, marine protected areas, National Wildlife areas, and priority ecosystems as defined by Environment Canada);	Figure 3-1	
	♦ Provincial and international boundaries.	Figure 3-1	
3.1.4	Photographs of work locations to the extent possible.	Appendix C	
3.1.5	Legal description of land to be used for the designated project, including the title, deed or document and any authorization relating to a water lot.	3 Project Location	
3.1.6	Proximity of the designated project to: ♦ any permanent, seasonal or temporary residences;	3 Project Location	

[1] As defined in CEAA 2012, "federal lands" means:
(a) lands that belong to Her Majesty in right of Canada, or that Her Majesty in right of Canada has the power to dispose of, and all waters on and airspace above those lands, other than lands under the administration and control of the Commissioner of Yukon, the Northwest Territories, or Nunavut;
(b) the internal waters of Canada (in any area of the sea not within a province), the territorial sea of Canada (in any area of the sea not within a province), the exclusive economic zone of Canada, and the continental shelf of Canada; and
(c) Reserves, surrendered lands and any other lands that are set apart for the use and benefit of a band and that are subject to the Indian Act, and all waters on and airspace above those reserves or lands.

Project Description Requirements		Section in this Project Description	Notes
	♦ traditional territories, settlement land (under a land claim agreement) as well as lands and resources currently used for traditional purposes by Aboriginal peoples; and,	6.4 Indigenous Engagement and Consultation Activities; Appendix D	
	♦ any federal lands.	Figure 3-1	
3.2	Land and Water Use To the extent that is known at this time, describe the ownership and zoning of land and water that may be affected by the project, including the following.	3 Project Location	
3.2.1	Zoning designations.	3 Project Location	
3.2.2	Current land ownership, including sub-surface rights.	3 Project Location	
3.2.3	Any applicable land use, water use (including ground water), resource management or conservation plans applicable to or near the project site.	Not applicable	
3.2.4	For the proposed construction, operation, decommission and abandonment of a marine terminal, state whether or not the lands are routinely, and have been historically, used as a marine terminal, or are designated for such use in a land use plan that has been the subject of public consultation.	1.5 Regulatory History and Context	
3.2.5	If the project is to take place within the waters or lands administered by a Canada Port Authority under the *Canada Marine Act* and its regulations. Describe applicable land status and zoning under the Port Land Use Plan.	Not Applicable	
3.2.6	If the designated project is going to require access to, use or occupation of, or the exploration, development and production of lands and resources currently used for traditional purposes by Aboriginal peoples.	1.4 Jurisdictions and Parties Consulted	
4.0	Federal Involvement – Financial Support, Lands and Legislative Requirements		
4.1	Describe if there is any proposed or anticipated federal financial support that federal authorities are, or may be, providing to support the carrying out of the designated project.	4.1 Federal Lands	

Project Description Requirements		Section in this Project Description	Notes
4.2	Describe any federal lands that may be used for the purpose of carrying out the designated project. This is to include any information on any granting of interest in federal land (i.e., easement, right of way, or transfer of ownership).	4.1 Federal Lands	
4.3	Detail any federal legislative or regulatory requirements that may be applicable, including a list of permits, licences or other authorizations that may be required to carry out the designated project.	4.2 Federal Permits and Approvals	
5.0	Environmental Effects		
5.1	A description of the physical and biological setting, including the physical and biological components in the area that may be adversely affected by the project (e.g., air, fish, terrain, vegetation, water, wildlife, including migratory birds, and known habitat use).	5.1 Environmental Setting	
5.2	A description of any changes that may be caused as a result of carrying out the designated project to: (a) fish and fish habitat, as defined in the Fisheries Act;	2.3.2 Project Activities 5.1.4 Marine Resources 5.2.2 Preliminary Effects Assessment of KLNG Expansion Project	
	(b) marine plants, as defined in the *Fisheries Act* ; and,	2.3.2 Project Activities 5.1.4 Marine Resources 5.2.2 Preliminary Effects Assessment of KLNG Expansion Project	
	(c) migratory birds, as defined in the *Migratory Birds Convention Act*, 1994.	2.3.2 Project Activities 5.1.4 Marine Resources 5.2.2 Preliminary Effects Assessment of KLNG Expansion Project	
5.3	A description of any changes to the environment that may occur, as a result of carrying out the designated project, on federal lands, in a province other than the province in which the project is proposed to be carried out, or outside of Canada.	4 Federal Involvement 4.2.1.1 TERMPOL	

Project Description Requirements		Section in this Project Description	Notes
5.4	A description of the effects on Aboriginal peoples of any changes to the environment that may be caused as a result of carrying out the designated project, including effects on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.	5.2.2 Preliminary Effects Assessment of KLNG Expansion Project 6.2 Potentially Affected Indigenous Communities	
6.0	Proponent Engagement and Consultation with Aboriginal Groups		
6.1	A list of Aboriginal groups that may be interested in, or potentially affected by, the designated project.	6 Proponent Engagement and Consultation with Indigenous Groups	
6.2	A description of the engagement or consultation activities carried out to date with Aboriginal groups, including: ♦ names of Aboriginal groups engaged or consulted to date with regard to the designated project	1.4 Jurisdictions and Parties Consulted 6.4 Indigenous Engagement and Consultation Activities 6.6 Ongoing Engagement and Consultation Activities	
	♦ date(s) each Aboriginal group was engaged or consulted; and	1.4 Jurisdictions and Parties Consulted 6.4 Indigenous Engagement and Consultation Activities5	
	♦ means of engagement or consultation (e.g., community meetings, mail or telephone).	1.4 Jurisdictions and Parties Consulted 6.4 Indigenous Engagement and Consultation Activities5	
6.3	An overview of key comments and concerns expressed by Aboriginal groups identified or engaged to date, including any responses provided to these groups.	6.5 Key Issues Identified By Indigenous Groups To Date	
6.4	An overview of information on current use of lands and resources for traditional purposes by Aboriginal groups or peoples (e.g., information provided verbally or in writing, and past or present studies).	6.3 Current Use of Lands and Resources for Traditional Purposes	

Project Description Requirements		Section in this Project Description	Notes
6.5	A consultation and information-gathering plan that outlines the ongoing and proposed Aboriginal engagement or consultation activities, the general schedule for these activities and the type of information to be exchanged and collected (or, alternatively, an indication of why such engagement or consultation is not required). The proponent is encouraged to provide background information on Aboriginal groups' potential or established Aboriginal or treaty rights. The proponent is also encouraged to provide information on the impact area of the designated project and how it overlaps with uses by Aboriginal groups that have potential or established Aboriginal or treaty rights. This information will be used to facilitate the Agency's understanding of the scope of Aboriginal interests in relation to the designated project, including the potential for impacts on Aboriginal rights and issues of concern.	6.6 Ongoing Engagement and Consultation Activities	A consultation plan is being developed
7.0	Consultation with the Public and Other Parties (other than Aboriginal consultation included above)		
7.1	A list of stakeholders that may be interested and potentially affected by the carrying out of the designated project. In addition, please describe consultation activities carried out to date with stakeholders, including: - names of stakeholders previously consulted; - date(s) each stakeholder was consulted; and, - means of consultation (e.g., community meetings, mail or telephone).	7 Consultation with the Public and Other Parties	
7.2	An overview of key comments and concerns expressed to date by stakeholders and any responses that have been provided.	7.4 Key Issues Identified by the Public and Government Agencies	
7.2	An overview of any ongoing or proposed stakeholder consultation activities.	7.5 Ongoing Engagement and Consultation Activities	
7.3	A description of any consultations that have occurred with other jurisdictions that have environmental assessment or regulatory decisions to make with respect to the project.	7.2 Government Engagement Activities	

1 General Information and Contacts

1.1 Project Summary

The Proponent, KM LNG Operating General Partnership (KM LNG), is proposing the Kitimat LNG Expansion Project (KLNG Expansion Project) at Bish Cove within the District of Kitimat, BC., and on Haisla Nation reserve land. The KLNG Expansion Project is a 50/50 joint venture between Chevron Canada Limited (Chevron) and Woodside Energy International (Canada) Limited (Woodside).

The Kitimat LNG Project (KLNG Project) has been previously authorized to be developed, operated, and decommissioned at the Bish Cove site (see Sections 1.5.1 to 1.5.3). The KLNG Project includes a liquefied natural gas (LNG) plant, marine terminal, power line connecting natural gas pipeline, condensate return pipeline, access road, and the use of existing shipping routes in BC coastal waters. The KLNG Project includes the production, storage, and loading of LNG for marine transportation to overseas markets.

Part of the Bish Cove site is on Bees Indian Reserve (IR) No. 6. All project components (including the LNG plant and storage facility, which are on Bees IR No. 6) were assessed through federal review. Provincial Environmental Assessment (EA) Certificate E06-01 (EAC E06-01) was issued in early 2006, covering those KLNG Project components located outside of Bees IR No. 6. The EAC E06-01 was amended in 2009 to include a project update for the liquefaction of 5 million tonnes per annum (MTPA). By October 2010, the KLNG Project was planned to include two (2) LNG Trains, for a total processing capacity of 10 MTPA. The Haisla Nation approved the lease of Bees IR No. 6 to KM LNG in November 2010, and the lease was subsequently issued by Indigenous and Northern Affairs Canada (INAC) now Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). The Canadian Environmental Assessment (CEA) Agency subsequently determined in 2013 that no further federal EA review was required for an increase in LNG processing capacity from 5 to 10 MTPA (see Section 1.5.3).

The Proponent is proposing a number of changes to the prior KLNG Project design concept that enhance the project's cost, schedule, execution, and operating and environmental performance relative to the prior design. The 2019 KLNG Expansion Project comprises two phases:

1. an optimization of the two (2) LNG Train configuration to use a compact, all-electric drive design with a combined output capacity of 12 MPTA, an optimized marine terminal and reduced LNG storage capacity (the Compact E-drive Design), and

2. a potential expansion (Third LNG Train Expansion) that includes an additional LNG processing train (three (3) trains total), an LNG storage tank and an additional LNG loading berth on the KLNG Foundation Project site.

The Proponent is proposing a preferred development concept, which includes an advanced compact module design that enables low-cost operation, high facility efficiency and availability with the lowest physical footprint per unit of LNG production, relative to other recent and proposed comparable global LNG project norms. In addition, the development concept includes an all-electric plant powered by clean, renewable hydroelectricity from BC Hydro, and will set the global standard for the lowest emissions intensity of any large-scale LNG facility. This new compact module, all-electric drive (Compact E-Drive) design has led to step change improvements, including substantial reductions in LNG unit costs, execution risk, and emissions, and more effective utilization of the Bish Cove site. The proposed Compact E-Drive Design has increased the combined two (2) LNG Train output capacity from 10 to 12 MPTA. In this design,

approximately 212 m^3/d of condensate product will be recovered from the feed gas and piped off site for export via rail, which is an increase of 35.6 m^3/d over the 10 MTPA design.

The Third LNG Train Expansion involves the future addition of a Third LNG Train on the existing KLNG Foundation Project site, with supporting utilities and infrastructure, to achieve a total output capacity of 18 MTPA (the KLNG Expansion Project). The proposed Third LNG Train Expansion will result in an increase in condensate product export from approximately 212 to 318 m^3/d.

The CEA Agency have advised the Proponent that the increase in project capacity from 10 to 18 MTPA (+80%) constitutes a designated activity under section 15(d) of the Regulations Designating Physical Activities as "an expansion of a facility for the liquefaction, storage or regasification of liquefied natural gas that would result in an increase in the liquefied natural gas processing … capacity of 50% or more …". **Accordingly, this Project Description is being submitted for Screening under CEAA 2012 to determine if a further federal EA is required for the Kitimat LNG Expansion Project.**

Additionally, the potential effects of the proposed changes from the previously provincially approved project are being assessed in support of an application to amend the provincial EA certificate that authorizes the development of project components located on provincial Crown land (EAC E06-01 Amendment #3). It is anticipated that federal agencies will be among those participating on a Technical Working Group to be established for the review of EAC E06-01 Amendment #3.

1.2 Document Purpose

This document has been prepared for the CEA Agency as the basis for Screening of the KLNG Expansion Project under CEAA 2012 to determine whether a federal EA is required. The Project Description is also being provided to the BC Environmental Assessment Office (BCEAO) in support of a request to EAC E06-01 under section 19(1) of the BC *Environmental Assessment Act* (BCEAA) and anticipated discussions with the BCEAO regarding procedural and information requirements for the amendment application and review.

1.3 Proponent Contact

KM LNG is the Proponent and current Holder of EAC E06-01. Chevron and KM LNG are co-venturers in the development of the KLNG Project. The KLNG Project is operated by Chevron. Primary and alternate proponent contact information is provided in Table 1-1.

Table 1-1 KLNG Project Contact Information

Project Name:	Kitimat LNG Expansion Project
Proponent Name:	KM LNG Operating General Partnership (KM LNG)
Proponent Address:	c/o Chevron Canada Limited 500 - Fifth Avenue SW Calgary, AB T2P 0L7
Chief Executive Officer or equivalent:	Frank Cassulo (President, Chevron Canada Limited)
Principal Contact:	Darcy Janko, Regulatory and Compliance Manager Chevron Canada Limited Tel: 403 234 5035 Email: darcyjanko@chevron.com
Alternate Contact:	Michelle Gilders, Regulatory & Environmental Lead Chevron Canada Limited Tel: 403 234 5092 Email: michellegilders@chevron.com

1.4 Jurisdictions and Parties Consulted

Chevron initially presented the revised KLNG facility Compact E-Drive Design to Haisla Nation Council in late October 2017. Since that time, engagement with the Haisla Nation has been centred on clarifying the changes to the design, reasoning behind the changes, the potential positive and negative impacts, and identifying potential environmental mitigation and possible accommodation measures.

Chevron provided the Haisla Nation with a Project Update Document on March 1, 2019, which was submitted to the CEA Agency and BCEAO on March 28, 2019. In late June 2019, Chevron provided legal counsel for the Haisla Nation with early drafts of chapters 5 Environmental Effects and 6 Proponent Engagement and Consultation with Indigenous Groups, from the draft CEAA Project Description, for their review and comment. On July 3, 2019, Chevron provided a draft CEAA Project Description for their review and possible comment**.**

Table 1-2 provides a summary of formal meetings with the Haisla Nation on the new project design and does not include emails, phone calls and other communications that pertain to the new project design.

During the late 2017 to present timeframe there have been numerous engagements with the Haisla Nation on issues not directly related to the new project design, such as but not limited to permitting for ongoing activities, coordination meetings between Haisla Nation, KLNG and other potential projects on or near the pipeline right-of-way (ROW), Industrial site aeration outflow construction site permit and site visit, ongoing environmental studies being conducted for gathering of baseline data, Storm water runoff permit, Heritage permits as well as other social investment activities and participation in community events.

Table 1-2 KLNG - Haisla Nation Meetings Regarding New Design

Date	Department	Communication Summary
20-Oct-17	Haisla Nation Chief and Council	KLNG met with Haisla Nation Council to provide project update. KLNG explained that they were exploring the use of e-drive powered by BC Hydro, that they had re-configured the plant to reduce cost explaining that the present concept would include a Land Backed Wharf (LBW). KLNG advised that they wanted to consult with the Haisla Nation on the new concept as it was a change to the original footprint.
5-Dec-17	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team to update them on preferred facility's concept that was presented to Haisla Nation Council on Oct 20th. KLNG explained the process as to how the new concept was selected.
21-Feb-18	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team to further discuss the new preferred concept of the facility. KLNG explained rationale for needing the LBW and its criticality for a competitive and economic LNG plant project. KLNG also provided a high-level environmental assessment and comparison with previous concepts.
22-Feb-18	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team to initiate high level preliminary assessment of potential habitat offsetting that would be required due to LBW and to discuss some conceptual programs and locations of the offsetting projects.

Date	Department	Communication Summary
20-Mar-18	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team and discussed the new preferred concept and continued discussions on habitat offsetting selection process.
27-Mar-18	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team to provide background on new concept, update on environmental work, summary of benefits and discuss next steps.
10-Apr-18	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team to discuss proposed changes to the Kitimat LNG project plant site. Discussion took place on habitat offsetting in general, potential impacts to eelgrass and possible mitigation measures including replanting of eelgrass.
17-Apr-18	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team to discuss a number of matters related to the Kitimat LNG project including sharing information and background on the new preferred concept for the plan and the foreshore lease.
9-May-18	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with for a half-day workshop to discuss and seek input on possible fish habitat offsetting programs for the Kitimat LNG project. Discussions took place regarding potential projects and the project selection process, a proposed schedule for meetings, and next steps.
12-Jul-18	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team to review and discuss potential fish habitat offsetting programs. KLNG explained the process that they were proposing to identify potential habitat offsetting sites, the criteria and the result of the first cut which left 44 sites for consideration. List of all the sites reviewed, criteria for the review and map showing the 44 sites was shared with Haisla Nation.
24-Jul-18	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team discussions on the Foreshore Lease and Habitat Offsetting options.
24-Sep-18	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team to provide a project update, and a presentation on the nature of and phases to the construction of the LBW to answer the Haisla Nation' s earlier question KLNG provide an update on the habitat offsetting work done to date, highlighting reconnaissance completed, eelgrass pilot project work and initial looks at Oxbow and eulachon research support.
15-Oct-18	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team to discuss progress on Haisla Nation/BC foreshore lease discussions.

Date	Department	Communication Summary
30-Oct-18	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team to provide update on habitat offsetting reconnaissance completed in early Sept. and to further review and discuss plans for habitat offsetting and specifically eelgrass pilot project scheduled for re-planting in spring 2019.
29-Jan-19	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team. Discussions centred on the Land Backed Wharf as well as the increase in LNG output and marine traffic from the new design
28-Feb-19	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team primarily to provide an update and site visit on the Industrial site landfill project. During the meeting several other topics were discussed including locations for replanting of the eelgrass for the Eelgrass pilot project
1-Mar-19	Haisla Nation Council Administration, CEO, Economic Development	KLNG provided the Haisla Nation with copies of the KLNG Project Update provided to CEAA and the BC EAO.
16-Apr-19	Haisla Nation Council's Lands, Environment and Fisheries	KLNG met with Haisla Nation technical team to review and discuss the socio-economic baseline data collection program for use in the EA amendment as well as provide an update on eelgrass pilot project.
25-Apr-19	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team to further discuss potential impacts and possible accommodation.
21-May-19	Haisla Nation Council Administration, CEO, Economic Development	KLNG met with Haisla Nation commercial team to provide an in-depth commercial update on the KLNG project

Table 1-3 provides a summary of formal meetings with federal departments and agencies and BC provincial departments and agencies. on the new Compact E-Drive Design and does not include emails, phone calls and other communications that pertain to the new project design.

Table 1-3 KLNG - Government Consultation

Date	Department	Purpose
21-Sep-17	BC Ministry of Energy Mines and Petroleum Resources	KLNG described potential changes to the LNG Plant design that were being considered and assessed, including an all electric drive LNG plant to affirm Government's view on alignment with environmental and resource development policy objectives.
12-Oct-17	Natural Resources Canada / BC Ministry of Energy Mines and Petroleum Resources	KLNG described potential changes to the LNG Plant design that were being considered and assessed, including an all electric drive LNG plant to affirm Government's view on alignment with environmental and resource development policy objectives.

Date	Department	Purpose
26-Oct-17	Natural Resources Canada / BC Ministry of Energy Mines and Petroleum Resources	KLNG described potential changes to the LNG Plant design that were being considered and assessed, including an all electric drive LNG plant to affirm Government's view on alignment with environmental and resource development policy objectives.
16-Nov-17	Natural Resources Canada / BC Ministry of Energy Mines and Petroleum Resources	KLNG described potential changes to the LNG Plant design that were being considered and assessed, including an all electric drive LNG plant to affirm Government's view on alignment with environmental and resource development policy objectives, and required electricity transmission requirements.
8-Dec-17	Natural Resources Canada	KLNG described potential changes to the LNG Plant design that were being considered and assessed, including an all electric drive LNG plant to affirm Government's view on alignment with environmental and resource development policy objectives, and required electricity transmission requirements.
23-Feb-18	BC Ministry of Energy Mines and Petroleum Resources	KLNG provided update on potential changes to the LNG Plant design, including First Nations engagement and required electricity transmission requirements.
14-Mar-18	BC Ministry of Energy Mines and Petroleum Resources	KLNG described potential changes to the LNG Plant design that were being considered and assessed, including an all electric drive LNG plant to affirm Government's view on alignment with environmental and resource development policy objectives, and required electricity transmission requirements.
19-Mar-18	BC Ministry of Environment and Climate Change Strategy/BC Ministry of Finance	KLNG provided update on potential changes to the LNG Plant design and required electricity transmission requirements.
28-Mar-18	Environment and Climate Change Canada	KLNG provided update on potential changes to the LNG Plant design and required electricity transmission requirements.
25-Apr-18	Natural Resources Canada / Finance Canada	KLNG provided update on potential changes to the LNG Plant design and required electricity transmission requirements.
26-Jun-18	Natural Resources Canada / BC Ministry of Energy Mines and Petroleum Resources	KLNG provided update on potential changes to the LNG Plant design and required electricity transmission requirements.
17-Jul-18	Environment and Climate Change Canada	KLNG provided update on proposed changes to the LNG Plant design, environmental impacts and mitigations and regulatory considerations associated with the new project design.
17-Jul-18	Environment and Climate Change Canada	KLNG provided update on proposed changes to the LNG Plant design and required electricity transmission requirements.

Date	Department	Purpose
20-Aug-18	Canadian Environmental Assessment Agency	KLNG provided update on proposed changes to the LNG Plant design and required electricity transmission requirements.
28-Sep-18	BC Ministry of Energy Mines and Petroleum Resources	KLNG provided update on proposed changes to the LNG Plant design and required electricity transmission requirements.
11-Oct-18	Natural Resources Canada	KLNG described the drivers for the KLNG Project optimization and the role of new technology (E-drives) to affirm Government's view on alignment with environmental policy objectives.
15-Nov-18	BC Office of the Premier	KLNG described the drivers for the KLNG Project optimization and the role of new technology (E-drives) to affirm Government's view on alignment with environmental policy objectives.
19-Nov-18	Environment and Climate Change Canada / Natural Resources Canada	KLNG discussed how the KLNG Project is being designed to meet increasing global demand for cleaner, affordable, reliable energy, reducing global emissions at scale, partnering with First Nations, and creating prosperity for Canada.
11-Mar-19	Natural Resources Canada / BC Ministry of Energy Mines and Petroleum Resources	KLNG discussed how the KLNG Project is being designed to meet increasing global demand for cleaner, affordable, reliable energy, reducing global emissions at scale, partnering with First Nations, and creating prosperity for BC and Canada.
8-Apr-19	BC Ministry of Finance	KLNG provided an update on project design changes; engagement with First Nations; and community feedback from Haisla Nation LNG Trade Show and Conference. Sought feedback on potential concerns with KLNG Project.
8-Apr-19	BC Ministry of Energy Mines and Petroleum Resources	KLNG provided an update on project design changes; engagement with First Nations; and community feedback. Sought feedback on potential concerns with KLNG Project.
8-Apr-19	BC Ministry of Indigenous Relations and Reconciliation	KLNG provided an update on project design changes; engagement with First Nations; and community feedback. Sought feedback on potential concerns with KLNG Project.
8-Apr-19	BC Ministry of Forests Lands Natural Resources Operations and Rural Development	KLNG provided an update on project design changes; engagement with First Nations; and community feedback. Sought feedback on potential concerns with KLNG Project.
8-Apr-19	BC Ministry of Environment and Climate Change Strategy	KLNG provided an update on project design changes; engagement with First Nations; and community feedback. Sought feedback on potential concerns with KLNG Project.

Date	Department	Purpose
26-Apr-19	BC Oil and Gas Commission	KLNG provided an update on project design changes; engagement with First Nations; and community feedback. Sought advice on learnings from other LNG projects relevant to KLNG Project and discussed process for seeking necessary regulatory approvals through OGC.
26-Apr-19	BC Ministry of Energy Mines and Petroleum Resources and BC Ministry of Environment and Climate Change Strategy	KLNG provided an update on project design changes; engagement with First Nations; and feedback on project design changes from the Haisla Nation, government subject matters experts and investment community. KLNG provided update on the regulatory pathway under CEA Agency and BC EAO.
22-May-19	Natural Resource Canada	KLNG provided an update on project design changes; engagement with First Nations; and feedback on project design changes from the Haisla Nation, government subject matters experts and investment community.
19-Jun-19	BC Ministry of Energy Mines and Petroleum Resources	KLNG discussed scope of project changes. KLNG inquired about opportunity for coordinated federal-provincial environmental approval process.
21-Jun-19	BC Ministry of Energy Mines and Petroleum Resources and BC Ministry of Environment and Climate Change Strategy	KLNG discussed scope of project changes. KLNG inquired about opportunity for coordinated federal-provincial environmental approval process.

Table 1-4 provides a summary of technical meetings with government agencies on the new Compact E-Drive Design and does not include emails, phone calls and other communications that pertain to the new project design.

The KLNG Project provided a detailed Project Update to both the BC EAO and CEA Agency on March 28, 2019 for their review prior to developing the Project Description, and their feedback was incorporated in this document. Draft copies of this Project Description were also provided to both agencies.

Table 1-4 KLNG - Technical Agency Meetings

Date	Department	Purpose
1-Nov-2017	Canadian Environmental Assessment Agency	KLNG provided a project update including proposed project changes; an update on environmental data collection; and anticipated assessment requirements.
2-Nov-2017	BC Environmental Assessment Office	KLNG provided a project update including proposed project changes; an update on environmental data collection; and anticipated permitting requirements.

Date	Department	Purpose
2-Nov-2017	Ministry of Energy, Mines, and Petroleum Resources	KLNG provided a project update including proposed project changes; an update on environmental data collection; and anticipated assessment requirements.
12-Dec-2017	Canadian Environmental Assessment Agency	Follow-up meeting on KLNG Project to discuss possible federal assessment requirements
4-Apr-2018	Fisheries and Oceans Canada	KLNG provided a project update and discussed the regulatory and permitting process related to *Fisheries Act* Authorizations.
24-Apr-2018	Environment and Climate Change Canada	KLNG provided a high-level project update and discussed the regulatory and permitting process based on the preferred option for Disposal at Sea.
6-Mar-2019	BC Environmental Assessment Office	KLNG provided a project update including proposed project changes; and discussed anticipated regulatory requirements and timelines.
8-Mar-2019	Canadian Environmental Assessment Agency	KLNG provided a project update including proposed project changes; an update on environmental data collection; and discussed anticipated assessment requirements.
18-Jun-2019	Environment and Climate Change Canada	KLNG provided a project update and discussed the regulatory and permitting process based on the preferred option for Disposal at Sea.
25-Jun-2019	BC Environmental Assessment Office	KLNG provided a project update including proposed project changes; and anticipated regulatory requirements and timelines.

1.5 Regulatory History and Context

A flowchart documenting the KLNG history of EA approvals, amendments and related decisions is presented as Figure 1-1.

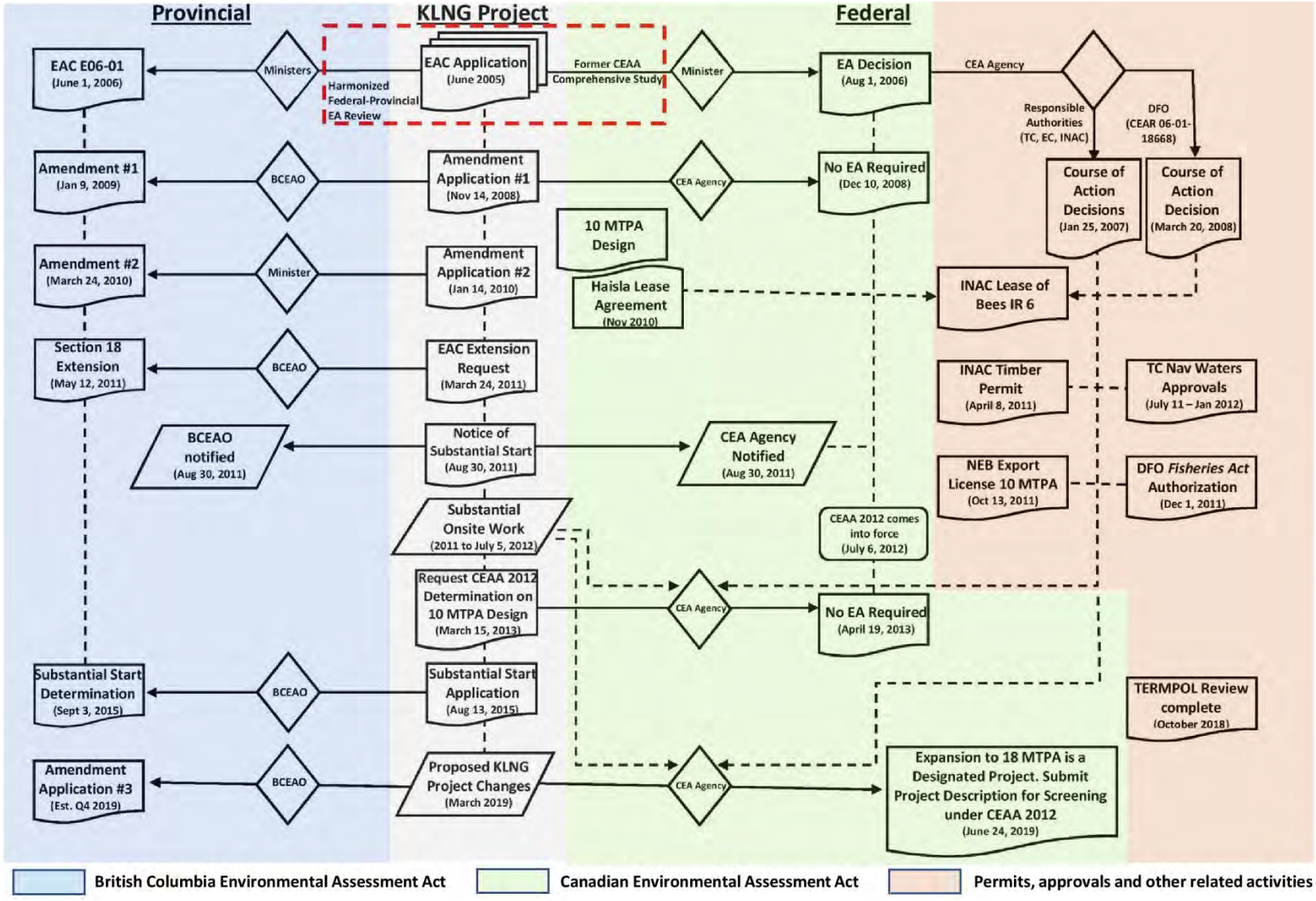


Figure 1-1: KLNG Project Provincial and Federal EA Flowchart

1.5.1 2005 Assessment

In 2005 and 2006, the KLNG Project was subject to a Harmonized Federal-Provincial EA Review, resulting in the preparation of a Joint Assessment Report/Comprehensive Study Report. The EA review concluded the proposed KLNG Project was not likely to result in significant adverse effects.

The EAC E06-01 was issued on June 1, 2006 under the BCEAA, S.B.C. 2002, c. 43 to Kitimat LNG Inc. (the former Proponent) for the KLNG Project. The KLNG Project was reviewed under BCEAA since the proposed marine facilities were on provincial Crown land and would result in a direct physical disturbance of greater than and equal to 2 hectares (ha) of marine coastal foreshore and submerged land. The EAC E06-01 authorized the former Proponent to construct, operate and decommission an LNG import terminal at Bish Cove.

The EAC E06-01 is limited to project components located on provincial Crown land, namely the marine terminal facilities, and rights-of-ways for the access roads, ancillary areas and facilities, pipelines and power transmission line. Project components located on Haisla Nation's Bees IR No. 6 are authorized under federal legislation.

The KLNG Project received a federal EA decision under the *Canadian Environmental Assessment Act*, S.C. 1992, c. 37 (former CEAA) on August 1, 2006 (CEAR# 05-03-10430). Following this decision, the CEA Agency referred the KLNG Project to the responsible authorities (i.e., Transport Canada, Environment Canada and INAC) for appropriate action under section 7 of the former CEAA. Transport Canada, Environment Canada (now referred as Environment and Climate Change Canada [ECCC]) and INAC issued their course of action decisions on the KLNG Project on January 25, 2007. In addition, Fisheries and Oceans Canada (DFO) issued a positive EA decision on the KLNG Project on March 20, 2008, as a result of a screening under the former CEAA.

1.5.2 2008 Assessment

In 2008, the KLNG Project was revised to include either natural gas "regasification or liquefaction" processing facilities to allow for either import or export of LNG.

On December 10, 2008, the CEA Agency determined that this change would not require further assessment or federal EA review.

The EAC E06-01 was amended on January 8, 2009 to reflect this change.

1.5.3 2009 to 2015

On January 13, 2010, EAC E06-01 was transferred to KM LNG.

In November 2010, the Haisla Nation voted to approve the lease of Bees IR No. 6 for the KLNG Project. A two (2) LNG Train 10 MTPA facility was being contemplated at that time. No additional lands, new infrastructure or additional federal approvals were determined to be required for the increase in production capacity to 10 MTPA; therefore, no additional federal EA was required at that time. The Proponent subsequently commissioned Front-End Engineering Design (FEED) for a two (2) LNG Train 10 MTPA liquefaction facility.

Federal approvals acquired during this period included:

- Timber Permit from INAC for clearing of the facility site on April 8, 2011.
- Non-Metallic Minerals Approval from INAC for removal of material from Bees IR No. 6, on March 16, 2012.
- *Navigable Waters Protection Act* approvals from Transport Canada for construction related infrastructure, including the access road bridge over Bish Creek, barge landing facilities, and a site access jetty between July 2011 and January 2012.
- A 20-year export license from the National Energy Board (NEB) to serve international markets from a 10 MTPA facility on November 14, 2011.
- *Fisheries Act* authorization from DFO for impacts to fish habitats associated with the KLNG Project (marine, facility, access road and interconnecting infrastructure) on December 1, 2011.

The CEAA 2012 came into force on July 6, 2012. Section 128 (Non-application of this *Act*) of CEAA 2012 contains the following transition provision:

> *This Act does not apply to a project, as defined in the former Act, that is a designated project as defined in this Act, if one of the following conditions applies:*
>
> *a. the proponent of the project has, before the day on which this Act comes into force, initiated the construction of the project;*
>
> *b. it was determined by the Agency or a federal authority under the former Act that an environmental assessment of the project was likely not required;*
>
> *c. the responsible authority has taken a course of action under paragraph 20(1)(a) or (b) or subsection 37(1) of the former Act in relation to the project; or*
>
> *d. an order issued under subsection (2) [Minister's powers] applies to the project.*

On March 15, 2013, KM LNG requested confirmation from the CEA Agency that the planned two (2) LNG Train 10 MTPA facility would not require further review under CEAA 2012. On April 19, 2013, the CEA Agency advised that, pursuant to the Section 128 transitional provisions of CEAA 2012, the planned 10 MTPA capacity did not require further review.

On September 3, 2015, the BCEAO determined that the KLNG Project had been substantially started. As a result, EAC E06-01 remains in effect for the life of the KLNG Project, subject to the Minister of Environment's (the Minister) power to cancel and suspend an EA certificate due to non-compliance.

1.5.4 Project Terminology

- **Kitimat LNG Project** or **KLNG Project** – The general generic name for the overall Kitimat LNG project in all of its various forms and iterations over time. This term does not distinguish between what has received regulatory approval or not.
- The **KLNG Approved Project** – The name for the Kitimat LNG Project design associated with the current 10 MTPA project.

- **2019 KLNG Expansion Project** – The name being used for the current regulatory review for the new project elements only—for which approval is now being sought. This has two aspects:
  - the **KLNG Foundation Project** - The name for the change from 10 to 12 MTPA using 2 optimized compact e-drive LNG trains, the land backed wharf, decreased LNG storage capacity, and some incremental marine shipping; and
  - the **Third LNG Train Expansion** – The name for the change from 12 to 18 MTPA by adding a third LNG Train, a second LNG loading berth and an LNG storage tank on the existing KLNG Foundation Project site, and additional marine shipping.

1.5.5 2019 Kitimat LNG Expansion Project

The Kitimat LNG Expansion Project will consist of two proposed phases that both utilize the Compact E-Drive Design:

1. Kitimat LNG Foundation Project (Compact E-drive Design) - two (2) LNG Train foundational development with output capacity of 12 MTPA; and
2. Third LNG Train Expansion (also a Compact E-drive design) – addition of a third LNG Train (associated infrastructure for LNG storage, loading and shipping) for a total output capacity of 18 MTPA.

The Kitimat LNG Expansion Project requires an amendment to the provincial EAC E06-01, for which the proponents are preparing to apply. The EAC E06-01 authorizes KLNG Project components on provincial Crown land (i.e., marine terminal facilities and rights of way for the access road, pipelines and hydro transmission lines). Project components located on Haisla Nation's Bees IR No. 6 (i.e., LNG processing and storage facilities) are authorized under federal legislation. It is anticipated that federal agencies will be among those participating on the Technical Working Group to be established to review the provincial certificate amendment application, as well as involved in federal permitting required for the KLNG Expansion Project to proceed.

For clarity, the Kitimat LNG Foundation Project (Compact E-drive Design) and the Third LNG Train Expansion components are presented in separate columns in Table 1-5, both of which comprise the KLNG Expansion Project.

1.5.5.1 Kitimat LNG Foundation Project (Compact E-drive Design)

The two (2) LNG Train foundational development will have an output capacity of 12 MTPA and will utilizae the Compact E-Drive Design. Further design optimizations have been identified that reflect improvements from environmental, safety, financial, constructability, and operability perspectives, including:

- Optimized LNG storage configuration,
- Optimized design of the marine terminal as a LBW; and
- Additional marine traffic of 30 to 50 LNG carriers per year.

1.5.5.2 Third LNG Train Expansion

The proposed Third LNG Train Expansion is to support the addition of a third LNG Train to increase processing capacity from 12 to 18 MTPA and will utilize the Compact E-Drive Design. The proposed expansion involves the following changes:

- The addition of a third LNG Train within the existing site footprint to increase processing capacity from 12 to 18 MTPA;
- The addition of a full containment tank of up to 130,000 m^3, for a combined total LNG storage of up to 390,000 m^3, which is within the previously authorized storage capacity of 420,000 m^3;
- The addition of a second LNG loading berth on the LBW to support the capacity of three (3) LNG Trains; and
- Additional marine traffic of 75 to 85 LNG carriers per year beyond the Kitimat LNG Foundation Project.

Table 1-5 Approved KLNG Project and Proposed KLNG Expansion Project Design Configurations

Approved KLNG Project	Proposed KLNG Expansion Project	
	Kitimat LNG Foundation Project Compact E-drive Design (2 LNG Trains, 12 MTPA Total)	**Third LNG Train Expansion +1 LNG Train, +6 MTPA (3 LNG Trains, 18 MTPA Total)**
Land-based Infrastructure and Activities		
Import or Export Terminal.	Export Terminal only.	Export Terminal only.
Federal: Two (2) LNG Trains. **Capacity:** ♦ 10 MTPA (5 MTPA per LNG Train) The Lease of Bees IR No. 6 (approved by Haisla Nation in November 2010, and as amended in October 2017) and subsequent federal permits contemplated a two (2) LNG train 10 MTPA facility and 10 MTPA export. In 2013, the CEA Agency determined that no further federal review was required under CEAA 2012 for the LNG processing capacity of 10 MTPA. **Provincial:** EAC 06-01 as amended in 2009: One (1) LNG Train (on Bees IR No. 6). **Capacity:** ♦ 5 MTPA ♦ 700 MMcfd (Note that EAC 06-01 defines the "Project" to exclude the components on Bees IR No. 6.)	**Federal:** Two (2) LNG Trains (6 MTPA per LNG Train). **Average Annual Capacity:** ♦ +2 MTPA (12 MTPA total) ♦ 1.8 Billion cubic feet per day (Bcfd) **Provincial:** Two (2) LNG Trains (6 MTPA per LNG Train). **Average Annual Capacity:** ♦ +7 MTPA (12 MTPA total) ♦ 1.8 Billion cubic feet per day (Bcfd)	**Federal and Provincial:** Addition of a Third (3rd) LNG Train. **Average Annual Capacity:** ♦ +6 MTPA (18 MTPA Total) ♦ +0.9 Bcfd (2.7 Bcfd total)

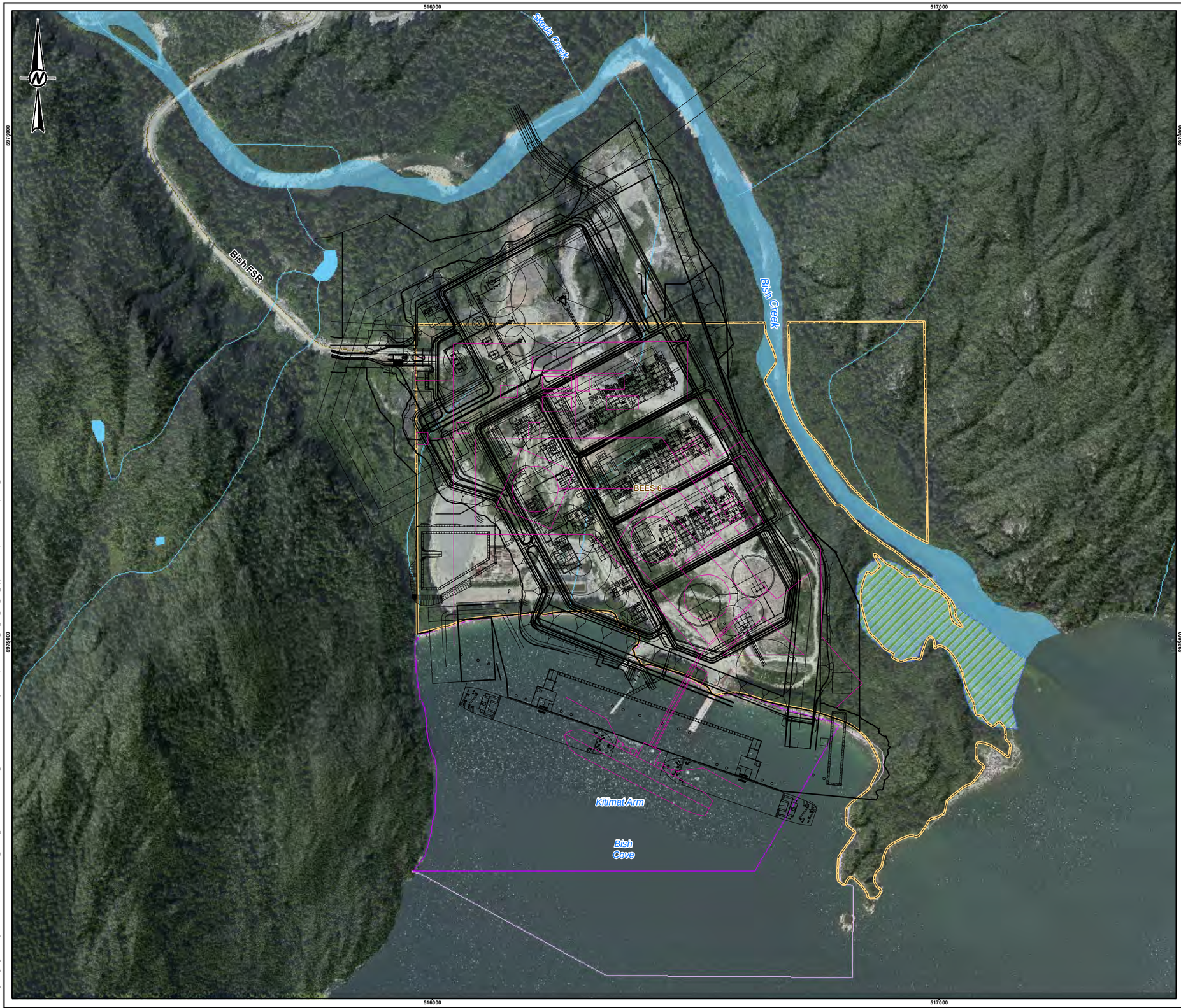
Approved KLNG Project	Proposed KLNG Expansion Project	
	Kitimat LNG Foundation Project Compact E-drive Design (2 LNG Trains, 12 MTPA Total)	**Third LNG Train Expansion +1 LNG Train, +6 MTPA (3 LNG Trains, 18 MTPA Total)**
Ancillary facilities (temporary work spaces for stockpiling). **Temporary Use Spaces**: ♦ Area G, Area H, Area L (permitted; see Appendix A ♦ Storage Pit (permitted; see Appendix A) ♦ Borrow Pit (permitted; see Appendix A)	No change. Permanent use of permitted Temporary Use Spaces required.	No change from KLNG Foundation Project (Compact E-drive Design).
Operations facilities and buildings. Located on Bees IR No. 6 and in Kitimat.	**Operations facilities and buildings** To be located on permitted and disturbed lands (temporary workspaces) outside of Bees IR No. 6, including: ♦ **Area A** facilities include the central control room, laboratory, crew room, security and emergency response buildings, staging warehouse and site maintenance workshop, operations camp and turn around camp. ♦ Small additional lands required adjacent to Area A. ♦ **Northeast Logistics Area** ♦ **West Logistics Area**	No change from KLNG Foundation Project (Compact E-drive Design).

Approved KLNG Project	Proposed KLNG Expansion Project	
	Kitimat LNG Foundation Project Compact E-drive Design (2 LNG Trains, 12 MTPA Total)	**Third LNG Train Expansion +1 LNG Train, +6 MTPA (3 LNG Trains, 18 MTPA Total)**
LNG Storage Tanks Two (2) full containment tanks (located on KLNG Plant site), each with a capacity of 210,000 m^3 (420,000 m3 total capacity).	Reduced total storage capacity compared to Approved KLNG Project. ♦ One (1) full containment tank with a working volume of 260,000 m^3 to support two (2) LNG Trains (12 MTPA).	Reduced total storage capacity compared to Approved KLNG Project. ♦ One (1) additional full containment tank, up to 130,000 m^3 to support the addition of the third LNG Train, for a combined total of 390,000 m^3 storage.
LNG Liquefaction Process Electric drive for refrigeration and compressors. Auxiliary power provided by gas turbines and diesel generator.	The Compact E-drive Design will be an all-electric facility, utilizing electric motor driven technology for all process and utility compressors, pumps and fans. Power purchased from BC Hydro with limited on-site back-up diesel power generation.	No change from KLNG Foundation Project (Compact E-drive Design).
Site Preparation 3 Mm^3 of waste rock to be disposed of at sea or on land.	Rock excavated from KLNG Plant site will be re-used for site preparation (LBW) construction, rockfill, surfacing, aggregate, etc.). No disposal of rock at sea.	No change from KLNG Foundation Project (Compact E-drive Design).
Waste materials to be disposed of in approved landfill.	No change.	No change.
Groundwater wells. Normal water use rate of 7.5 m^3/hr, with peak rate of 156 m^3/hr (approx. 43 L/s) for filling firewater tanks.	No change.	No change.
Process wastewater discharged into on-site retention pond. Sanitary wastewater collected in an on-site septic tank.	Process wastewater and sanitary wastewater to be treated and discharged into Bish Cove via on-site retention pond.	No change.

Approved KLNG Project	Proposed KLNG Expansion Project	
	Kitimat LNG Foundation Project Compact E-drive Design (2 LNG Trains, 12 MTPA Total)	**Third LNG Train Expansion +1 LNG Train, +6 MTPA (3 LNG Trains, 18 MTPA Total)**
Marine Infrastructure and Activities		
Material offloading facility (MOF), LNG loading jetty, and Ship berth. Marine structures include four berthing/ breasting dolphins, six shore moorings and one permanent unloading platform.	Modified marine terminal design - LBW that will provide both LNG loading and material offloading functionality. One LNG loading berth, inclusive of breasting dolphins, located outboard of LBW to support two (2) LNG Trains. LBW replaces loading jetty.	A second LNG loading berth on the LBW to support the expansion to three (3) LNG Train output. No footprint change to the LBW from KLNG Foundation Project (Compact E-drive Design).
Federal: 120 LNG carriers per year for 10 MTPA. **Provincial:** 60 LNG carriers per year for 5 MTPA.	**Federal:** + 30 to 50 LNG carriers per year (total 150 to 170 LNG carriers per year for two (2) LNG Trains). **NOTE:** Transport Canada issued the *TERMPOL Review Process on the Kitimat LNG Project* report in October 2018, outlining their recommendations and findings following review of the technical studies submitted and consultation with the First Nations (see Appendix D). KLNG Project TERMPOL submission to Transport Canada was for a two (2) LNG train single berth facility designed to handle approximately 150 LNG carriers per year ranging in size from of 125,000 to 217,000 m^3. **Provincial:** + 90 to 110 LNG carriers per year (total 150 to 170 LNG carriers per year for two (2) LNG Trains).	**Federal and Provincial:** + 75 to 85 LNG carriers per year (total 225-255 LNG carriers per year for three (3) LNG Trains).

Approved KLNG Project	Proposed KLNG Expansion Project	
	Kitimat LNG Foundation Project Compact E-drive Design (2 LNG Trains, 12 MTPA Total)	**Third LNG Train Expansion +1 LNG Train, +6 MTPA (3 LNG Trains, 18 MTPA Total)**
Tug berths.	Tug moorings.	Tug moorings.
Dredging and Disposal at Sea Marine sourced – 500,000 m^3 of dredge material from Bish Cove to be disposed at sea.	Marine sourced – Dredge material from Bish Cove (amount to be determined) to prepare ground for installation of LBW in Bish Cove to be disposed at sea. Land sourced – Disposal at sea of approximately 4.8 Mm^3 of excavation materials from land (marine clay, sand and gravels).	No change from KLNG Foundation Project (Compact E-drive Design).
Freshwater discharge to marine environment (40 m^3/hr).	Marginal increase in volume of storm water treatment and discharge (volumes to be determined).	No change from KLNG Foundation Project (Compact E-drive Design).
Other Facilities		
Natural Gas Pipeline Approximately 14 km 30” natural gas pipeline. **NGL Pipelines** Three (3) 6” NGL pipelines (ethane, propane, butane) within 30 m-wide ROW.	**Natural Gas Pipeline** Approximately 16.7 km natural gas pipeline (42” diameter). **NGL Pipeline** One (1) 6” hydrocarbon condensate pipeline within 42 m-wide ROW. 212 m^3/d (1,333 bpd) condensate for export by rail from the existing KLNG Project-owned industrial site in Kitimat.	No change to pipelines from KLNG Foundation Project (Compact E-drive Design). No change. Additional +106 m^3/d (+667 bpd) condensate for export by rail from the existing KLNG Project-owned industrial site in Kitimat.
New 2.3 km access road connecting to the Bish Cove Forest Service Road (FSR). Bish Cove FSR Upgrades.	Additional plant access via a secondary access road and bridge connecting to the Bish Cove FSR.	No change from KLNG Foundation Project (Compact E-drive Design).
A 287 kV aerial transmission line from Kitimat to LNG Plant site at Bish Cove.	No change.	No change.

Approved KLNG Project	Proposed KLNG Expansion Project	
	Kitimat LNG Foundation Project Compact E-drive Design (2 LNG Trains, 12 MTPA Total)	**Third LNG Train Expansion +1 LNG Train, +6 MTPA (3 LNG Trains, 18 MTPA Total)**
Contemplates use of local area accommodations.	Early works and infrastructure construction camp(s) for 1,800-3,500 persons. Potential locations include Area A, floating accommodations in Bish Cove, and local area accommodations.	Infrastructure construction camp(s) for up to 1,000 persons for the Expansion Project using existing camps. Potential locations include Area A, floating accommodations in Bish Cove, and existing camp and local area accommodations.



LEGEND

- FACILITY LAYOUT
- PLOT PLAN (2008)
- EXISTING FORESHORE LEASE AREA
- PROPOSED FORESHORE LEASE AREA

BASE DATA

- FOREST SERVICE ROAD (FSR)
- WATERCOURSE
- WATERBODY
- WETLAND
- FIRST NATION RESERVE

0 100 200

1:7,500 METRES

REFERENCES

1. EXISTING AND PROPOSED STUDY AREA DIGITIZED FROM MAPPING PROVIDED BY CHEVRON.
2. FOREST SERVICE ROADS, HYDROLOGY, PARKS AND PROTECTED AREAS CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
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CLIENT

CHEVRON CANADA LIMITED

PROJECT

KITIMAT LNG EXPANSION PROJECT

TITLE

APPROVED KLNG PROJECT AND PROPOSED KLNG EXPANSION PROJECT PLANT SITE GENERAL ARRANGEMENT

Kitimat LNG

YYYY-MM-DD	2019-07-07
DESIGNED	AC
PREPARED	RC
REVIEWED	AC
APPROVED	DK

PROJECT NO.	CONTROL	REV.	FIGURE
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2 Project Information

2.1 Project Purpose and Rationale

Global energy demand is projected to rise more than 25% by 2040, driven by a growing global population and rising middle class (International Energy Agency (IEA) World Economic Outlook 2017, New Policies Scenario). Increasingly, fuel switching between coal and natural gas is reducing the carbon intensity of global energy use. Natural gas demand as a percentage of global energy demand is expected to increase over this period, even in the most aggressive IEA low carbon scenarios. The LNG demand is expected to substantially increase over this period, including a 47% increase by 2025 over the 2017 market (source: Wood Mackenzie), driven largely by the Asia Pacific region. The KLNG Project is positioned to help meet this increase in demand with gas resources from Western Canada. The LNG shipping distance from north-west BC to Asia is relatively short with a direct voyage across the Pacific Ocean.

In response to the 2015 decline in global LNG prices, the KLNG Project co-venturers reassessed a range of LNG plant design alternatives over the 2015-2018 period to improve the project's unit cost competitiveness, execution, operability and environmental performance. These alternatives included the number and capacity of LNG trains, liquefaction technologies, refrigeration compression drive technologies, power sources, process cooling technologies, LNG storage technology and capacity, and plant and marine facilities layouts including floating LNG concepts. The selected LNG plant concept from this work delivers the highest overall value of alternatives evaluated when considering criteria including LNG development unit cost and schedule, safety, health and environmental impact, technology and execution risks, and plant operability and reliability of LNG delivery.

2.1.1 GHG Emissions Performance and Project Footprint

In alignment with the Clean BC Strategy, the Kitimat LNG Expansion Project leverages the local availability of clean renewable energy from BC Hydro as well as new, all electric drive technology to achieve the lowest emissions intensity of any large-scale LNG facility in the world. As shown in Figure 2-1, the KLNG plant will outperform current best-in-class global LNG plants and the more stringent Government of BC's LNG intensity benchmark. Kitimat LNG provides the opportunity to reduce global GHG emissions by approximately 57 million tonnes annually if used to displace coal fired electricity generation in Asia. This exceeds BC's 2030 reduction target of 25.4 Mt and is approximately 8% of Canada's total 2016 emissions.

The Compact E-drive Design will also have the lowest area footprint per unit of LNG production at full build out relative to other recent and proposed global land-based LNG project. The industry range globally is 7 to 18 ha/MTPA whereas the Kitimat LNG Project is expected to be 5 ha/MTPA.

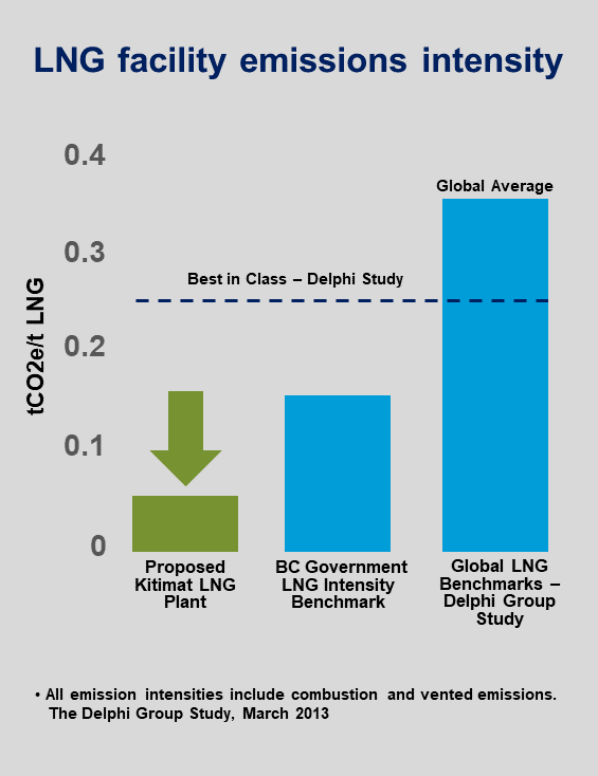


Figure 2-1: KLNG Project GHG Performance Comparison

2.2 Designated Physical Activities under CEAA 2012

This Project Description has been designed as the basis for the purpose of screening the proposed project expansion under the CEAA 2012 to determine whether a federal EA is required.

In relation to the 10 MTPA KLNG Project considered by the CEA Agency in 2013 (see Section 1.5.3), the 18 MTPA KLNG Expansion Project represents an 80% increase in average annual LNG processing capacity (i.e., +8 MTPA).

The CEA Agency has advised that the KLNG Expansion Project from 10 to 18 MPTA constitutes a designated activity under section 15(d) of the Regulations Designating Physical Activities as “an expansion of a facility for the liquefaction, storage or regasification of liquefied natural gas that would result in an increase in the liquefied natural gas processing or storage capacity of 50% or more and a total liquefied natural gas processing capacity of 3 000 t/day or more or a total liquefied natural gas storage capacity of 55 000 t or more”.

Incremental changes to marine shipping of LNG has been identified as a physical activity incidental to the expansion. It has not yet been decided whether the Proponent will operate their own fleet of LNG carriers or if LNG carriers will be operated by a third party with custody of the LNG transferred upon loading. In either case, the Proponent will have the ability to require specific mitigation measures by the LNG carriers.

2.3 Project Components and Activities

The following sections describe project components and activities associated with the entire KLNG Project, inclusive of the Compact E-drive Design phase and the Third LNG Train Expansion to 18 MTPA.

2.3.1 Project Components

The KLNG Expansion Project will consist of a foundational project of two (2) LNG trains (KLNG Foundation Project), with optimized capacity of 12 MTPA, with an option to add a third LNG Train (Third LNG Train Expansion) with supporting utilities, LNG product storage, a marine terminal, and other permanent and temporary infrastructure, to increase the capacity to 18 MTPA. The KLNG Plant will be supplied with natural gas from the Pacific Trail Pipeline (PTP) which will provide a connection to Western Canada's natural gas supplies.

The KLNG Plant intends to use the Dual Mixed Refrigerant (DMR) liquefaction process (Figure 2-2) optimal for maximizing annual LNG production in colder climates. The KLNG Project facilities are divided into the four (4) main areas:

1. **Inside Battery Limits (ISBL) Area - overall footprint of 12 ha** – consists of up to three (3) LNG Trains and associated facilities including:
   - Acid Gas Removal (Unit 2100) - carbon dioxide entrained in the feed gas is removed prior to liquefaction to prevent freezing during the liquefaction process. Trace levels of H2S, if present, will also be removed and incinerated.
   - Dehydration (Unit 2200) – dehydration of the feed gas via condensation and molecular sieve beds to prevent freezing during the liquefaction process.
   - Mercury Removal (Unit 2300) – removal of any trace levels of mercury in the feed gas via mercury removal beds to prevent degradation of LNG process equipment
   - Natural Gas Liquids (NGL) Extraction/Condensate Stabilization (Units 2400 and 2600) – extraction of residual NGL's and condensate from the conditioned feed gas to export (via rail for condensate) or store and use to supplement refrigerant for the liquefaction process.
   - Natural Gas Liquefaction and Refrigeration (Units 2400 and 2500) – the conditioned natural gas stream is cooled to -162^{o} C using Air Product's DMR process. The DMR process entails two separate mixed refrigerant circuits, one for precooling of the gas to approximately −50°C and one for final cooling and liquefaction of the gas into LNG. The mixed refrigerant is composed of a mixture of ethane, propane and butane. Multistage electrically driven compressors are used to compress the gas and supply the refrigerant. The heat removed from the natural gas is transferred between the refrigerant circuits before being discharged to the atmosphere via air coolers.

   The ISBL Area and all associated components are located within Bees IR No. 6.

2. **Outside Battery Limits (OSBL) Area - overall footprint of 27 ha** – facilities and utilities, including:
   - Inlet Gas Receiving (Unit 1000)
   - Normal and Essential Power Systems (Unit 1500)

- Refrigerant Fractionation (Unit 2600)
- Heating Medium (Unit 2700)
- Plant and Instrument Air (Unit 2800)
- Service and Fresh Water Systems (Unit 3000)
- Demineralized Water (Unit 3100)
- Tempered Water (Unit 3200)
- Refrigerant Storage (Unit 3400)
- Fuel Gas (Unit 3600)
- Nitrogen (Unit 3700)
- Diesel Storage and Distribution (Unit 3900)
- Drainage, Sewerage, and Effluent Treatment (Unit 4000)
- Fire and Gas Protection (Unit 4100)
- Integrated Control Systems (ICS) (Unit 4200)
- Telecommunications (Unit 4300)
- Pressure Relief, Liquids Disposal, Flare and Vent System (Unit 4400).

The OSBL Area and associated components are located within Bees IR No. 6, except for the flare, acid gas incinerator, and part of the fire water pumps and tanks, which are all located on provincial Crown land (of 7 ha) contiguous with Bees IR No.6.

3. **LNG Storage and Loading - overall footprint of 21 ha**– a full containment storage tank of 260,000 m^3 net working volume, cryogenic loading lines, vapour return lines and LNG loading facilities at a single berth on the LBW in Bish Cove for a two (2) LNG Train development for the foundation project. Addition of a second full containment LNG tank (estimated 130,000 m^3 net working volume) and second LNG loading berth on the LBW would be required to support the increased production at full build-out from three (3) LNG Trains.

   The LNG Storage facilities are located within Bees IR No. 6 while loading occurs within the Foreshore Lease area.

4. **Other Offsite Facilities**

   - Facilities at **Area A with an overall footprint of 35 ha** include the Central Control Room, crew room, loading room, security and emergency response buildings, operations camp, and turn around camp.
   - Approximately 16.7 km natural gas and condensate pipeline to/from LNG Plant site.
   - Approximately 17 km high-voltage overhead power transmission line from the Minette Substation in Kitimat will supply power to the KLNG Plant site at Bish Cove.
   - Plant access via the existing Bish Cove FSR of 16.87 km, and a proposed secondary access road and bridge of ~500 m length.

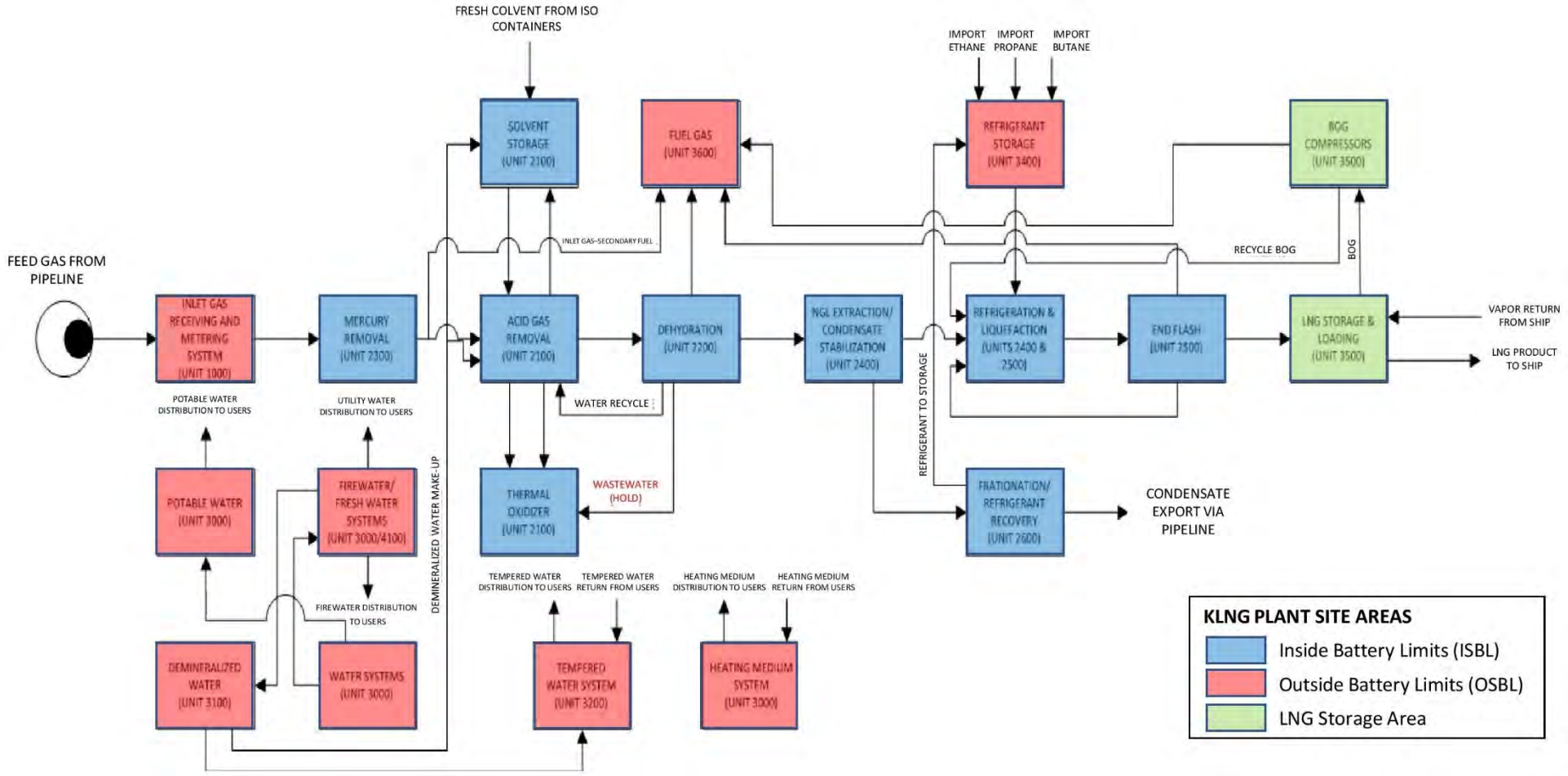


Figure 2-2: KLNG Project Dual Mixed Refrigerant liquefaction process diagram.

The KLNG Expansion Project will utilize electric motor drive technology (total capacity of ~700 MW) for all liquefaction process and utility compressors, pumps and fans, and will purchase power from BC Hydro reducing the need for an onsite natural gas-powered generation facility (four [4] 2.5 MW, 13.8 kV diesel powered back-up power generation units will be installed for essential power for emergency and critical loads when the main power is not available in extraordinary circumstances). The optimized layout of the LNG trains, common facilities and utilities have all been modularized to a high degree, with a focus on constructability as well as considering safety, operations and maintenance. The site development will reduce the amount of material for disposal by making effective use of excavated rock to construct a LBW along the foreshore in Bish Cove. The LBW will provide construction laydown space, LNG loading and material offloading functionality, and marine logistic support.

2.3.2 Project Activities

2.3.2.1 Construction

Construction activities will include:

1. Site preparation (land-based) to create suitable levels for facility construction – underway since 2011[2];
2. Site drainage, roads and paving (see Section 2.3.1.1.1);
3. Onshore modular construction (see Section 2.3.2.1.2);
4. Marine construction, including the Land-Backed Wharf (see Section 2.3.2.1.3);
5. Disposal at sea (see Section 2.3.2.1.4);
6. Waste management (see Section 2.3.2.1.5);
7. Vehicle and rail traffic (see Section 2.3.2.1.6);
8. Shipping materials by barge and other vessels (see Section 2.3.2.1.7); and
9. Commissioning and start-up, including processing units, common utilities, loading and shipping facilities (see Section 2.3.2.1.8)

Following the completion of site preparation activities, foundations and underground services will be installed at an initial grade and then back-filled to final grade. Module foundations will be standardized to optimize construction efficiency.

The Third LNG Train Expansion primary construction activities will be confined to items 3, 6, 7 and 9 listed above.

2.3.2.1.1 Site Drainage, Roads and Paving

Installation of the drainage system will be performed during site preparation prior to module installation. Limited excavation will be required for some deep drains and culverts. Where needed, permanent concrete-lined drainage channels will be installed after module installation.

Clean surface run-off water will be collected and conveyed to a sedimentation pond prior to discharge to Bish Cove. The sedimentation pond collects all run-off water from the LNG train and utilities areas, including the LNG tank and plant flare areas.

[2] On September 3, 2015, the BCEAO determined that the KLNG Project had been substantially started.

Some site roads (e.g., heavy haul road) are expected to be constructed and paved prior to module installation. However, most of the limited paving planned will be installed after module installation. The extent of concrete paving will be less than a conventional LNG plant since the modules will be constructed with working decks, including spill containment.

2.3.2.1.2 Onshore Construction

Building the LNG components will include additional onshore construction of:

- Foundations for modules, buildings, stick-built equipment, pipe-racks and tanks, including installation of piles where required;
- Natural gas treatment facilities, and condensate stabilization and storage facilities;
- Natural gas liquefaction facilities (including natural gas liquefaction trains, refrigeration compressors, and relevant infrastructure);
- Two (2) LNG Trains (6 MTPA per Train), with optional expansion of a third (3rd) LNG Train (18 MTPA at full build-out);
- Common utilities, piping and cabling;
- Facility piping, and facility site flare system;
- LNG storage, loading and circulation system; and
- Ancillary buildings and workforce accommodation.

2.3.2.1.3 Land-Backed Wharf

An LBW, with size of approximately 147 m wide by 1 km in length, will be constructed along the foreshore in Bish Cove, adding approximately 15 ha of useable land to the site. Fill for the LBW will be sourced from the KLNG Plant site area. The LBW will provide LNG loading and materials offloading functionality, and the LBW will also enable delivery of materials, modules and equipment during operations period from ships and barges. It will also provide materials laydown and temporary facilities for turnarounds that are located away from "live" operating plant. The KLNG marine terminal will be developed within an expanded 33 ha foreshore lease area within Bish Cove. Due to the deep water in Bish Cove, only limited dredging (volume to be determined) is expected to facilitate the construction of the LBW.

2.3.2.1.4 Disposal at Sea

The initial project design required approximately 3 Mm^3 of rock to be removed from site and disposed of at sea. With the optimized site configuration the volume of rock removal has been reduced and will now be utilized for the construction of the LBW. The material that requires DAS consist of marine clays that will not support facility infrastructure and cannot be placed in upland locations.

Disposal at sea is proposed to occur over a period of approximately 12 to 24 months subject to permit conditions and requirements. The work method will consist of land-based, water surface and in-water works that will be executed simultaneously as follows:

- Removal/excavation of material above design level (land-based works).
- Marine and/or slurry pump transport from the excavation site to the disposal site (land-based works, water surface works, and marine disposal [in-water works]).

2.3.2.1.5 Waste Management

Solid wastes from the construction camp will be removed from the site and recycled or disposed of at an existing approved landfill facility at the Project's existing industrial site in Kitimat, in compliance with applicable regulatory requirements.

Each waste type to be transferred from the KLNG Project site will be manifested. The manifest establishes the necessary action to control the transfer of waste from the KLNG Project site.

Sewage effluent will be treated onsite using a wastewater treatment system capable of handling workforce accommodations and on-site buildings. Hazardous wastes generated during construction will be disposed of offsite at an approved disposal facility in compliance with applicable regulatory requirements.

2.3.2.1.6 Vehicle Traffic

During construction, workers will be transported between the Northwest Regional Airport (during crew changes) and workforce accommodations and the LNG facility by buses or other suitable crew transportation methods. Due to the proposed location(s) of the potential workforce accommodation centre(s), buses transporting workers between the workforce accommodation centre(s) and LNG facility are not anticipated to travel through municipalities.

2.3.2.1.7 Shipping Materials

Facility components and LNG processing modules will be delivered by barge or another large vessel (e.g., Roll-On-Roll-Off marine transportation vessel) to the LBW. Construction materials, supplies, and equipment may also be delivered to the KLNG Plant site by transport truck and to the Kitimat area by truck or rail.

2.3.2.1.8 Start-Up

Start-up involves bringing the LNG processing units into operation one at a time until full and stable operation is established. Once operational, the output of the LNG facility will be gradually brought up to full capacity as per design. The proposed DMR process design does not require an initial cooling down of the LNG process units, storage tanks and pipe work. The LNG facility will follow structured systems commissioning and testing approach to ensure a safe and controlled start-up.

During commissioning and start-up, there may be several weeks of almost continuous flaring while systems are tested to ensure safe operations. The LNG facility is being designed to accommodate commissioning procedures that enable this period to be minimized.

2.3.2.2 Operations

The operation phase is estimated to last approximately 40 years. At full build-out, the KLNG Project will be capable of producing approximately 18 MTPA of LNG.

2.3.2.2.1 LNG Production and Storage

The LNG production includes natural gas treatment, cooling and compression and LNG storage and loading. Extracted condensate will be exported by rail.

2.3.2.2.2 Waste Management

Wastes generated during operation include facility emissions and solid wastes, stormwater, hazardous wastes, and waste generated by LNG carriers. Solid waste from the new facility buildings that cannot be recycled will be removed from the site and transported to appropriate disposal sites.

2.3.2.2.3 LNG Carrier Loading & Shipping

The marine terminal will transfer LNG to LNG carriers up to and including Q-Flex sized vessels (217,450 m^3 capacity).

One (1) LNG loading berth, inclusive of breasting dolphins, located outboard of LBW will support a two (2) LNG Trains (12 MTPA) development, representing approximately 150 to 170 LNG carriers arriving and departing each year. A second LNG loading berth will support the capacity of three (3) LNG Trains (18 MTPA) full build-out option, representing up to 225 to 255 LNG carriers arriving and departing each year.

The LNG carriers' entrance from the open sea is via the Dixon Entrance near the south tip of Alaska, with the approach to pilot boarding station near Triple Island, west of Prince Rupert, and then proceeding on the 296 km transit to Bish Cove. The route provides wide and deep channels with narrowest width being 1.4 km and the shallowest depth is 35 m. Estimated time of transit from Bish Cove to Triple Island is 12 to 18 hours depending on area and conditions.

2.3.2.3 Decommissioning

Decommissioning will be required at the end of the LNG facility's life. Decommissioning will be in accordance with the laws, regulations, lease agreements and standards in effect at the time. There are currently no regulations for decommissioning of LNG facilities in BC.

At the end of the KLNG Project's life, a Decommissioning Management Plan (DMP) will be developed in consultation with the District of Kitimat and relevant regulatory agencies and potentially affected Indigenous Nations.

Decommissioning activities may include:

- dismantling of land-based and marine infrastructure
- remediation and reclamation of the site, as required
- waste management
- post-closure monitoring and follow-up

The LNG processing and storage site, LNG loading and circulation system, storage tanks, and associated infrastructure will be decommissioned in accordance with the DMP. Prior to removal, equipment will be depressurized, purged, and flushed to prevent uncontrolled releases of any potential contaminants.

Some marine infrastructure may remain in place, subject to discussion with the Haisla Nation, the District of Kitimat and adjacent industrial neighbours at the time of decommissioning.

2.4 Project Schedule

An application to amend EAC E06-01 to reflect the proposed KLNG Expansion Project is anticipated to be submitted to the BCEAO for review by Q1 2020. All required approvals are anticipated to be in place by Q3 2021 to enable the commencement of early works and site preparation activities in advance of a final Investment Decision (FID)

The planning basis for FID for the KLNG Foundation Project is late 2023; however, the actual FID date may be sooner or later depending on commercial, regulatory, and technical progress. The FID for the Third LNG Train Expansion will follow later to be determined by market considerations. Project execution duration from FID to first LNG cargo will range from 4.5 to 7 years. Operations are planned for 40 years, followed by decommissioning of the facilities. The Project Schedule is shown in Table 2-1.

Table 2-1 Estimated Project Schedule

Project Component	Estimated Timing
Engineering and Technical Studies/Investigations	2018 to 2022
Environmental Assessment/Permitting Process	2019 to 2021
Final Investment Decision	2022 to 2023
Construction of Phase 1	2022/23 to 2028/29
Commissioning of first LNG train	Begins after construction is complete
Commissioning of 2nd LNG train	Begins 3 weeks after the Commission of 1st train
Construction and commissioning of the 3rd LNG train	As market conditions allow
Operations	40 years
Decommissioning	At end of facility operations

3 Project Location

The KLNG Expansion Project is located at Bish Cove approximately 14 km south of the Town of Kitimat in north western BC in an area with historical, existing, and proposed industrial development, including the operating Rio Tinto aluminium smelter and the LNG Canada project (currently under construction). All KLNG Expansion Project components are located within the asserted traditional territory of the Haisla Nation and within the District Municipality of Kitimat in the Regional District of Kitimat-Stikine (Figure 3-1). The closest permanent, seasonal or temporary residences (Kitamaat Village) are located approximately 9 km from the KLNG Expansion Project site at Bish Cove. See Appendix C for photographs from the various site locations.

The locations of proposed onsite (53.927 degrees North, -128.75 degrees West) and offsite project areas and ancillary facilities are shown in Figures 3-2 and 3-3. The KLNG Expansion Project is located within the Kitimat airshed and the approved KLNG Project was considered as part of a regional effects assessment of Kitimat airshed emissions, prepared for the Ministry of Environment and Climate Change Strategy (ECCS) in 2014/2015.

Bish Cove is located on the north shore of Kitimat Arm near the head of the Douglas Channel, a fjord extending 213 km inland from the Pacific Ocean on British Columbia's north coast. The bathymetry of Bish Cove offers relatively deep-water close to the foreshore, eliminating the need for a long jetty, or channel dredging to provide safe navigable access for LNG carriers and heavy lift ships. The area is designated for industrial use in the Kalum Land and Resource Management Plan (BC Government 2002). Natural gas liquefaction trains and LNG storage facilities are located on Bees IR No. 6, which has been designated for commercial industrial use and leased from the Haisla Nation. Gas receipt and some ancillary facilities (*e.g.*, flare, acid gas incinerator, partial firewater tanks and pumps) are located on Provincial Crown land north of Bees IR No.6. The marine facilities are located in Bish Cove.

The Kitimat LNG Area is made up of nine (9) parcels of land and one (1) water lot as summarized in Table 3-1. The ownership is as follows:

- The main KLNG Plant Site is situated on Haisla Nation Bees IR No.6 comprising approximately 71 ha. The KLNG Project holds a commercial lease with the Haisla Nation (administered by the Government of Canada) for these core lands;
- The foreshore area adjacent to the Plant Site is leased from Province of British Columbia;
- The West and North East Logistics Areas adjacent to the main Plant Site on Bees IR No.6. These lands are controlled by the Province of British Columbia;
- Area A and Area A2 are north of the main Plant Site and are intended to contain the main operations, housing and logistics infrastructure to support construction and then operation of the KLNG facility. These lands are currently controlled by the Province of British Columbia; and
- Borrow/Storage Pit and Areas G/H/L are intended to support the construction execution of the KLNG Plant facility and are for temporary use. These lands are controlled by the Province of British Columbia.

The Foreshore Lease will be expanded to accommodate the planned Land Back Wharf. In addition, it is the intention of the Haisla Nation to take over ownership and administration of the Foreshore Lease from the Government of BC. The KLNG Project is in support of this intention by the Haisla Nation.

The additional lands adjacent to the Bees IR No.6 Plant site are controlled by the District of Kitimat. The Haisla Nation also intends to purchase these lands from the District and lease to the KLNG Project. The

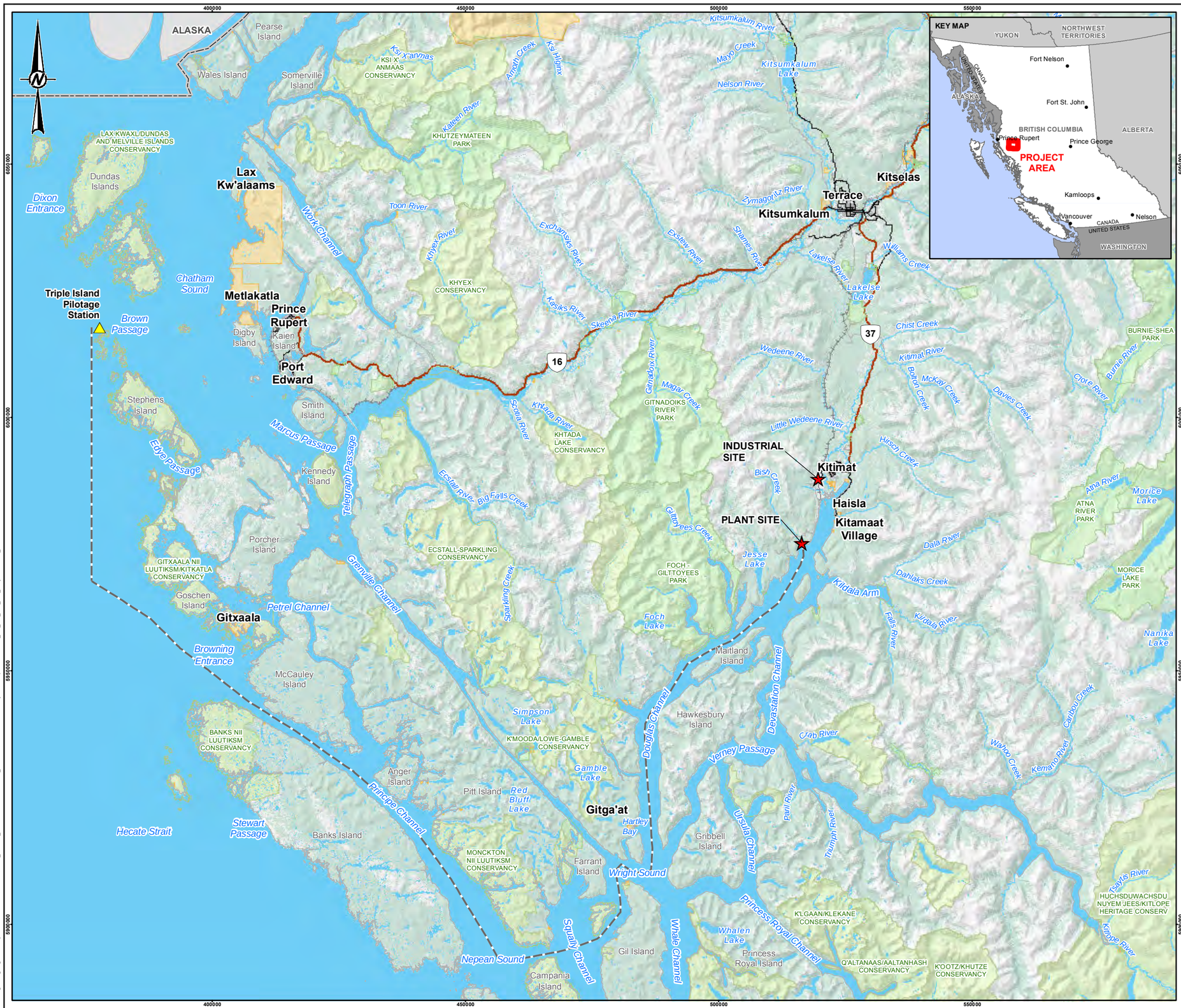
KLNG Project supports this plan by the Haisla Nation. Further support is provided by agreement as the KLNG Project holds first option to lease these additional lands from the Haisla Nation.

Table 3-1 KLNG Expansion Project Lands

No.	Land Item	Type	Owner/ Administrator	Hectares	Land Description
1	BEES IR #6	Treaty	Haisla Nation/ Government of Canada	71	Lots 1, 3, 4 Plan 96252 Lots 2-1 & 202 Plan 97774
2	Existing Foreshore Lease	Water Lot	Province of BC	33	DL3243 Range 4 Coast District
3	West Logistics Area	Fee Simple	Province of BC	1	A-011-K Group 103-H-15
4	North East Logistics Area	Fee Simple	Province of BC	16	Unit 20 Block J Group 103-H-15
5	Area A/A2	Fee Simple	Province of BC	35	Unit 21/22 Block K Group 103-H-15 Unit 21 Block K Group 103-H-15
6	Borrow Pit	Fee Simple	Province of BC	4	Unit 21 Block K Unit 30 Block J Group 103-H-15
7	Storage Pit	Fee Simple	Province of BC	1	Unit 21 Block K Group 103-H-15
8	Area G	Fee Simple	Province of BC	8	Unit 28 Block J Group 103-H-15
9	Area H	Fee Simple	Province of BC	11	Unit 29 Block J Group 103-H-15
10	Areal L	Fee Simple	Province of BC	10	Unit 29 & Unit 39 Block J Group 103-H-15

The LNG will be exported to overseas markets in LNG carriers. The marine access route is from the BC Coast Pilots boarding zone near the Triple Island Pilotage Station through Principe Sound and Douglas Channel to Kitimat Arm, as shown in Figure 3-1.

Several offsite facility locations are proposed for laydown, storage, logistics, accommodations or other ancillary purposes. A high-voltage overhead power transmission line, approximately 16 km long, will extend BC Hydro's power grid from the Minette Substation to the KLNG Project Plant site at Bish Cove.



LEGEND

PROJECT DATA

- KITIMAT LNG (PLANT AND INDUSTRIAL SITE)
- PROPOSED SHIPPING ROUTE

BASE DATA

- PILOTAGE STATION
- HIGHWAY
- MAJOR ROAD
- LOCAL ROAD
- RAILWAY
- INTERNATIONAL BOUNDARY
- WATERCOURSE
- WATERBODY
- FIRST NATION RESERVE
- CONSERVANCY AREA
- PARKS AND PROTECTED AREAS
- VEGETATION

0 15 30

1:750,000 KILOMETRES

REFERENCE(S)

1. FOREST SERVICE ROADS, HYDROLOGY, PARKS AND PROTECTED AREAS CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
2. INDIAN RESERVES AND RAILWAYS OBTAINED FROM IHS ENERGY.
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COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 9N

CLIENT
CHEVRON CANADA LIMITED

PROJECT
KITIMAT LNG EXPANSION PROJECT

TITLE
KLNG PROJECT LOCATION

Kitimat LNG

YYYY-MM-DD	2019-07-07
DESIGNED	DK
PREPARED	RC
REVIEWED	AC
APPROVED	DK

PROJECT NO.	CONTROL	REV.	FIGURE
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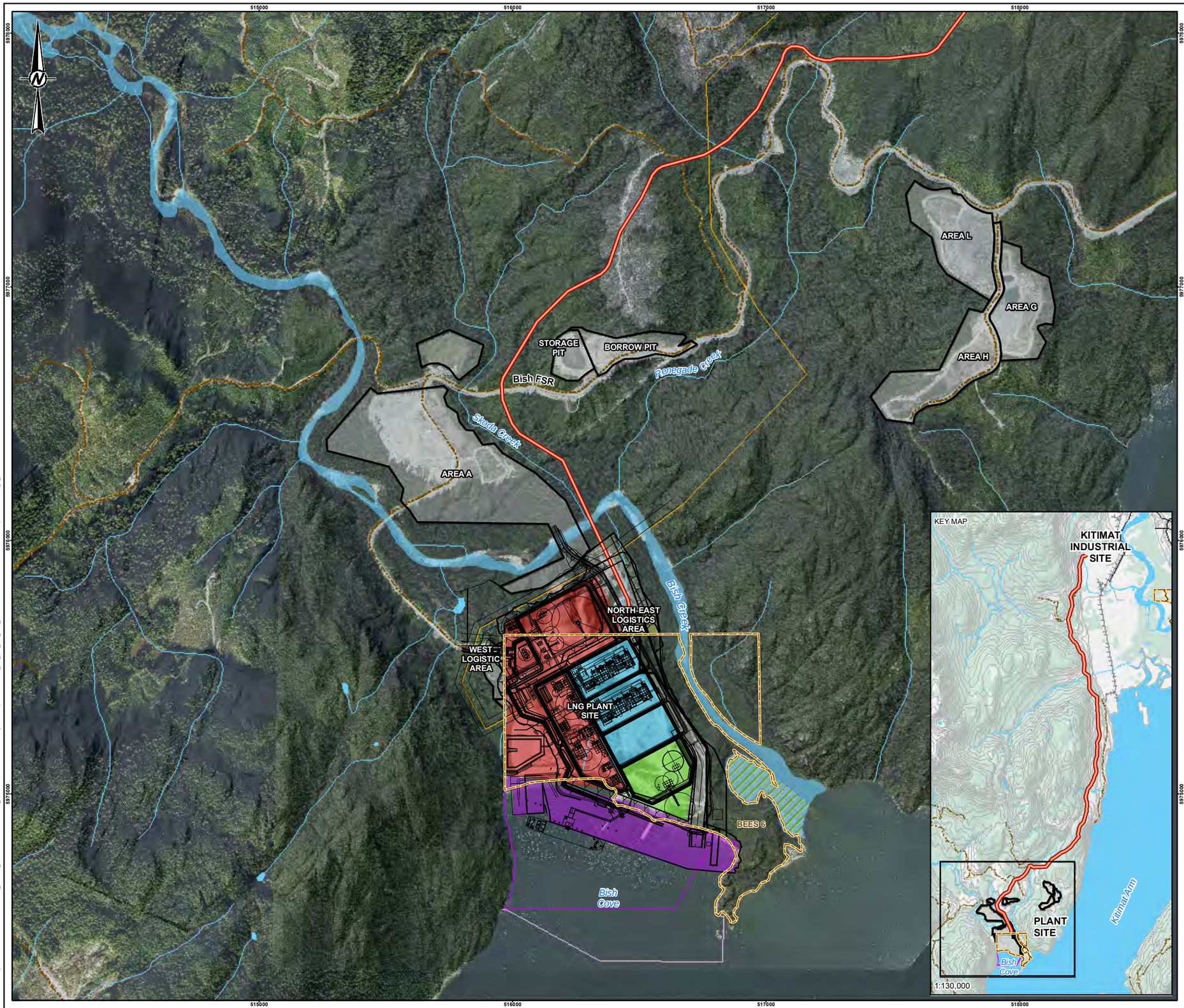

LEGEND

PROJECT DATA

- FACILITY LAYOUT
- PROPOSED PIPELINE CORRIDOR
- EXISTING PROJECT FOOTPRINT
- PROPOSED NEW DEVELOPMENT AREA
- EXISTING FORESHORE LEASE AREA
- PROPOSED FORESHORE LEASE AREA

PLANT SITE AREAS

- INSIDE BATTERY LIMITS (ISBL)
- OUTSIDE BATTERY LIMITS (OSBL)
- LNG STORAGE AREA
- LAND BACKED WHARF (LBW)

BASE DATA

- LOCAL ROAD
- TRANSMISSION LINE
- FOREST SERVICE ROAD
- WATERCOURSE
- CONTOUR (20m)
- WATERBODY
- WETLAND
- FIRST NATION RESERVE
- VEGETATION

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REFERENCES

1. EXISTING AND PROPOSED STUDY AREA DIGITIZED FROM MAPPING PROVIDED BY CHEVRON.
2. FOREST SERVICE ROADS, HYDROLOGY, PARKS AND PROTECTED AREAS CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
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CLIENT
CHEVRON CANADA LIMITED

PROJECT
KITIMAT LNG EXPANSION PROJECT

TITLE
DETAILED KLNG PLANT SITE PLAN: 12 MTPA COMPACT E-DRIVE DESIGN

Kitimat LNG

YYYY-MM-DD	2019-07-06
DESIGNED	DK
PREPARED	RC
REVIEWED	AC
APPROVED	DK

PROJECT NO.	CONTROL	REV.	FIGURE
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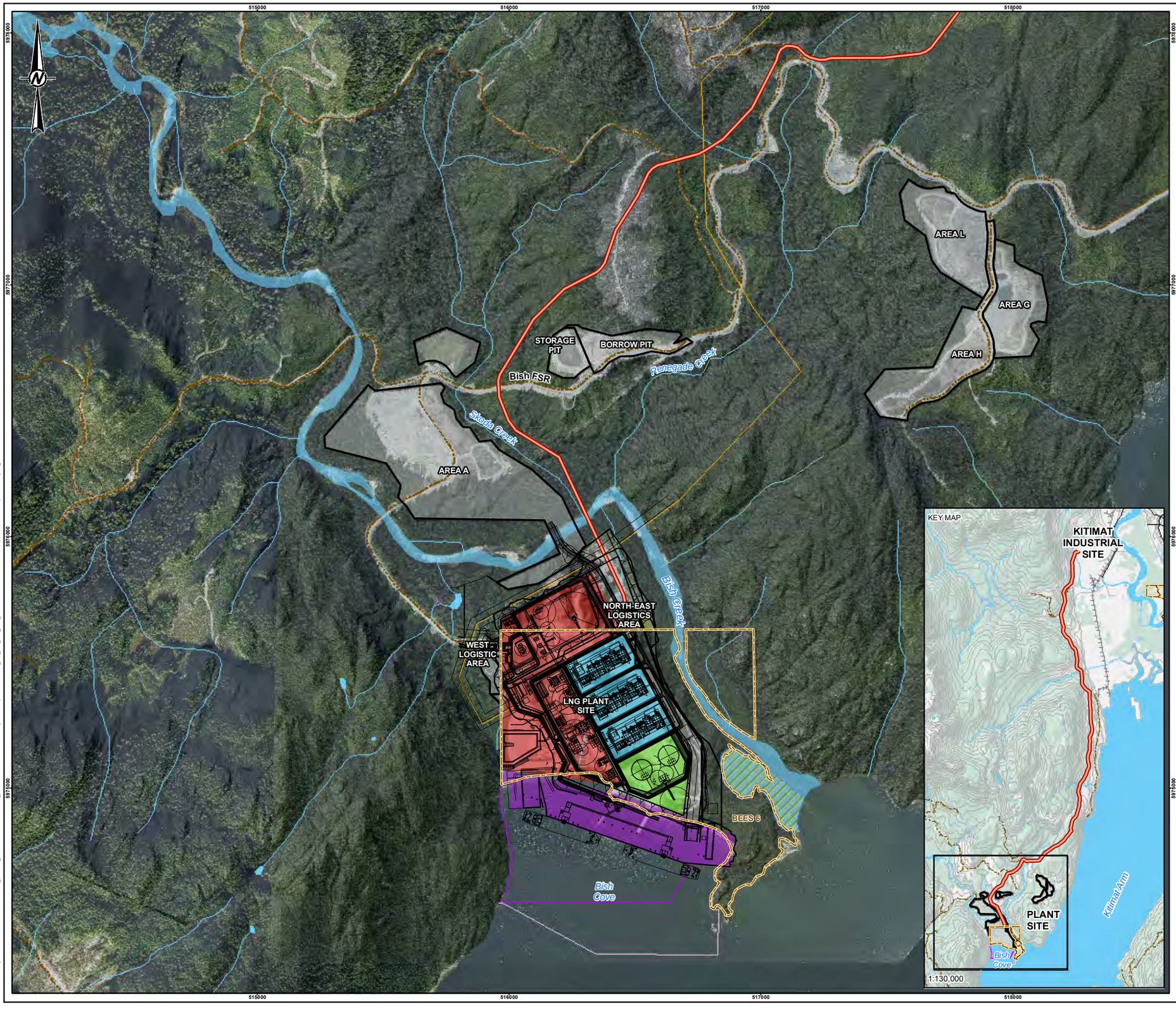

LEGEND

PROJECT DATA
- FACILITY LAYOUT
- PROPOSED PIPELINE CORRIDOR
- EXISTING PROJECT FOOTPRINT
- PROPOSED NEW DEVELOPMENT AREA
- EXISTING FORESHORE LEASE AREA
- PROPOSED FORESHORE LEASE AREA

PLANT SITE AREAS
- INSIDE BATTERY LIMITS (ISBL)
- OUTSIDE BATTERY LIMITS (OSBL)
- LNG STORAGE AREA
- LAND BACKED WHARF (LBW)

BASE DATA
- LOCAL ROAD
- TRANSMISSION LINE
- FOREST SERVICE ROAD
- WATERCOURSE
- CONTOUR (20m)
- WATERBODY
- WETLAND
- FIRST NATION RESERVE
- VEGETATION

0 250 500
1:15,000 METRES

REFERENCES
1. EXISTING AND PROPOSED STUDY AREA DIGITIZED FROM MAPPING PROVIDED BY CHEVRON.
2. FOREST SERVICE ROADS, HYDROLOGY, PARKS AND PROTECTED AREAS CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
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CLIENT
CHEVRON CANADA LIMITED

PROJECT
KITIMAT LNG EXPANSION PROJECT

TITLE
DETAILED KLNG PLANT SITE PLAN: PROPOSED 18 MTPA EXPANSION PROJECT

Kitimat LNG

YYYY-MM-DD	2019-07-06
DESIGNED	DK
PREPARED	RC
REVIEWED	AC
APPROVED	DK

PROJECT NO.	CONTROL	REV.	FIGURE
19117670	4300	0	3-3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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4 Federal Involvement

4.1 Federal Lands

Part of the Bish Cove site is on Bees IR No. 6. The Haisla Nation approved the lease of Bees IR No. 6 to KM LNG in November 2010, and the lease was subsequently issued by INAC. No federal funding is being provided to the KLNG Expansion Project. The Proponent does not anticipate the KLNG Expansion Project will cause any changes to the environment outside of British Columbia or outside of Canada (i.e., no transboundary effects anticipated).

4.2 Federal Permits and Approvals

Federal permits and approvals required for the KLNG Expansion Project, are presented in Table 4-1. A list of approved permits and approvals is provided as Appendix A.

Table 4-1 Federal Permits and Approvals Potentially Applicable to the Kitimat KLNG Expansion Project

Permit/Approval	Federal Agency	Federal Statute	Project Activity
Export Licence	National Energy Board	*National Energy Board Act*	To export LNG outside of Canada to international markets; export licences are typically approved for 20-40-year terms, which terms begin upon commencement of exports. Existing 20-year Export Licence for 10 MTPA facility obtained Nov 14, 2011. Export Licence application for 18 MPTA facility for 40 years was submitted April 1, 2019.
Fisheries Act Authorization	Fisheries and Oceans Canada	*Fisheries Act*	Existing Authorization for impacts to fish habitats associated with all aspects of the approved KLNG Project (marine, facility, access road and interconnecting infrastructure) issued December 1, 2011. New Fisheries Act Authorization and habitat offsetting required for the removal of additional fish habitat and the construction of the LBW for the Compact E-drive Design. Temporary and permanent docks. Temporary and permanent onshore infrastructure in and around streams.
Navigation Protection Act Approval	Transport Canada	*Navigation Protection Act*	LNG marine terminal facilities. Offloading docks. Existing approvals for construction related infrastructure, including the access road bridge over Bish Creek, barge landing facilities, and a site access jetty issued between July 2011 and January 2012.

Permit/Approval	Federal Agency	Federal Statute	Project Activity
Certificates of Compliance	Transport Canada	*Marine Transportation Security Act* and Regulations	Operation of the LNG facility, port, and carriers.
Disposal at Sea Permit	Environment Canada	*Canadian Environmental Protection Act* and Disposal at Sea Regulation	Marine disposal of dredged material for the Compact E-drive Design as well as materials excavated from the KLNG Project site to reach required grade.
Explosive Licences and Permits	Natural Resources Canada	*Explosives Act* and Regulations	Explosive Licence required for factories and magazines. Explosive Permit required for vehicles used for the transportation of explosives.

4.2.1.1 TERMPOL

The Technical Review Process of Marine Terminal Systems and Transhipment Sites (TERMPOL) includes the transportation of LNG. The voluntary TERMPOL process is conducted by Transport Canada and supports its review and approval of projects and the issuance of permits, such as those required under the *Navigation Protection Act*. The purpose of a TERMPOL review is to identify the navigational risks posed by shipping certain commodities and by the shipping activity itself. By identifying the areas of potential risk, project changes or shipping requirements can be identified to reduce or eliminate the risks of collisions, groundings, etc. by that potential risk. Undertaking such a risk assessment of the shipping and port operations is part of due diligence.

In 2012, the Proponent initiated a TERMPOL review for the KLNG Project in accordance with the conditions of EAC E06-01. The TERMPOL review process considered shipping safety for a single berth facility designed to handle approximately 150 LNG carriers per year ranging in size from of 125,000 to 217,000 m^3. This volume of traffic is broadly aligned with the foundation (two [2] LNG Train) project. The KLNG Project TERMPOL report contained a critical assessment of marine safety and environmental considerations to demonstrate that:

- the KLNG Project complies with or exceeds regulatory marine safety measures in the context of transport of hazardous materials; and
- The proponent can prevent, manage and mitigate unintentional loss of LNG containment and the associated risks with loading, navigation and natural hazards.

The KLNG Project TERMPOL report submitted to Transport Canada for review included the following surveys and studies about marine transportation components of the KLNG Project:

- **Executive Summary** – Presents background of the project and the general marine report and marine history and safety in region.
- **Origin, Destination and Marine Traffic Volume Survey** – Quantifies and describes all recreational, commercial, and any other traffic movement that collectively forms the regional marine traffic network in the project area.

- **Fishery Resource Survey** – Identifies fish and fish habitat, including any sensitive marine areas that may be affected by the project, the geographical locations of regional fishing operations, the seasonal variations of fishing activities, and customary routes to major fishing grounds from ports used by fishing vessels. The report includes an addendum on underwater noise mitigation and mammal avoidance.
- **Offshore Exercise, Offshore Exploration and Natural Resources Activities** – Identifies geographical locations and frequency of military exercises involving ships and aircraft and any offshore exploration and utilization areas and the routes used by any related marine traffic.
- **Route Analysis, Approach Characteristics and Navigability Survey; Channel Maneuvering and Anchorage Elements** – Outlines ship and route safety, suitability of existing channels for the LNG carriers, and identifies areas where navigation requires attention.
- **Special Underkeel Clearance Survey** – Reviews water depths within the navigation route.
- **Transit Time and Delay Survey** – Surveys transit time, pilotage, and speed profiles by area and potential delay areas (pilot, weather).
- **Casualty Data Survey, General Risk Analysis and Intended Methods of Reducing Risks** – Is an independent report by the DNV GL Group that establishes the basis for calculation of the likelihood or probability of a maritime incident regarding collision or grounding and uncontrolled release of cargo.
- **Ship Specifications** – Reports on ship specifications and LNG carrier vetting procedures.
- **Site Plans and Technical Data** – Describes site plans, general arrangements, bathymetry and structural drawings, vessel maneuvers and geotechnical data, environmental data (wind, wave, tide, current, ice), design and operating parameters, safety systems, pollution and waste management programs and systems, and berthing strategy.
- **Cargo Transfer and Transshipment Systems** – Verifies and summarizes the LNG loading and transfer process.
- **Berth Procedures and Provisions** – Verifies adequate berthing and mooring provisions for design vessels at the Kitimat LNG Terminal.
- **Port Information Handbook** – Provides an outline of a future manual for entering Canadian waters and Kitimat Port.
- **Terminal Operations Manual** – Contains an outline of a future manual for terminal operations.
- **Contingency Planning** – Shows an outline of a future manual for maritime incident response.
- **Hazardous and Noxious Liquid Substances (HNS)** – Describes how the KLNG Project will implement the relevant International Maritime Organization (IMO) codes, convention, and protocol concerning HNS, when ratified and in force, as implemented under Canadian domestic legislation.

Transport Canada issued the TERMPOL Review Process on the Kitimat LNG Project report in October 2018, outlining its recommendations and findings that describe authorities' actions to enhance the overall safety of the KLNG Project following review of the technical surveys and studies submitted and consultation with the First Nations. TERMPOL Review Committee (TRC) recommendations, included:

- The LNG carriers used for the KLNG Project should limit their speed to a maximum of 12kn when accompanied by tug escort.

- The proponent should ensure all carriers that call at the terminal possess a Ship Inspection Report Programme (SIRE) certificate that is no more than six months old, as part of their Carrier Acceptance Program.
- The proponent should ensure that venting of boil-off gases does not occur when pilots are boarding project carriers or during pilot transfer by helicopter.
- The proponent should ensure that all tug operators used for the project have undergone T2 training.
- The proponent should pursue full tug escort for both inbound and outbound vessels between the project terminal in the Douglas Channel and Browning Entrance, north of the Principe Channel.
- The proponent should continue its efforts to obtain information on concentrations of marine mammal populations, including Minke whales, to develop speed profiles and other mitigation measures for underwater vessel noise. This includes participation in regional initiatives, such as future Smart Oceans workshops, to obtain the best data available concerning marine mammals along the project route.

The KLNG Project TERMPOL report will be updated to reflect the additional vessel traffic associated with the proposed KLNG Expansion Project.

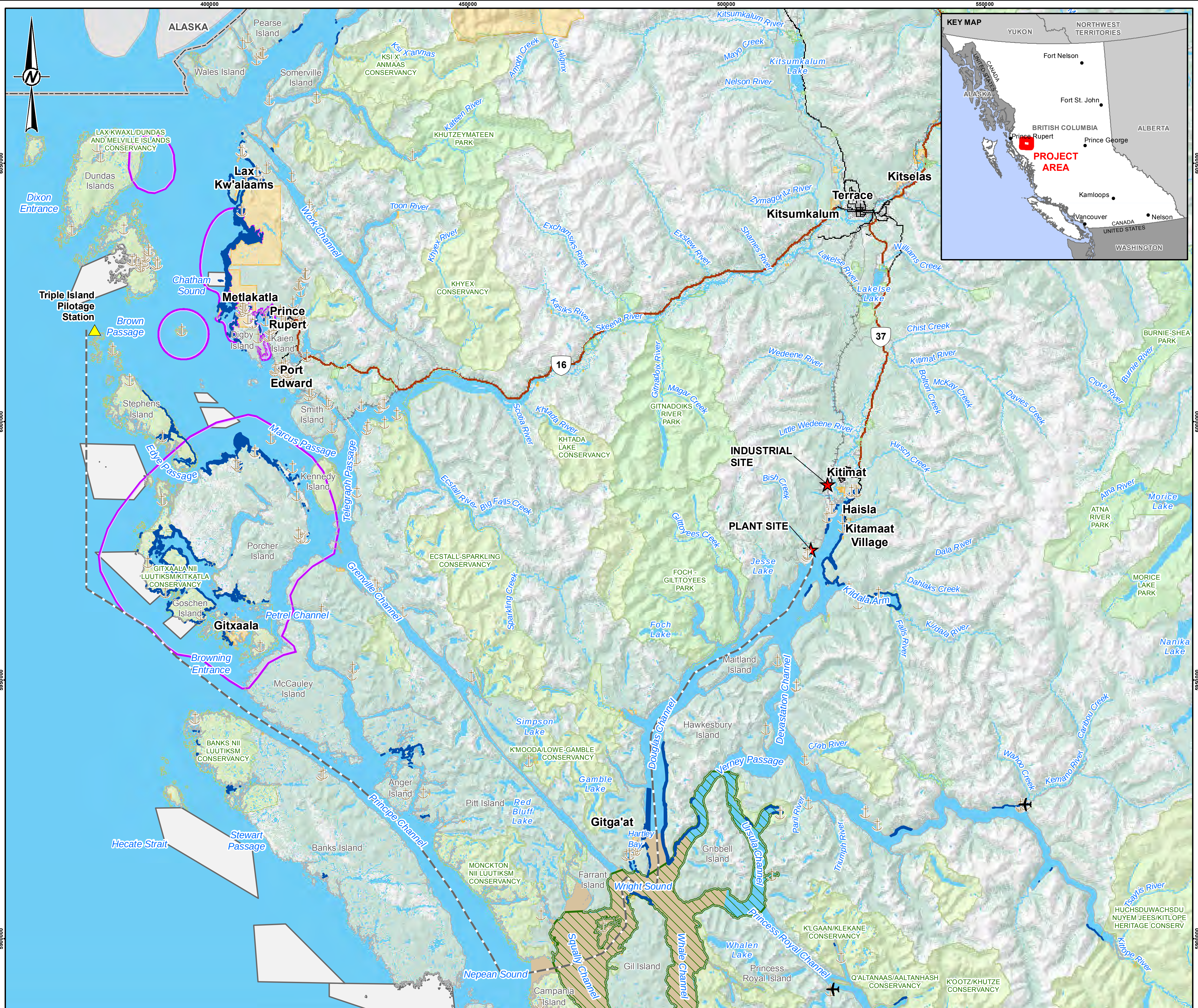
5 Environmental Effects

5.1 Environmental Setting

The following sections provide an overview of the environmental setting of the KLNG Expansion Project. Figure 5-1 provides and overview of the watercourses, wetlands, nearby communities, marine protected areas, power transmission lines and roads. Figure 5-2 shows the known archaeological sites in proximity to the Plant Site.

5.1.1 Climate and Atmosphere

Located in the Pacific climate region, the KLNG Project Area has relatively mild winters and moderately cool summers, with small seasonal temperature differences. January is the coldest month, with average temperatures below freezing, and July and August are the warmest months, with average daily temperatures slightly more than 15°C. Average daily rainfall in Kitimat is highest in the autumn months, particularly in October and November. The summer month of July is the driest. Snow can fall any time between October and April, but is most common between December and the end of February. There is a strong seasonal influence on wind direction. Winds in fall and winter prevail from the north-northeast quadrant. In summer the reverse is true, with winds prevailing from the south - south east. Wind speeds average approximately 3 m/s (10 kph). Strong winds occur more frequently from the south-southeast, with summer having more frequent strong winds (Figure 5-3). Fall is the season with the weakest winds. Annual precipitation (snow and rainfall) is approximately 2.1 m (Figure 5-4).



LEGEND

- AIRPORT
- EXISTING MARINE / MOORAGE / ANCHORAGE LOCATION
- HUMPBACK WHALE - CRITICAL HABITAT
- IMPORTANT BIRD AREA
- HERRING SPAWN
- ROCK FISH CONSERVATION
- KILLER WHALE - POTENTIAL CRITICAL HABITAT FOR NORTHERN RESIDENTS

PROJECT DATA

- KITIMAT LNG (PLANT AND INDUSTRIAL
- PROPOSED SHIPPING ROUTE

BASE DATA

- PILOTAGE STATION
- HIGHWAY
- MAJOR ROAD
- LOCAL ROAD
- RAILWAY
- INTERNATIONAL BOUNDARY
- WATERCOURSE
- WATERBODY
- FIRST NATION RESERVE
- CONSERVANCY AREA
- PARKS AND PROTECTED AREAS
- VEGETATION

0 15 30

1:750,000 KILOMETRES

REFERENCE(S)

1. FOREST SERVICE ROADS, HYDROLOGY, PARKS AND PROTECTED AREAS CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
2. INDIAN RESERVES AND RAILWAYS OBTAINED FROM IHS ENERGY.
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COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 9N

CLIENT
CHEVRON CANADA LIMITED

PROJECT
KITIMAT LNG EXPANSION PROJECT

TITLE
ENVIRONMENTAL SETTING

Kitimat LNG

YYYY-MM-DD	2019-07-07
DESIGNED	DK
PREPARED	RC
REVIEWED	AC
APPROVED	DK

PROJECT NO.	CONTROL	REV.	FIGURE
19117670	1000	0	5-1

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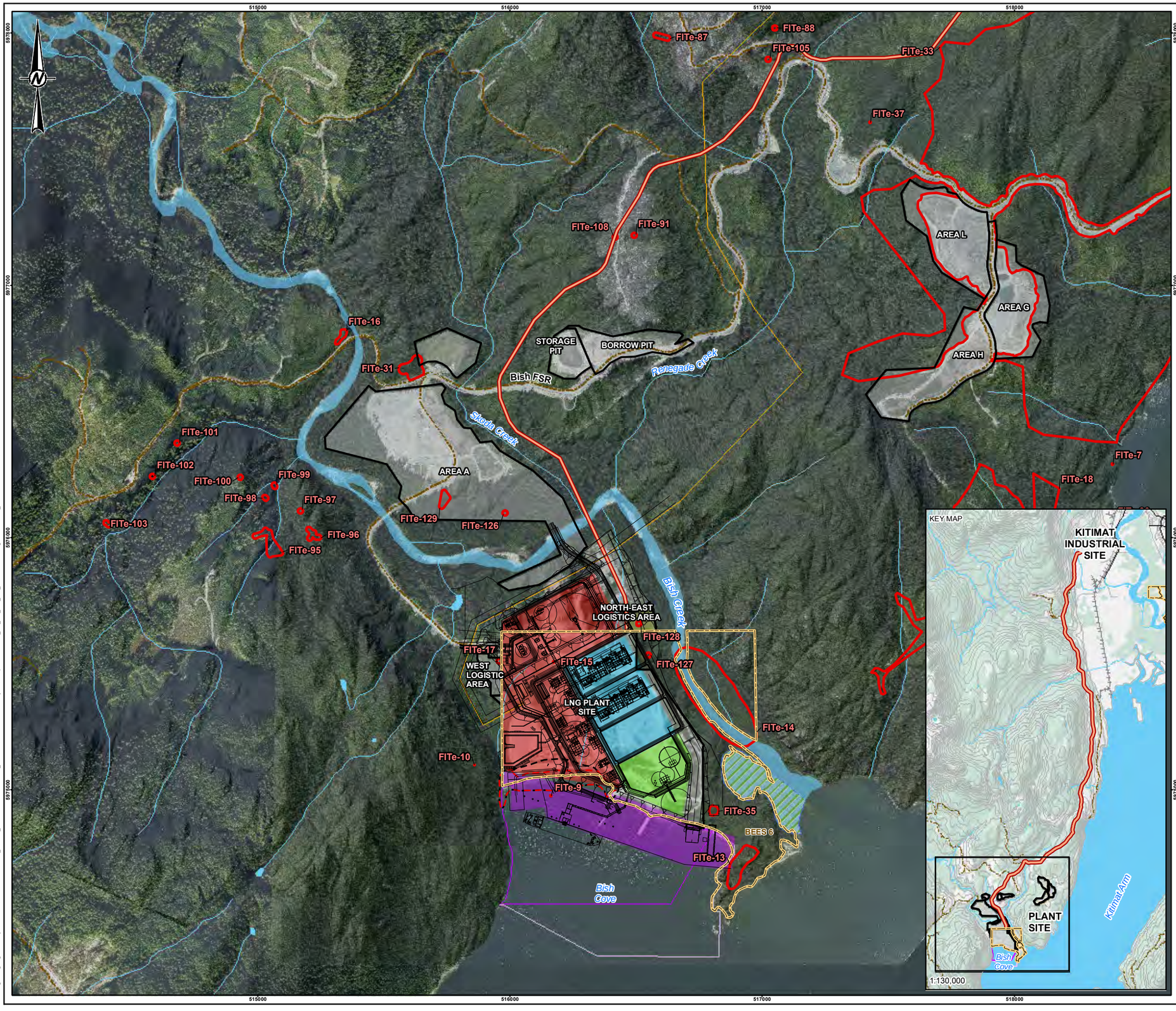

LEGEND

- REVISED ARCHAEOLOGICAL SITE BOUNDARY (2019)
- ARCHAEOLOGICAL SITE BOUNDARY AS ORIGINALLY PROPOSED (MILLENNIA 1997)
- PREVIOUSLY RECORDED ARCHAEOLOGICAL SITE

PROJECT DATA

- FACILITY LAYOUT
- PROPOSED PIPELINE CORRIDOR
- EXISTING PROJECT FOOTPRINT
- PROPOSED NEW DEVELOPMENT AREA
- EXISTING FORESHORE LEASE AREA
- PROPOSED FORESHORE LEASE AREA

PLANT SITE AREAS

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- LNG STORAGE AREA
- LAND BACKED WHARF (LBW)

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- TRANSMISSION LINE
- FOREST SERVICE ROAD
- WATERCOURSE
- CONTOUR (20m)
- WATERBODY
- WETLAND
- FIRST NATION RESERVE
- VEGETATION

0 250 500

1:15,000 METRES

REFERENCES

1. ARCHAEOLOGICAL SITES OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS ON 20190103.
2. EXISTING AND PROPOSED STUDY AREA DIGITIZED FROM MAPPING PROVIDED BY CHEVRON.
3. FOREST SERVICE ROADS, HYDROLOGY, PARKS AND PROTECTED AREAS CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
4. FIRST NATION RESERVES OBTAINED FROM IHS ENERGY.
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CLIENT
CHEVRON CANADA LIMITED

PROJECT
KITIMAT LNG EXPANSION PROJECT

TITLE
ENVIRONMENTAL SETTING - KNOWNARCHAEOLOGICAL SITES

Kitimat LNG

YYYY-MM-DD	2019-07-07
DESIGNED	DK
PREPARED	RC
REVIEWED	AC
APPROVED	DC

PROJECT NO.	CONTROL	REV.	FIGURE
19117670	4300	0	5-2

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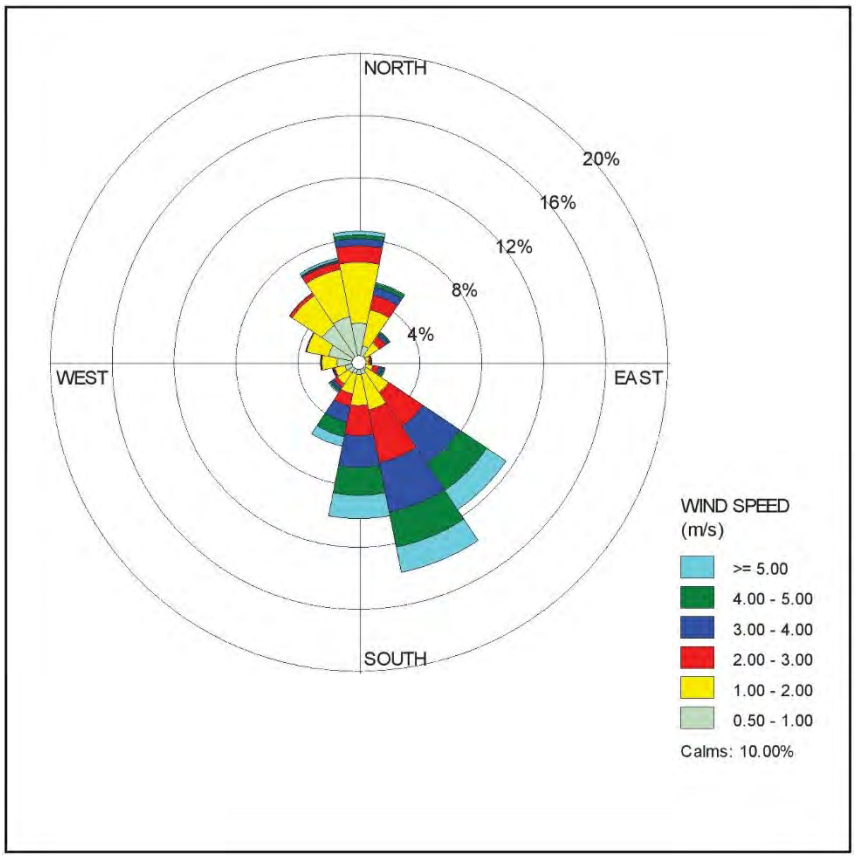

Figure 5-3: Wind Rose (all seasons): Kitimat, BC

Climate data for Kitimat [hide]													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	12.2 (54)	13.0 (55.4)	18.0 (64.4)	27.5 (81.5)	32.8 (91)	37.0 (98.6)	36.1 (97)	36.0 (96.8)	33.3 (91.9)	25.0 (77)	13.3 (55.9)	10.0 (50)	37.0 (98.6)
Average high °C (°F)	0.5 (32.9)	3.1 (37.6)	6.7 (44.1)	11.7 (53.1)	16.2 (61.2)	19.5 (67.1)	21.6 (70.9)	21.4 (70.5)	16.8 (62.2)	10.1 (50.2)	3.9 (39)	1.2 (34.2)	11.1 (52)
Daily mean °C (°F)	−1.7 (28.9)	0.3 (32.5)	3.2 (37.8)	7.1 (44.8)	11.0 (51.8)	14.5 (58.1)	16.7 (62.1)	16.5 (61.7)	12.6 (54.7)	7.2 (45)	1.8 (35.2)	−0.8 (30.6)	7.4 (45.3)
Average low °C (°F)	−4.0 (24.8)	−2.5 (27.5)	−0.3 (31.5)	2.4 (36.3)	5.7 (42.3)	9.5 (49.1)	11.7 (53.1)	11.5 (52.7)	8.3 (46.9)	4.3 (39.7)	−0.3 (31.5)	−2.8 (27)	3.6 (38.5)
Record low °C (°F)	−25.0 (−13)	−23.9 (−11)	−19.4 (−2.9)	−10.0 (14)	−6.7 (19.9)	−0.6 (30.9)	3.9 (39)	2.0 (35.6)	−2.0 (28.4)	−13.0 (8.6)	−24.0 (−11.2)	−25.0 (−13)	−25.0 (−13)
Average precipitation mm (inches)	288.4 (11.354)	186.8 (7.354)	160.7 (6.327)	128.3 (5.051)	89.5 (3.524)	73.1 (2.878)	62.4 (2.457)	95.7 (3.768)	190.2 (7.488)	323.5 (12.736)	320.3 (12.61)	291.8 (11.488)	2,210.7 (87.035)
Average rainfall mm (inches)	195.7 (7.705)	133.6 (5.26)	134.5 (5.295)	123.0 (4.843)	88.7 (3.492)	73.1 (2.878)	62.4 (2.457)	95.7 (3.768)	190.2 (7.488)	319.9 (12.594)	266.6 (10.496)	202.7 (7.98)	1,886.1 (74.256)
Average snowfall cm (inches)	92.7 (36.5)	53.2 (20.94)	26.3 (10.35)	5.4 (2.13)	0.8 (0.31)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.5 (1.38)	53.7 (21.14)	89.1 (35.08)	324.6 (127.8)
Average precipitation days (≥ 0.2 mm)	19.7	15.5	18.5	17.2	15.8	14.8	13.2	13.7	16.9	22.1	21.7	21.5	210.5
Average rainy days (≥ 0.2 mm)	14.5	12.0	16.7	17.0	15.8	14.8	13.2	13.7	16.9	21.9	18.8	14.8	190.1
Average snowy days (≥ 0.2 cm)	9.2	6.3	5.0	1.2	0.2	0.0	0.0	0.0	0.0	1.0	7.0	11.4	41.2
Mean monthly sunshine hours	48.5	75.9	103.8	153.9	199.6	189.5	214.3	196.5	129.7	69.2	38.1	30.9	1,449.9
Percent possible sunshine	19.5	27.7	28.3	36.6	40.3	37.1	41.7	42.7	33.9	21.1	14.8	13.3	29.7
Source: [12]													

Figure 5-4: Snowfall and precipitation data: Kitimat, BC

5.1.2 Terrestrial

5.1.2.1 Topography and Surficial Geology

The site is located within the Coast Mountains physiographic region. The regional topography is mountainous with terrain typical of intrusive igneous rocks shaped by alpine glaciation processes. On most slopes in the region there are extensive igneous bedrock outcrops and accumulations of colluvial material. The slopes are generally steep and the topography is rugged. Basins, plains, and lowlands in the region consist largely of fluvial glacial materials deposited by meltwater or fluvial river terraces.

The geology of the region largely consists of intrusive igneous rock, chiefly of the late Mesozoic era. These rocks are typically of a coarse crystalline nature consisting of mostly granodiorite and quartz diorite with minor gneiss and schist. Igneous rocks in the region are relatively resistant to weathering. As a result, slopes on these rocks are generally steep and the topography is rugged.

Surficial materials in the area were largely deposited by glacial processes and the mass wasting of colluvial materials. Parent geological materials range from morainal drifts (till) and colluvium in the mountainous areas to beach sands and gravels in the coastal lowlands. Glacial till materials in the area are comprised of clay, silt, and sand sorted to varying degrees.

Marine materials consist of marine clay deposits overlain by outwashes of sand and gravel. Alluvial sands and gravels of recent origin are found along the river/creek channels. Minor deposits of organic materials consisting of peat are evident in depressional areas.

5.1.2.2 Vegetation

The plant site is situated at Bish Cove in the Bish Creek watershed and is in the Coastal Western Hemlock (CWH) Biogeoclimatic Ecosystem Classification (BEC) zone, very wet maritime, submontane variant (CWHvm1). This variant is characterised by submaritime, humid and very snowy climate, with forests generally dominated by western redcedar (*Thuja plicata*) and amabilis fir (*Abies amabilis*), although western hemlock (*Tsuga heterophylla*), Sitka spruce (*Picea sitchensis*) are sometimes abundant (Banner et al. 1993).

The plant site has been previously cleared of vegetation for construction of the facility; however, vegetation surrounding the site includes areas of old growth forest, riparian ecosystems associated with Bish Creek, Renegade Creek, and other unnamed streams.

5.1.2.3 Wildlife

Wildlife and wildlife habitat at the site is influenced by the vegetation and climate, which is defined as CWHvm1 in the provincial BEC zone classification.

Birds are the most diverse vertebrate wildlife class with the potential to occur in and around the Project Area, with 166 species potentially present, including 27 species of waterfowl, 11 species of diurnal raptors, 9 species of owls and 82 songbird species. Sixteen of these species are of conservation concern, 14 of which potentially breed within the region.

The assemblage of mammalian species that potentially occur within the Project Area is large and diverse, and includes 11 bats, 17 lagomorphs, rodents and shrews, nine mammalian carnivores, and three ungulates.

Six amphibian and two reptile species (i.e., snakes) potentially occur in and around the Project Area, including two species of conservation concern: coastal tailed frog and western toad.

The focus on wildlife will be on species of conservation concern, which are defined as those that are either federally listed as "Special Concern," "Threatened" or "Endangered" on Schedule 1 of Species At Risk Act, or are provincially "Blue-" or "Red-listed". Terrestrial wildlife candidate focal species will be selected based on conservation status, regulatory frameworks for legally binding requirements, importance to Aboriginal Groups for traditional purposes, and other stakeholder interest such as hunting or public interest. Further, candidate focal species will be selected to represent a variety of taxa (i.e., species groups), environmental conditions (e.g., habitats) and ecological roles (e.g., predators and prey) applicable to evaluating Project effects as part of the Environmental Assessment Certificate (EAC) amendment.

Terrestrial wildlife candidate focal species being considered for the Project are:

Wildlife Species of Conservation Concern

- Coastal tailed frog (*Ascaphus truei*)
- Grizzly bear (*Ursus arctos*)
- Little brown myotis (*Myotis lucifugus*)
- Northern goshawk *laingi* subspecies (*Accipiter gentilis laingi*)
- Western screech-owl kennicottii subspecies (Megascops kennicottii kennicottii)
- Western toad (*Anaxyrus boreas*)

Marine Birds (terrestrial habitat requirements)

- Great blue heron *fannini* subspecies (*Ardea herodias fannini*)
- Marbled murrelet (*Brachyramphus marmoratus*)

Migratory Birds

- Olive-sided flycatcher (*Contopus cooperi*)

Other species of interest

- American black bear (*Ursus americanus*)
- Moose (*Alces americanus*)
- Pacific marten (*Martes caurina*)

5.1.3 Freshwater Fish and Fish Habitat

The Project Area landscape contains both fish and non-fish bearing watercourses. Bish Creek is the main stream flowing into Kitimat Arm and is an important spawning destination for Pacific salmon species such as pink (*Oncorhynchus gorbuscha)*, sockeye *(O. nerka)*, chum *(O. keta)*, coho *(O. kisutch*, chinook *(O. tshawytscha)*) and cutthroat trout (*O. clarkii*). Juvenile salmon of each of these four species has been found in Bish Creek and Bish Cove with Chum and pink salmon being the most abundant.

5.1.4 Marine Resources

The plant site is located at Bish Cove which is within the Kitimat Arm of Douglas Channel. The Kitimat Arm/Douglas Channel area is part of the North Coast Fjord ecosystem. The oceanographic aspects are largely governed by the physical characteristics of Douglas Channel, which is driven primarily by a combination of hydraulic gradient, wind stress, and tides. Douglas Channel is characterized by lower surface water salinity at the northern end of the inlet. It is classified as a 'stored run-off' inlet where the peak fresh water discharge is received from May to June from melting snow stored at high elevations. Surface salinity measurements (within 20 m from the surface) taken from an oceanographic monitoring station in Kitimat Harbour generally vary from about 15 to 30 parts per thousand (ppt), resulting from the dilution effect from fresh water discharging from the Kitimat River. This runoff creates a fresher surface layer from late spring to late fall in Kitimat Arm. Below 20 m, salinity generally ranges from about 30 to 33 ppt.

The flow pattern of Kitimat Arm consists of seaward surface currents and deeper tidal undercurrents, otherwise known as positive estuarine flow. Generally, because of the height of surrounding mountains, winds are directed topographically up or down the channel and wind-generated surface movement can induce motion of deeper water through up or down-welling, particularly at the head of the inlet. Tidal forces result in currents that move predominantly back and forth along the channel. Average tidal variation is 4 m with spring tides reaching 7 m. Interaction of currents with the bathymetry often results in longitudinal, lateral, and vertical mixing. Due to geographic setting and the standing wave nature of the tide in Kitimat Arm, tidal currents are relatively weak at all phases of the tide.

5.1.4.1 Marine Fish

Marine fish present within Kitimat Arm and Bish Cove include regionally important populations of all five Pacific salmon species pink, sockeye, chum , coho , chinook. Other marine fish species include Dolly Varden (*Salvelinus malma)* Steelhead trout (*O. mykiss*), starry flounder *(Platichthys stellatus)* cutthroat trout , Eulachon (*Thaleichthys pacificus*), Pacific herring (*Clupea harengus pallasi*), Rockfish (*Sebastes spp.*), Pacific halibut (*Hippoglossus stenolepsis*), threespine stickleback (*Gasterosteus aculeatus*), and shiner perch *(Cymatogaster aggregate)*.

Shellfish know to occur in the area include mussels (*Mytilus spp.*) and Dungeness crab (*Cancer magister*). Dolly Varden and cutthroat trout are special conservation concern and are Blue-listed in BC. Eulachon are currently listed as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and are provincially Blue-listed.

5.1.4.2 Marine Plants and Habitat

Marine vegetation in Bish Cove includes a patchy distribution of eelgrass (*Zostera marina*) beds on the lower intertidal and shallow subtidal zones, patches of salt marsh vegetation communities represented by Lyngbye's sedge (*Carex lyngbyei*), *Calamagrostis canadensis*, and saltgrass *Distichlis* spicata in the upper intertidal zone, and intertidal vegetation is represented by rockweed (*Fucus spp*) and stringy sea lettuce (*Ulva spp.*).

A small reef containing sponges are also present in deeper water off Bish Cove.

5.1.4.3 Marine Mammals

Marine mammals that occur in Douglas Channel include killer whales **(***Orcinus orca*), humpback whales **(***Megaptera novaeangliae)*, Steller sea lion **(***Eumetopias jubatus)*, Dall's porpoise **(***Phocoenoides dalli*), harbour porpoise (*Phocoena phocoena)* and harbour seal (*Phoca vituline)*.

The federal *Species at Risk Act* (SARA) lists the northern resident killer whales as threatened and harbour porpoises and Steller sea lions as Special Concern.

5.1.4.4 Marine Birds (including Migratory Birds)

Marine birds (including migratory birds) are a diverse group of avian species that may use marine areas in Douglas Channel and along the shipping route to Triple Islands at some time of the year and refers collectively to the following taxonomic groups: waterfowl (ducks, geese, and swans), loons, grebes, tubenoses (shearwaters, petrels, and storm-petrels), cormorants, herons, shorebirds (oystercatchers, plovers, and sandpipers), alcids (auks, murres, and puffins), and larids (gulls and terns), as well as bald eagle *(Haliaeetus leucocephalus)*, osprey *(Pandion haliaetus)*, peregrine falcon *(Falco peregrinus)*.

Focal bird species include Cassin's auklet (*Ptychoramphus aleuticus)*, great blue heron*,* western grebe *(Aechmophorus occidentalis),* marbled murrelet, ancient murrelet *(Synthliboramphus antiquus)* and surf scoter *(Melanitta perspicillata).*

The marbled murrelet is federally listed as Threatened under the federal SARA, and provincially it is Blue-listed. The western grebe is federally listed as Special Concern under SARA and is on the provincial Red list. The Cassin's auklet and great blue heron *fannini* subspecies is federally listed as Special Concern under SARA and provincially Blue listed. Ancient murrelet is designated as Special Concern under SARA and surf scoter is provincially Blue-listed.

5.2 Preliminary Effects Assessment

5.2.1 Project-Environment Interactions and VC Selection

Table 5-1 presents a project-environment interaction matrix that maps to the effects assessment undertaken in support of the approval of the KLNG Project by federal and provincial EA authorities in 2006. This interaction matrix includes key issues across all five EA pillars considered in the original assessment which concluded that the KLNG Project was not likely to result in significant adverse effects to the Valued Components (VCs) identified in Table 5-2.

Table 5-2 also documents the conclusions of the effects assessment undertaken in support of 2008 redesign of the KLNG Project as a natural gas liquefaction and LNG export facility. The 2008 revisions to the KLNG Project were determined to result in no change in the significance of potential adverse effects to identified VCs; for many components, reduced or beneficial impacts were predicted. The EAC E06-01 was amended to reflect the 2008 revisions on January 8, 2009.

The VCs are components of the natural and/or human environment that have scientific, regulatory, social, cultural, economic, historical, archaeological or aesthetic importance (BCEAO 2013). The VCs provide focus to the EA and become the basis for the identification and evaluation of potential project-environment interactions. To be effective and useful, VCs must have the following attributes:

- **Relevant** to at least one of the EA pillars (environmental, economic, social, heritage and health) and clearly linked to the values reflected in identified project-related issues;
- **Comprehensive**, so that taken together, the VCs selected for an assessment should enable a full understanding of the important potential effects of a project;
- **Representative** of the important features of the natural and human environment potentially affected by the project;
- **Responsive** to potential effects of the project; and
- **Concise**, so that the nature of Project-VC interactions and the resulting effect pathways can be clearly articulated and understood.

The Selected VCs for the 2005 and 2008 assessments were used to guide the identification of key issues and the selection of Candidate VCs for an assessment of the 2019 proposed changes to the certified project design and operations. Candidate VCs and their alignment with Selected VCs used in the 2005 and 2008 EAs, and an assessment of their applicability to the 2019 amendment, are presented in Table 5-2. Pathway Components (PCs) are identified when the component does not represent an assessment endpoint, but a pathway through which other components may be affected.

Table 5-1 Project-Environment Interaction Matrix: KLNG Project (from the 2006 EAC Application).

Project Activity	Environmental Assessment Pillars and Key Issues													
	Environmental						Economic	Social					Heritage	Health
	Atmospheric Environment	Terrestrial Environment	Wildlife & Wildlife Habitat	Freshwater Resources	Freshwater Fish & Fish Habitat	Marine Resources	Economic Conditions	Community Health & Wellbeing	Current Use of Lands and Resources for Traditional Purposes	Land & Resource Use	Marine Use & Transportation	Visual Resources	Heritage Resources	Human Health
1.0 CONSTRUCTION														
1.1 Site preparation and clearing	●	●	●	●	●	●	○	●	●	●	○	●	●	●
1.2 Construction of marine-based infrastructure	●	●	●	○	○	●	○	●	●	●	●	●	●	●
1.3 Construction of land-based infrastructure	●	●	●	●	●	○	○	●	●	●	○	●	●	●
1.4 Demand for labour, goods and services	○	○	○	○	○	○	●	●	○	○	○	○	○	○
2.0 OPERATIONS														
2.1 LNG production	●	●	●	●	●	○	○	●	●	●	○	●	○	●
2.2 LNG storage	●	●	●	●	●	○	○	●	●	●	○	●	○	●
2.3 LNG carrier loading and shipping	●	○	○	○	○	●	○	●	●	●	●	●	○	●
2.4 Supporting infrastructure operations, including roads, pipelines, transmission lines, logistic areas and other facilities and buildings.	●	●	●	●	●	○	○	●	●	●	○	●	○	●
2.5 Demand for labour, goods and services	○	○	○	○	○	○	●	●	○	○	○	○	○	○
3.0 DECOMMISSIONING														
3.1 Decommissioning of the LNG facility	●	●	●	●	●	●	●	●	●	●	●	●	●	●

○ – No/negligible interaction or adverse effects anticipated; no further consideration warranted. ● – Potential interaction or adverse effects anticipated; warrants further consideration.

Table 5-2 EA Key Issues and Components: KLNG Project and KLNG Expansion Project

KLNG Project 2008/09 **				KLNG Expansion Project		
2005 *		2008/09 **		2019		
Valued Components (VCs)	**Sub Components**	**Effects Assessment**	**Conclusion of EA Review**	**Key Issue**	**Candidate VCs**	**Proposed Sub Components**
Environmental						
Atmospheric Environment	Climate	34% reduction in GHG emissions. No change in significance of potential adverse effects.	Residual effects will be less than significant.	Atmospheric Environment	Greenhouse Gas (GHG) Management	None proposed
	Air Quality	14% to 73% reduction in contaminant emissions. No change in significance of potential adverse effects.	Residual effects will be less than significant.		Air Quality	None proposed
	Sound Quality	Not assessed	Not assessed		No Candidate VC proposed	In-Air Noise: Pathway Component to other VCs (*e.g.*, Wildlife and Wildlife Habitat)
Vegetation Resources	Terrain and Soils	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Terrestrial Environment	No Candidate VC proposed	Geology/Terrain and Soils: Pathway Component to other VCs (*e.g.*, Vegetation, Surface Water Resources)
	Rare Plants Rare Plant Communities	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.		Vegetation and Wetlands	Rare Plants Rare Plant Communities
Wildlife and Wildlife Habitat	Grizzly bear Black bear Mountain goat Moose	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Wildlife and Wildlife Habitat	Wildlife and Wildlife Habitat	Grizzly bear Black bear Mountain goat Moose

KLNG Project 2008/09 **				KLNG Expansion Project		
2005 *		2008/09 **		2019		
Valued Components (VCs)	**Sub Components**	**Effects Assessment**	**Conclusion of EA Review**	**Key Issue**	**Candidate VCs**	**Proposed Sub Components**
	Black-tailed deer Marten Coastal tailed frog					Black-tailed deer Marten Coastal tailed frog
Freshwater Fish and Fish Habitat	Water and Wastewater Management	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Water Resources	Surface Water Resources	Surface Water Quality Surface Water Quantity
	-	-	-		Groundwater Resources	Groundwater Quality Groundwater Quantity
	Riparian Habitat Instream Fish Habitats Direct Mortality of Fish and/or Fish Ova	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Freshwater Fish and Fish Habitat	Freshwater Fish and Fish Habitat	Riparian Habitat Instream Fish Habitats Direct Mortality of Fish and/or Fish Ova
Marine Environment	Marine Mammals	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Marine Resources	Marine Resources	Marine Mammals (consider Underwater Noise as a Pathway Component)
	Marine Fish	No change in significance of potential effects.	No change in significance of potential effects.			Marine Fish (consider Underwater Noise as a Pathway Component)
	Marine Water Quality	90% reduction in volume of waste water discharge. No change in significance of potential adverse effects.	Residual effects will be less than significant.			Marine Water Quality

KLNG Project 2008/09 **				KLNG Expansion Project		
2005 *		2008/09 **		2019		
Valued Components (VCs)	**Sub Components**	**Effects Assessment**	**Conclusion of EA Review**	**Key Issue**	**Candidate VCs**	**Proposed Sub Components**
	Benthic Environment	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.			Sensitive Marine Habitats Other Marine Species, including Species-at-risk (SAR)
Avifauna	Various indicator species	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.			Marine Birds (including Migratory Birds)
Economic						
Employment and Business	None	Increased capital costs, construction workforce and operating labour force.	Increased beneficial employment and economic effects.	Economic Conditions	Economic Conditions	None proposed
Social						
Community and Regional Infrastructure and Services	None	Mainly beneficial and not significant. No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Community Health and Wellbeing	Community Health and Wellbeing	None proposed
First Nations Communities and Land Use	None	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Current Use of Lands and Resources for Traditional Purposes	Current Use of Lands and Resources for Traditional Purposes	None proposed
Land and Resource Use	None	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Land and Resource Use	Land and Resource Use	None proposed
Marine Navigation	None	30% reduction in tanker traffic. No change in	No change in significance of potential adverse effects.	Marine Use and Transportation	Marine Use and Transportation	None proposed

KLNG Project 2008/09 **				KLNG Expansion Project		
2005 *		2008/09 **		2019		
Valued Components (VCs)	**Sub Components**	**Effects Assessment**	**Conclusion of EA Review**	**Key Issue**	**Candidate VCs**	**Proposed Sub Components**
		significance of potential adverse effects.				
-	-	-	-	Visual Resources	Visual Quality	None proposed
Heritage						
Archaeological and Heritage Resources	None	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Heritage Resources	Heritage Resources	Archaeological Resources Heritage Resources
Health						
Public Health and Safety	None	No change in significance of potential adverse effects.	No change in significance of potential adverse effects.	Human Health	Human Health	None proposed

* EA Certificate E06-01 issued June 1, 2006. EA review concluded the proposed Project was not likely to result in significant adverse effects (see Section 1.5.1).

** EAC E06-01 Amendment issued January 8, 2009 to include natural gas liquefaction and LNG export.

5.2.2 Preliminary Effects Assessment of KLNG Expansion Project

Federal and provincial EA authorities concluded in 2006 that the KLNG Project was not likely to result in significant adverse effects to identified VCs.

The assessment of proposed changes to the certified project in 2008 to include liquefaction (EAC E06-01 Amendment #1) predicted no significant adverse effects; for many VCs, reduced or beneficial impacts were predicted.

On April 19, 2013, the CEA Agency advised that, pursuant to the Section 128 transitional provisions of CEAA 2012, the planned 10 MTPA capacity did not require further review.

The CEA Agency has advised that the LNG processing capacity increase to 18 MTPA constitutes a designated activity under section 15(d) of the Regulations Designating Physical Activities as a 50% or greater expansion of an existing LNG facility. This Project Description has been provided to enable a CEAA 2012 Screening.

The Kitimat LNG Expansion Project requires certain amendments to the provincial EAC E06-01, and therefore a preliminary effects assessment has been conducted in preparation for that amendment application. The preliminary effects assessment for the Kitimat LNG Expansion Project is provided below in Tables 5-3 through 5-17 (Preliminary Effects Assessment). The Preliminary Effects Assessment focuses on the expansion of the existing facility, potential incremental changes and associated adverse effects. Interactions associated with the approved concept that are not affected by the KLNG Expansion Project were not re-evaluated. **The proposed changes to the approved KLNG Project design and operations are not expected to result in significant adverse residual effects.**

Provincial EAC E06-01 requires the mitigation of potential adverse effects through implementation of commitments made during the original EA review and included as EAC Schedule B (Appendix B). Some of these commitments have been satisfied during the substantial start and ongoing development of the project. For example, commitments that required the KLNG Project to be subject to Transport Canada's TERMPOL review process have been largely met by the KLNG Project TERMPOL Submission and by Transport Canada's subsequent recommendations (See Section 4.2.1.1).

Many of the measures listed in EAC Schedule B remain relevant and will be effective means for mitigating potential effects of the updated KLNG Project inclusive of the KLNG Expansion Project. Measures that will mitigate key potential incremental changes to Project-VC interactions and associated adverse effects include:

- The use electric motor driven technology to increase to liquefaction capacity while limiting GHG emissions and eliminating combustion related emissions; and
- Habitat offsetting in accordance *Fisheries Act* Authorizations for the removal of eelgrass and other habitat that would be required for the construction of the LBW.

Table 5-3 Preliminary Project-VC Interaction Matrix: KLNG Expansion Project

Project Activity	Environmental Assessment Pillars and Candidate Valued Components															
	Environmental								Economic	Social					Heritage	Health
	GHG Management	Air Quality	Vegetation and Wetlands	Wildlife and Wildlife Habitat	Surface Water Resources	Groundwater Resources	Freshwater Fish and Fish Habitat	Marine Resources	Economic Conditions	Community Health and Well Being	Current Use of Lands and Resources for Traditional Purposes	Land and Resource Use	Marine Use and Transportation	Visual Quality	Heritage Resources	Human Health
1.0 CONSTRUCTION																
1.1 Site preparation and clearing	●	●	●	●	●	●	●	●	n/a	●	●	●	n/a	●	●	●
1.2 Construction of marine-based infrastructure, including Land-Backed Wharf (LBW)	●	●	●	●	n/a	n/a	n/a	●	n/a	●	●	●	●	●	●	●
1.3 Construction of land-based infrastructure	●	●	●	●	●	●	●	n/a	n/a	●	●	●	n/a	●	●	●
1.4 Demand for labour, goods and services	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	●	●	n/a	n/a	n/a	n/a	n/a	n/a
2.0 OPERATIONS																
2.1 LNG production	●	●	●	●	●	●	●	n/a	n/a	●	●	●	n/a	●	n/a	●
2.2 LNG storage	○	○	n/a	n/a	n/a	n/a	○	n/a	n/a	○	○	○	n/a	●	n/a	n/a
2.3 LNG carrier loading and shipping	●	●	n/a	n/a	n/a	n/a	n/a	●	n/a	●	●	●	●	●	n/a	●
2.4 Supporting infrastructure operations, including roads, pipelines, transmission lines, logistic areas and other facilities and buildings.	●	●	●	●	●	●	●	n/a	n/a	●	●	●	n/a	●	n/a	●
2.5 Demand for labour, goods and services	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	●	○	n/a	n/a	n/a	n/a	n/a	n/a
3.0 DECOMMISSIONING																
3.1 Decommissioning of the LNG facility	●	●	○	●	○	○	○	●	●	○	○	○	●	○	○	○

n/a – No/negligible Project-VC interaction or adverse effects anticipated; no further consideration warranted. ○ – No/negligible incremental change to Project-VC interaction or adverse effects anticipated; no further consideration warranted. ● – Potential incremental change to Project-VC interaction or adverse effects anticipated; warrants further consideration.

Table 5-4 Preliminary Effects Assessment of KLNG Expansion Project on the Atmospheric Environment

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Greenhouse Gas Management	-	Construction: emissions from fuel combustion, power generation, vehicle traffic, shipping, flaring (for commissioning purposes only). Operations: emissions from fuel combustion, limited power generation, vehicle traffic, shipping, flaring (for emergency purposes only). Decommissioning: emissions from fuel combustion, vehicle and supply vessel traffic, shipping, flaring (for emergency purposes only).	Increase in GHG emissions with potential impacts to local and global climate change (primarily during operational phase). Primary substances of concern are methane and CO2.	The LNG plant will use electric motor driven technology for all liquefaction process and utility compressors, pumps and fans. As a result, the KLNG Project will be one of the lowest GHG emitters of its type. An electric drive concept also means that significant increases to liquefaction capacity can be achieved with a negligible increase in GHG emissions. See Atmospheric Environment (Climate) related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded that residual effects will be less than significant. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects.
Air Quality	-	Construction: emissions from land clearing, blasting, grading and earthworks, hauling, material handling, fuel combustion, power generation, vehicle traffic, shipping, flaring (for commissioning purposes only). Operations: emissions from material handling, fuel combustion, limited power generation, vehicle traffic, combustion of acid gas removal unit gases and ancillary operations, shipping, flaring (for emergency purposes only). Decommissioning: emissions from material handling, backfilling, contouring, fuel combustion, vehicle and supply vessel traffic, shipping, flaring (for emergency purposes only).	Change in air quality in the Kitimat airshed due to increased emissions of criteria air contaminants, resulting in potential impacts on human health and wildlife. Primary substances of concern include nitrogen dioxide (NO2), sulphur dioxide (SO2), carbon monoxide (CO), particulate matter (PM2.5 and PM10) and volatile organic compounds.	The LNG plant will use electric motor driven technology for all liquefaction process and utility compressors, pumps and fans. Use of electric drives largely eliminates combustion related emissions such as NO2 and SO2. See Atmospheric Environment (Air Quality) related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded that residual effects will be less than significant. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects.

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
-	In-Air Noise	Construction: noise emissions from site clearing, subsurface rock removal and blasting for grading, compaction, pile-driving, construction of buildings and other structures, facility assembly, general equipment movement, bolt tightening, pneumatic testing, line cleaning and pressure testing of pipework and pressure vessels on site flaring (for commissioning purposes only); underwater blasting and/or dredging of marine sediment; installing infrastructure related to the facility and the terminal Operations: noise emissions from process facility equipment, vehicle traffic and loading of LNG carriers; cooling fans; low frequency noise emissions from exhausts and vessel engine noise, navigational sound signals during marine vessel operations, flaring (for emergency purposes only) Decommissioning: noise emissions from combustion of fuels and equipment and traffic due to demolition activities, flaring (for emergency purposes)	Increase in aboveground noise, resulting in disturbance to human populations and displacement and disturbance of wildlife.	See Atmospheric Environment (In-Air Noise) related commitments of EA Certificate E06-01 (Appendix B).	Not previously assessed. In assessing the proposed changes to the approved project design and operations, In-Air Noise is proposed as a Pathway Component to other VCs (e.g., Wildlife and Wildlife Habitat).

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-5 Preliminary Effects Assessment of KLNG Expansion Project on the Terrestrial Environment

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
-	Geology/ Terrain and Soils	Construction: clearing; blasting; grading and earthworks; potential dredging; excavation activities including removing soil and overburden, stockpiling; temporary resurfacing; installation of culverts; heavy vehicle traffic; road and infrastructure development, fuel and chemical handling and storage; potential usage and withdrawal of freshwater. Operations: road and infrastructure use and maintenance; fuel and chemical handling and storage. Decommissioning: vehicle traffic; road and infrastructure removal; fuel and chemical handling and storage; demolition activities that may include clearing, blasting, grading and earthworks.	Alteration of the surrounding landscape Acid rock drainage or metal leaching potential within excavated rock materials and exposed rock cuts, resulting in groundwater and surface water quality impacts Impacts to coastline stability and erosion potential due to changes in tidal currents and waves Alteration, admixing, compaction and potential erosion of soil materials due to site clearing and the removal of vegetation cover and root mats. May create erosion on the Project site and create sedimentation impacts off site, resulting in water quality impacts. Contamination of soil materials by fuel or chemical spills during construction activities. Compaction or rutting of soils, particularly under wet conditions, due to heavy traffic.	Restoration of the Project site through use of stockpiled soil materials and their distribution across the site. See Terrestrial Environment related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. In assessing the proposed changes to the approved project design and operations, Geology/Terrain and Soils are proposed as Pathway Components to other VCs (e.g., Vegetation, Surface Water Resources)

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Vegetation & Wetlands	Rare Plants Rare Plant Communities	Construction: vegetation removal and land clearing and excavation; stockpiling; temporary resurfacing; heavy vehicle traffic; road and infrastructure development; temporary workspace installation; fuel and chemical handling and storage; dewatering. Operations: road and infrastructure use and maintenance; fuel and chemical use.	Clearing and vegetation removal during construction could potentially result in direct loss or change in ecological function of: wetlands, old growth forest, federally or provincially listed plant species, traditional use plant species, and/or provincially listed ecological communities. Indirect effects to terrestrial vegetation and ecosystems, change in wetland ecosystem function could result from changes in drainage patterns, dust deposition, airborne deposition of chemical compounds, proliferation of noxious/invasive species, etc. Effects may occur from habitat loss or alteration resulting in change in habitat suitability; changes in mortality risk due to risks of collisions with infrastructure; alteration of movement patterns including displacement; disturbance due to lighting and noise.	See Terrestrial Environment related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-6 Preliminary Effects Assessment of KLNG Expansion Project on Wildlife & Wildlife Habitat

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Wildlife and Wildlife Habitat	Grizzly bear Black bear Mountain goat Moose Black-tailed deer Marten Coastal tailed frog	Construction: clearing of habitat; excavation; stockpiling; temporary resurfacing; installation of culverts; heavy vehicle traffic; road and infrastructure development; fuel and chemical handling and storage; noise and light from construction activities. Operations: vehicle and vessel traffic; road and infrastructure use and associated noise; fuel and chemical handling and storage. Decommissioning: vehicle traffic; road and infrastructure removal; fuel and chemical handling and storage; demolition activities.	Effects may occur from: habitat loss or alteration resulting in change in habitat suitability; changes in mortality risk due to risks of collisions with infrastructure; alteration of movement patterns including displacement; disturbance due to lighting and noise.	See Wildlife and Wildlife Habitat related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-7 Preliminary Effects Assessment of KLNG Expansion Project on Water Resources

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Surface Water Resources	Surface Water Quality Surface Water Quantity	Construction: excavation; stockpiling; temporary resurfacing; installation of culverts; construction of access roads and onshore infrastructure; heavy vehicle traffic; fuel and chemical handling and storage; construction of a storm water collection system and underground utilities. Operations: vehicle traffic; road and infrastructure use and updates; fuel and chemical handling and storage; operation of a sewage treatment plant and storm water management system.	Alteration of drainage patterns and increase of impervious areas, which can lead to erosion, waterlogging, flooding and/or the sedimentation of local watercourses and estuaries, potentially resulting in reduced water quality in streams and ocean and cause impacts to wildlife and human health and/or recreational activities. Reduced water quality in streams and ocean due to accidental fuel or chemicals spills, resulting in impacts to wildlife and human health and/or recreational activities. Potential acidification of surrounding freshwater bodies due to SO2 and NOx emissions, resulting in reduced water quality in streams and lakes and impacts to wildlife and human health and / or recreational activities. Potential eutrophication of surrounding freshwater bodies due to NOx emissions resulting in reduced water quality in streams and lakes and impacts to vegetation, wetlands, wildlife, human health, and recreational activities.	Storm water management plan required to manage water on site. See Freshwater and Fisheries Environment (Water and Wastewater Management) related commitments of EA Certificate E06-01 (Appendix B). The LNG plant will use electric motor driven technology for all liquefaction process and utility compressors, pumps and fans. Use of electric drives largely eliminates combustion related emissions such as NO2 and SO2.	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects.

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Groundwater Resources		Construction: groundwater extraction for processing and domestic use, excavation; stockpiling; temporary resurfacing; installation of culverts; construction of access roads and onshore infrastructure; heavy vehicle traffic; fuel and chemical handling and storage, potential usage and withdrawal of freshwater, construction of a storm water collection system and underground utilities. Operations: groundwater extraction for processing and domestic use; vehicle traffic, road and infrastructure use and updates; fuel and chemical handling and storage.	Alteration of groundwater recharge and discharge locally due to an increase in impervious areas and construction of a storm water collection system Changes to groundwater levels and flows, resulting in impacts to local groundwater dependent ecosystems, such as Bish Creek Impacts to groundwater quality and receiving streams, lakes, or reservoirs due to soil acidification or accidental chemical, fuel or sewage releases	Monitoring and Follow-up Program to verify predictions and adaptively management potential impacts to groundwater. The LNG plant will use electric motor driven technology for all liquefaction process and utility compressors, pumps and fans. Use of electric drives largely eliminates combustion related emissions such as NO2 and SO2.	Not previously assessed. Assessment ongoing to confirm project requirements and determine potential effects of groundwater extraction near Bish Creek. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects to groundwater quality due to air emissions.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-8 Preliminary Effects Assessment of KLNG Expansion Project on Freshwater Fish & Fish Habitat

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Freshwater Fish & Fish Habitat	Riparian Habitat Instream Fish Habitat Direct Mortality of Fish and/or Fish Ova	Construction: excavation, stockpiling, temporary resurfacing, installation of culverts and bridges, heavy vehicle traffic, road and infrastructure development, fuel and chemical handling and storage. Operations: vehicle traffic, road and infrastructure use and updates, fuel and chemical handling and storage.	Potential impacts to fish-bearing streams from installation of road crossing culverts and bridges Increased runoff and dust generation during the construction and decommissioning phases, could potentially enter fish-bearing streams via runoff and lead to environmental effects on water quality, fish and fish habitat	Install clear span bridges and follow BMPs for stream crossings. See Freshwater and Fisheries Environment related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-9 Preliminary Effects Assessment of KLNG Expansion Project on Marine Resources

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Marine Resources	Marine Mammals Marine Fish Marine Water Quality Marine Habitat (Benthic Environment) Marine Birds (including Migratory Birds)	Construction: underwater pile driving; dredging of marine sediment; installation of marine infrastructure related to the LBW; land-based site clearing; and storm water drainage system and sanitary sewage effluent discharge. Operations: vessel traffic, wake and prop wash, shading, and associated underwater noise and light; operation of LNG facility and supporting infrastructure and discharge of Storm water to marine environment; operation of marine terminal; and LNG shipping. Decommissioning: removal of marine infrastructure; dismantling onshore facilities and supporting infrastructure and management of storm water discharge to marine environment.	Behavioural disturbance (displacement, avoidance, or communication masking) due to underwater noise or artificial light from project activities (e.g., pile driving, blasting, dredging, shipping). Potential injury/mortality or behavioral disturbance (e.g., displacement or avoidance) due to interaction with Project during shipping activities. Potential effects associated with accidents and malfunctions, including unplanned spills to the marine environment. Changes to health, survivorship, or behavior due to indirect effects from the Project (e.g., changes in habitat quality, reduced prey availability) because of effluent discharges from Project vessels and onshore activities/infrastructure. Storm water discharge into Bish Cove may alter water quality resulting in change in fish habitat use, physiology or alter mortality risk.	See Marine Environment and Marine Mammals related commitments of EA Certificate E06-01 (Appendix B). *Fisheries Act* Authorization and habitat offsetting required for the removal of eelgrass habitat and the construction of the LBW. Monitoring required for permitted discharge of storm water.	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects or that residual effects will be less than significant. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects (i.e., following habitat offsetting).

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
			Loss of near shore habitat (i.e., eelgrass) will impact marine fish, including juvenile salmonids. Effects may occur from habitat loss or alteration resulting in change in habitat suitability; changes in mortality risk due to risks of collisions with infrastructure; alteration of movement patterns including displacement; disturbance due to lighting and noise.		

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-10 Preliminary Effects Assessment of KLNG Expansion Project on Economic Conditions

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Economic Conditions		Construction: during construction peak manning is estimated to be between 1,800 and 2,500 depending on final development plan. Operations: operations phase is expected to provide direct employment for approximately 300 – 450 people. Decommissioning: activities will require contractor services.	Increased job opportunities, financial growth and training opportunities could positively influence socio-economic well-being in the local communities. Project expenditures will accrue to individuals, businesses and communities in the local area and region, contributing to the development of the local and regional economies. Risk of goods and services shortages and price inflation in the local area during the construction phase due to the Kitimat area's relatively small economy and the expected goods and services requirements of the Project. Increased demand for temporary accommodation and permanent housing from persons and their dependents who temporarily and/or permanently relocate to the local area for work. Higher demands on utility, health, emergency, transportation services, community services, and infrastructure from the temporary and/or permanent population increase, with potential implications for the capacity, resourcing and costs of these services.	See Communities and Economy related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects (700 person-years of employment during construction; 50 permanent jobs during operations). 2008 review concluded there would be increased beneficial employment and economic effects (1,500 person-years of employment during construction; 100 permanent jobs during operations). The proposed changes to the approved project design and operations are not expected to result in significant adverse effects. Positive effects on the economy are expected from increased local employment and capital investment in Kitimat.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-11 Preliminary Effects Assessment of KLNG Expansion Project on Community Health & Wellbeing

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Community Health & Wellbeing		Construction: during construction, peak manning is estimated to be between 1800 and 2500 depending on final development plan. Operations: operations phase is expected to provide direct employment for approximately 300 – 450 people.	Adverse and beneficial effects on important determinants and parameters of community health and wellbeing, including disposable income, alcohol and drug abuse, crime, community connectedness, and stress, particularly during the construction phase.	See Communities and Economy related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects. Mainly beneficial effects are expected from the infrastructure upgrades associated with the KLNG Project.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-12 Preliminary Effects Assessment of KLNG Expansion Project on Current Use of Lands and Resources for Traditional Purposes

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Current Use of Lands and Resources for Traditional Purposes		Construction: clearing of habitat; excavation; stockpiling; temporary resurfacing; installation of culverts; heavy vehicle traffic; road and infrastructure development; noise and light from construction activities. Operations: vehicle and vessel traffic; road and infrastructure use and associated noise, facility lighting.	Potential changes in the ability to access preferred locations for traditional purposes because of Project activities across all Project phases (e.g., navigational closures, safety exclusion zones, increased vessel traffic congestion). Potential changes in presence or absence, abundance, or spatial distribution of preferred marine, freshwater, terrestrial, or other resources that are currently used for traditional purposes, such as marine fish (including invertebrates), marine plants, marine mammals, terrestrial vegetation and wildlife, migratory birds, and freshwater fish	See First Nations related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
		Decommissioning: vehicle and vessel traffic; road and infrastructure use and associate noise.	leading to potential loss of fishing, hunting, trapping, or gathering opportunities across all Project phases. Potential changes in the quality of preferred resources that are currently used for traditional purposes, such as marine fish (including invertebrates), marine plants, marine mammals, terrestrial vegetation and wildlife, migratory birds, and freshwater fish, leading to avoidance of traditional foods or otherwise disrupting patterns of use and levels of consumption across all Project phases Potential changes in the quality of experience associated with the current use of lands and resources for traditional purposes across all Project phases may include but may not be limited to: Potential displacement from or avoidance of preferred locations because of sensory disturbance (e.g., increased noise, light), perceived health or safety risks (e.g., increased air emissions, vessel traffic), or changed sense of place. Potential interference with or loss of ability to achieve cultural purposes associated with use of specific locations or resources, such as intergenerational knowledge transfer of practices, customs, or traditions.		to result in significant adverse residual effects.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-13 Preliminary Effects Assessment of KLNG Expansion Project on Land & Resource Use

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Land and Resource Use		Construction: clearing of habitat; excavation; stockpiling; temporary resurfacing; installation of culverts; heavy vehicle traffic; road and infrastructure development; noise and light from construction activities. Operations: vehicle and vessel traffic; road and infrastructure use and associated noise.	Potential effects of limiting public access to land and resources near the LNG facility due to safety concerns. Potential effects due to LNG vessel traffic on marine commercial and recreational users' safety, level of mobility, and access to key marine resource areas.	See Land and Resource Use related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects. Access to some land, water and resources may be restricted for safety.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-14 Preliminary Effects Assessment of KLNG Expansion Project on Marine Use & Transportation

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Marine Use & Transportation		Construction: dredging adjacent to LBW, vessels. Operations: increased vessel traffic within Douglas Channel and Kitimat Arm. Decommissioning: removal of marine infrastructure and support facilities and reclamation of disturbed areas. Reduction in overall frequency of vessel traffic.	Generation of sediment and turbidity plumes during dredging operations required for LBW. Increased potential for direct and indirect impacts to marine mammals and migratory birds during increased vessel traffic movement. Potential for disruption to commercial, recreational, Aboriginal fishing activities.	KLNG Project TERMPOL submission to Transport Canada was for a single berth facility designed to handle approximately 150 LNG carriers per year ranging in size from of 125,000 m^3 to 217,000 m^3. Transport Canada issued the *TERMPOL Review Process on the Kitimat LNG Project* report in October 2018, outlining their recommendations and findings following review of the technical studies submitted and consultation with the First Nations. See Navigable Waters related commitments of EA Certificate E06-01 (Appendix B). Project to use BC coastal pilots to support safe inbound and outbound transit of LNG carriers, consistent with applicable marine navigation laws and regulations. Operational safety zones will be compliant with all applicable Canadian laws and regulations and will be consistent with industry best practices.	There is a long history of marine transportation activity in the region. The risks associated with the project will be similar to those seen historically in the area. The KLNG Project is proposing to use the same route assessed and approved for LNG Canada. 2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations will result in increased in marine traffic in Bish Cove and within Douglas Channel, but no significant adverse residual effects are predicted.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-15 Preliminary Effects Assessment of KLNG Expansion Project on Visual Resources

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Visual Quality		Construction: clearing and vegetation removal; erection of near shore and onshore facilities; increased vessel traffic Operations: existence of near shore or onshore LNG processing facility visible from Douglas Channel; lighting; flaring (for emergency purposes only) potentially visible from the Town of Kitimat and Kitamaat Village; vessel movements in proximity to Kitimat and Kitamaat Village. Decommissioning: decommissioning activities onshore and increased vessel traffic.	Clearing and vegetation removal during construction could potentially result in visual disturbance and alteration to existing scenic values. Introduction of visible anthropogenic features may be inconsistent with current landscape character and alter existing scenic values. Indirect effects on cultural, recreation and tourism values closely related to activities that are related to visual quality and the enjoyment of visual resources.	Visual Quality Management Plan.	Not previously assessed. Visual simulations for various viewpoints are being prepared to determine the nature and extent of potential adverse effects to visual quality.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-16 Preliminary Effects Assessment of KLNG Expansion Project on Heritage Resources

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Heritage Resources	Archaeological Resources Heritage Resources	Construction: clearing; excavation; stockpiling; road and infrastructure development.	Physical disturbance or increased accessibility to archaeological or historical sites could result during clearing, site preparation and construction.	Heritage resources can be avoided or managed. See Heritage and Archaeological Resources related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the approved project design and operations are not predicted to result in significant adverse residual effects.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

Table 5-17 Preliminary Effects Assessment of KLNG Expansion Project on Human Health

Candidate VCs	Sub Components	Project Activities (of the KLNG Project, inclusive of KLNG Expansion Project)	Potential Incremental Effects *	Mitigation	Effects Assessment
Human Health		Construction: clearing; excavation; heavy vehicle traffic; road and infrastructure development; fuel and chemical handling and storage; noise and light from construction activities; flaring Operations: vehicle and vessel traffic; road and infrastructure use and associated noise; fuel and chemical handling and storage; flaring.	Air quality may be impacted from Project activities which can have a direct (via inhalation) or indirect (deposition onto soil, water, or plants and subsequent exposure via ingestion and dermal contact) effect on human health; physical activities including clearing, grading, compaction and blasting may increase dust levels in air. Potential effects to country foods (plants, berries) with resulting impacts on human health. Increased light and noise emissions may have adverse effects on nearby populated areas. The availability of marine, shoreline, and terrestrial foods and traditional medicines may be restricted by various aspects of the Project during construction and operations. Increase in land-based traffic, increase in marine traffic, and in migration of workers may adversely affect local human health.	See Public Safety and Health/Accidents and Malfunctions related commitments of EA Certificate E06-01 (Appendix B).	2006 review concluded that the KLNG Project was not likely to result in significant adverse effects. 2008 review concluded there would be no change in significance of potential adverse effects. The proposed changes to the certified project design and operations are not predicted to result in significant adverse residual effects.

* The preliminary effects assessment focuses on the expansion of the federally and provincially approved KLNG Project concepts, potential incremental changes and associated adverse effects. Interactions associated with the federally and provincially approved KLNG Project concepts that are not affected by the proposed KLNG Expansion Project were not re-evaluated.

6 Proponent Engagement and Consultation with Indigenous Groups

6.1 Principles of Engagement

As operator of the KLNG Expansion Project, Chevron is committed to collaborating with Indigenous peoples and their communities in Canada, to build long term trusting and mutually beneficial relationships based on the values of inclusion, transparency, respect and accountability.

Chevron's Indigenous Relations Policy is based on the following principles, where Chevron:

- Acknowledges that Aboriginal and Treaty rights of Indigenous people in Canada are recognized, affirmed and protected by the Canadian Constitution.
- Acknowledges the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and is committed to working with Indigenous peoples within the Canadian legal and constitutional framework.
- Respects that each Indigenous community has its own unique connection with the land and environment in which they live.
- Recognizes the diversity of Indigenous peoples in Canada and is committed to interacting with each Indigenous community in a way that respects their history, culture and customs.
- Appreciates the importance of learning from and respecting local cultures in areas where we operate.

As part of building long-term trusting and mutually beneficial relationships, the Proponent is committed to engaging 'early and often' with Indigenous communities based on the values of inclusion, transparency, respect and accountability.

6.2 Potentially Affected Indigenous Communities

The Proponent is committed to meaningfully engage with Indigenous communities in areas in which we operate.

As part of the EA application initiated for the proposed KLNG Project in 2005, the EAO issued an order under Section 11 directing KLNG to consult with the Haisla Nation, to identify any specific Indigenous interests that may be potentially affected by the KLNG Project and to identify measures to avoid, mitigate or where appropriate, otherwise address or accommodate them.

In the 2005 EA application the Proponent committed to undertaking a voluntary TERMPOL review process (TRP). Upon the initiation of the TRP in 2011, Transport Canada identified ten First Nations for participation in the TRP based on their locations relative to the two shipping routes originally proposed for the KLNG Project. Following evaluation of both proposed routes, the southern route was discounted reducing the number of potentially impacted First Nations to eight Nations (listed in alphabetical order):

- Gitga'at Nation
- Gitxaala Nation
- Haida (Council of Haida Nation)
- Haisla Nation
- Kitselas First Nation

- Kitsumkalum First Nation
- Lax Kw'alaams Band
- Metis Nation of BC
- Metlakatla First Nation

6.2.1 Haisla Nation

The Haisla Nation occupy the traditional territory of two historic bands–the Kitamaat of the Douglas and Devastation channels and the Kitlope of the upper Princess Royal Channel and Gardner. Kitamaat Village, located at the head of the Douglas Channel, is about 10km south of Kitimat and is the main Haisla Nation village with a population of approximately 1,700 (INAC 2018). The total Haisla Nation population (on and off reserve) is reported as 1,930. The Haisla Nation are part of the Wakashan linguistic group and follow a social system based on eight matrilineal clans; clans provide significant governance direction to the Nation.

The proposed Kitimat LNG facility is located on Haisla Nation reserve (Bees IR No. 6) at Bish Cove, 14 km south of Kitimat, BC on land eased through a commercial lease and benefit agreement with the Haisla Nation.

The Haisla Nation and the Proponent also have an Impact Benefits Agreement related to the Kitimat LNG Project. The Haisla Nation is also a member of the PTP First Nations Limited Partnership (FNLP). The FNLP is comprised of 16 First Nations located along the proposed 480 km pipeline designed to transport natural gas from Summit Lake, BC to the proposed KLNG export terminal. The benefits agreements with the Haisla Nation and FNLP are commercial benefits agreement that includes training, employment, procurement, environmental stewardship, and financial provisions.

6.2.2 First Nations located along the Marine Transportation Corridor

6.2.2.1 Gitga'at Nation

The traditional territory of Gitga'at Nation (Gitga'at) covers approximately 7,500 km^2 including the mainland and coastal islands in the lower part of the Douglas Channel, Whale Channel, Wright Sound, Lewis Pass to Caamano Sound. Hartley Bay is the main Gitga'at village. It is located approximately 80 km southwest of Kitimat and 145 km southeast of Prince Rupert. Approximately 160 people live in Hartley Bay. The total registered population in 2018 (on and off reserve) is reported as 771[3]. The Gitga'at are part of the Coast Tsimshian linguistic group and are part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups. Governance blends traditional, hereditary chieftainships and elected band governance systems.

6.2.2.2 Gitxaala Nation

Gitxaala Nation (Gitxaala) is located at the entrance to Hecate Strait. The main village of Kitkatla is situated on the north side of Dolphin Island approximately 45 km southwest of Prince Rupert. Approximately 490 people live in Kitkatla. The total registered population (on and off reserve) is

[3] All total registered population numbers taken from the Indigenous and Northern Affairs Canada (INAC) First Nations Profiles online and are current as of September 2018.

reported as 2,000 (INAC 2018). Gitxaala is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups. Governance blends traditional, hereditary chieftainships and elected band governance systems.

6.2.2.3 Haida (Council of Haida Nation)

The traditional territory of the Haida is located on Haida Gwaii—approximately 100 km west of Prince Rupert consisting of over 200 islands and covering approximately 3650 square miles. The Haida Nation has both a nation government—the Council of Haida Nation (CHN)—and village or band councils. The registered population (on and off reserve) is reported as 3,077 for Old Massett Village Council and 1,665 for Skidegate Band Council (INAC 2018). Clans and houses provide significant governance direction to the Nation through the Hereditary Chiefs' Council. The Nation has its own constitution and mandate over Haida Gwaii lands and surrounding waters.

6.2.2.4 Kitselas First Nation

The traditional territory of Kitselas First Nation (Kitselas) is located along the Skeena River 10 km east of Terrace, BC. Records suggest that the Kitselas have occupied up to five villages along the river for 5,000 years. The total registered population (on and off reserve) is reported as 681 (INAC 2018). Kitselas is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups—and is a member of the PTP FNLP.

6.2.2.5 Kitsumkalum First Nation

The traditional territory of the people of Kitsumkalum First Nation (Kitsumkalum) is located 5 km west of Terrace where the Kitsumkalum River joins the Skeena River. Their traditional territory spans both coastal and inland areas covering the Kitsumkalum watershed and the Zimacord River watershed. The total registered population (on and off reserve) is reported as 764 (INAC 2018). Kitsumkalum is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups.

6.2.2.6 Lax Kw'alaams Band

Lax Kw'alaams Band (Lax Kw'alaams) is located at Port Simpson, approximately 30 km northwest of Prince Rupert. Originally a camping spot of the Gispaxlo'ots tribe, it became a Hudson Bay Trading Post in 1834. The total registered population (on and off reserve) is reported as 3,883 (INAC 2018). Lax Kw'alaams is part of part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups. Governance blends traditional, hereditary chieftainships and elected band governance systems. Lax Kw'alaams is a member of the PTP FNLP.

6.2.2.7 Metlakatla First Nation

Metlakatla First Nation (Metlakatla) is located at Metlakatla Pass 7 km west of Prince Rupert. Historically, the site was the winter village for nine the fourteen Tsimshian Tribes. The Metlakatla currently live on 16 reserves and oversee an area of approximately 3,464 ha. The population of Metlakatla Pass is approximately 100. The total registered population (on and off reserve) is reported as 976 (INAC

2018). Metlakatla is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups—and is a member of the PTP FNLP.

6.2.3 Metis Nation of BC

The Metis Nation of BC (MNBC) represents nearly 17,000 registered Métis citizens in British Columbia. The MNBC represents the political, legal, social and economic interests of Métis people in B.C. The MNBC acts to protect and preserve Métis history, promote and develop Métis culture, ensure Métis rights are understood and protected. It is the Proponents understanding the they assert rights in the Project Area. To date the Proponent has not engaged with the MNBC.

6.3 Current Use of Lands and Resources for Traditional Purposes

The Kitimat LNG facility at Bish Cove is located within the Haisla Nation's traditional territory where they assert their Aboriginal rights and title. Haisla Nation, to date, have not entered into any treaties with Canada. Bish Cove area is of the historical and ongoing importance to the Haisla Nation for traditional and present use. The area was used by the Haisla Nation for residence, hunting, fishing and gathering.

The proposed shipping route for the Kitimat LNG Project does traverse asserted traditional territories and marine harvest areas of the Gitga'at, Gitxaala, Metlakatla, Lax Kw'alaams, Haida Nation, Kitsumkalum Nations and Kitselas First Nation (see Appendix D). The Nations are not signatory to any historical treaty. The First Nations have traditionally harvested marine resources, including but not limited to, various fish, various shellfish, and marine plants. Harvesting of marine resources remains an important part of role in their economy and sense of identity.

To ensure fulsome consultation with First Nations, Chevron offered capacity funding as well as funding for Traditional Used Studies to assist in identifying any specific Indigenous interests that may be potentially affected by the KLNG Project. First Nations have provided Kitimat LNG following studies, which were funded by Chevron and or were in the public domain.

- 2005 Haisla Nation Traditional Use Study (TUS) for Kitimat LNG Terminal Project (Project)
- 2005 Haisla Nation Traditional Use and Occupancy of the Proposed PNG Pipeline Corridor through the Lower Kitimat River Valley.
- 2015 Gitxaala Nation TERMPOL Report Kitimat LNG Terminal (provides information on traditional use)
- 2014 Gitga'at First Nation Traditional Use or Occupancy Study Project for the Proposed LNG Carrier Shipping Route: Preliminary Report
- 2014 Gitga'at Economic Impact Assessment of the Kitimat LNG Project on the Gitga'at First Nation (preliminary)
- Haida Marine Traditional Knowledge Study

The studies generally include ethnographic and historical overviews of the specific First Nation, ecological and cultural information, specific locations and classification of Traditional use or Occupancy sites, and archaeological sites, that may be impacted by the KLNG Project activities.

6.4 Indigenous Engagement and Consultation Activities

6.4.1 Haisla Nation

The Proponent and its predecessors (Apache Canada and Pacific Northern Gas) have engaged the Haisla Nation since early 2005 to share information and seek input on the proposed LNG facility. Engagement has included communication with Haisla Nation Council, Haisla Nation Lands and Fisheries Department, as well as other Haisla Nation administration and staff through meetings, conference calls and emails.

The Haisla Nation were engaged in the 2005 environmental assessment process as member of the EAO working group. Capacity funding was provided to support Haisla Nation participation in the process, which included the review of key documents and studies. Haisla Nation were further engaged on the 2009 amendment application.

In 2010, the Haisla Nation entered into an Impact Benefits Agreement providing for the lease of IR No. 6 at Bish Cove to Kitimat LNG. Early engineering and site preparation work began at Bish Cove and along the Bish FSR in 2011. Following the decline in global LNG prices in 2015, early site work was curtailed and engagement focused on regulatory permitting, employment and training, and contracting opportunities. Since 2015, meetings have taken place periodically to review and discuss the implementation of the Impact Benefits Agreement and work together to address issues and concerns. Chevron engaged with Haisla Nation several times during 2015 to review and discuss soils management options and planning including disposal at sea.

Throughout 2016 and 2017, Chevron continued to communicate regularly with Haisla Nation with respect to day-to-day operational issues (e.g. site visits, employment and procurement opportunities, notification of environmental field work and maintenance at the plant site and FSR). Opportunities were also provided for project updates and to review and discuss new and existing permits to ensure alignment and compliance. Dialogue also took place with Haisla Nation during this period on several commercial, lease, and land use/access matters related to the KLNG Project.

Since late 2017, engagement with Haisla Nation has centred on the preferred KLNG facility concept design and the engineering work undertaken by Chevron. Meetings have been held with Haisla Nation leadership and staff to share information on LNG plant design alternatives that have been assessed including the results of the selection analysis based on the high-level decision criteria of cost and schedule, environmental impact, technology risk, execution risk, and operability. The benefits to execution efficiency, the potential positive and negative environmental impacts, and long-term operational safety of the preferred Compact E-Drive Concept were highlighted. Haisla Nation have begun to identify issues and concerns related to proposed changes to the project footprint. Discussions are currently underway on identifying potential environmental mitigation and possible accommodation measures. Chevron and Haisla Nation are presently in the early stages of discussions regarding the development of a fish habitat offsetting program to address additional impacts on fish and fish habitat from the construction including an eelgrass pilot project to determine viability of eelgrass replanting.

6.4.2 First Nations located along the Marine Transportation Corridor

In the 2005 Environmental Assessment application, KLNG committed to undertake a voluntary Technical Review Process of Marine Terminal Systems and Transhipment Sites (TERMPOL Review Process or TRP), led by Transport Canada, for follow-up assessment and mitigation of potential impacts of marine shipping

related to the project. As part of this TRP process, KLNG committed to expanding the studies submitted in a traditional TERMPOL review to include studies on environmental and socio-economic effects, such as Species at Risk and Environmentally Sensitive Areas, and Assessment of underwater Noise and Marine Mammals Impacts and Mitigations among others. In October 2018 KLNG provided Transport Canada *Kitimat LNG TERMPOL First Nations Engagement Summary Report*. The report provides a map of the proposed shipping route, outlines which First Nations may potentially impacted including maps of their Traditional Territory where available, and summary of engagement, issues raised and proposed mitigation. The report is included in the submission as Appendix D. Transport Canada issued the *TERMPOL Review Process on the Kitimat LNG Project* report in October 2018, outlining their recommendations and findings following review of the technical studies submitted, review of *Kitimat LNG TERMPOL First Nations Engagement Summary Report* and consultation with the First Nations.

Engagement with the First Nations located along the marine transportation corridor has been mainly focused on marine transportation safety and potential impacts including environmental and socio-economic concerns. The TRP Engagement began when the process was initiated by the KLNG Project in early 2012. The First Nations were provided draft KLNG TERMPOL technical reports for review and comment and invited to participate in a two-day Hazard Identification workshop. Capacity funding was made available to all First Nations to support their participation. Throughout the engagement for the TRP, KLNG made efforts to engage with First Nations that may be impacted by the proposed shipping route. A number of First Nations did not actively engage and provided limited or no responses to the KLNG TERMPOL technical reports. Input received from those that did engage was taken into consideration and incorporated into KLNG Project planning to further guide KLNG's commitment to protecting people and the environment. Below is an engagement summary of those First Nations that actively engaged in the TRP.

The engagement with Gitga'at centred around marine activities and environment, emergency response, marine vessel traffic, community well-being, air quality, marine vessel casualties and community economic benefits. An Engagement Agreement is in place and funding has been provided to Gitga'at since 2013 to support participation in the TRP and other engagement activities. Dialogue with Gitga'at Nation is ongoing with respect to the development of a potential IBA.

The engagement with Gitxaala was centred on marine safety, wake effects, tides and weather, impacts to fishing and harvesting, interference with gear associated with fishing, pollution, invasive species, and environmental concerns. The KLNG Project provided capacity funding for meetings, drafting and review of reports. A benefits agreement was reached in September 2011 outlining the commitments and responsibilities of the parties and how Gitxaala will share in the benefits of the operations. Chevron and Gitxaala continue to work together to review and discuss proposed avoidance and mitigation measures for key areas of concern. Chevron remains committed to working with Gitxaala on jointly developing an Impact Management Framework.

The engagement with the CHN was centred on increases in marine transportation and the potential for oil spills and other environmental impacts. The KLNG Project offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. The CHN highlighted their concerns related to safety and emergency response, cumulative effects from increased vessel traffic in the region, and other broader shipping impacts such as the potential for oils spills and the introduction of invasive species.

Engagement with the Metlakatla was centred on their concerns over marine safety, impacts to their traditional and current use, cumulative effects and impacts to ecologically and traditionally important

areas. The KLNG Project offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the HAZID workshop. Chevron and Metlakatla have agreed to continue working jointly to develop appropriate plans to further mitigate identified potential impacts.

6.5 Key Issues Identified by Indigenous Groups to Date

6.5.1 Haisla Nation

Issues and concerns raised up until 2009 have been addressed through the original EAC and 2009 amendment. Since that time, Haisla Nation has raised the following issues and concerns regarding the proposed Kitimat LNG plant site:

- **Business opportunities and procurement** - concerns related to the implementation of the IBA (e.g. Chevron's primary contractors were not providing adequate consideration to Haisla Nation joint venture companies as outlined in the agreement)
- **Employment and training** - delivery (i.e., timing, certainty, nature and extent) of employment and training related benefits to Haisla Nation members
- **Fish and fish habitat** - potential impacts on fish and fish habitat from construction of the LBW including direct loss of eel grass habitat in Bish Cove and resulting impacts on Bish Cove and other local fisheries
- **Soil management and disposal at sea** – concern that one of the disposal sites proposed could take up the entire width of Douglas Channel, concerns with effects from underwater slurry discharge and regeneration time for the site once disposal is completed, importance of engaging Haisla Nation community directly regarding the proposed alternative to soil disposal
- **Traditional use** - potential socio-economic impacts resulting from any adverse effects on salmon and other fish given the significance of fisheries to Haisla Nation, as well as lost beach access and the importance of continued access to the plant site for traditional purposes

Note that since Haisla Nation raised concerns about the procurement process in 2015, Chevron and Haisla Nation have met to review and discuss expectations and have jointly developed an improved Procurement Engagement Process for notifying Haisla Nation of potential contracting opportunities.

6.5.2 First Nations located along the Marine Transportation Corridor

During the TERMPOL Review Process, the following issues and concerns were raised by First Nations located along the proposed marine transportation corridor (listed in alphabetical order):

- **Environmental concerns** – general environmental impacts to marine mammals, fish and fish habitat and the overall ecosystem including air and water quality impacts
- **Fishing and harvesting** – potential loss of income or livelihood, increased risk of losing access to harvestable area(s) and anchorage points, negative impact on harvesters' qualitative experience including an increased risk of collision with LNG Carriers and support vessels, increased risk to personal safety of harvesters
- **Garbage/waste and pollution** – potential for damage to areas of traditional use from garbage and waste

- **Human health concerns** – potential for adverse impacts including increased risk to personal health or safety when harvesting or consuming harvested materials, impacts on mental health and person wellbeing (e.g. due to inability to practice traditional use activities), negative impact on distinctiveness of culture (e.g. loss of culture and history)
- **Invasive species** – potential for damage to marine resources from the introduction of invasive species
- **Marine resources** – concerns with loss of quality and quantity of harvestable resources during all phases of the KLNG Project (pre-construction, construction and operations)
- **Marine safety and vessel traffic** – potential impacts to traditional marine resources from increased risk of spills, accidents and malfunctions as well as the need for emergency response planning and equipment
- **Regional and cumulative effects** – potential for broader impacts from one or more LNG projects including effects from increased vessel traffic in the region
- **Tides and weather** – potential effects of increased shipping on access to harvesting locations at the required tide and weather conditions, and access to specific anchorages or travel routes needed to safely navigate in bad weather
- **Traditional use** – potential for adverse impacts including loss of physical use and access to traditional harvesting, spiritual and historical sites, as well as the potential for interference or damage to harvesting gear or equipment, and loss of anchorage points
- **Vessel wake** – potential for adverse impacts on harvesting activities which primarily occur at low tide and may be dangerous to people and small boats on or near the shore

Avoidance or mitigation measures have been put in place, or are in the process of being jointly developed, to address specific issues and concerns. In some cases, it is challenging to put detailed operational-level plans in place given the current stage of the project. Chevron has therefore committed to develop and finalize operational plans and protocols prior to a FID, in consultation with First Nations.

6.6 Ongoing Engagement and Consultation Activities

The Proponent is committed to ongoing engagement with First Nations potentially impacted by the Kitimat LNG Project. Contact information for each Indigenous Group is presented in Table 6-1.

Engagement is ongoing with the Haisla Nation to further review and discuss the Proponent's plans for the KLNG Facility including working together to identify and implement mitigation measures and fish habitat offsetting plans to address adverse impacts while continuing to engage in IBA negotiations There will be further dialogue with the First Nations located along the marine transportation corridor to share information and to develop and fulfil the commitment to finalize operational plans and protocols prior to FID.

The Proponent has sent out a letter dated July 5, 2019, updating the potentially impacted First Nations on changes in design and capacity of the Project and the upcoming regulatory processes. Several First Nations responded that they are looking forward to working together through these regulatory processes. The Proponent will offer to meet, over the next several months, with each of the potentially affected First Nations to provide a project update, answer any questions and to work collaboratively to identify any specific interests or concerns regarding the KLNG Expansion Project.

Future engagement with First Nations will be guided by the outcome of the CEAA screening and the anticipated Provincial amendment process. Once the regulatory process has been determined the Proponent understands that the regulator will identify and delegate procedural aspect of consultation to the Proponent in accordance with the determined process. The Proponent will develop and implement an Indigenous Consultation Plan in accordance with the regulator's decision and direction.

Table 6-1 Indigenous Group Contact Information

Name	Location	Mailing Address	Telephone Number	Fax Number
Haisla Nation	Kitimaat Village, BC	500 Gitkasan Ave, Kitimata Village, BC V0T 2B0	1-250-639-9361	1-250-632-2840
Gitga'at First Nation	Hartley Bay, BC	455 Hayimiisaxaa Way, Hartley Bay, BC V0V 1A0	1-250-841-2500	1-250-841-2541
Gitxaala Nation	Kitkatla, BC	PO Box 149, Kitkatla, BC V0V 1C0	Band Office 1-250-848-2214 GEM 1-250-624-3339	Band Office 1-250-848-2238 GEM 1-250-624-3338
Council of Haida Nation	Haida Gwaii, BC	P.O Box 98, Queen Charlotte City, Haida Gwaii V0T 1S0	1-250-559-4468 or 1-250-626-5252	
Kitselas First Nation	Terrace, BC	2225 Gitaus Road, Terrace, BC V8G 0A9	1-250-635-5084	1-250-635-5335
Kitsumkalum First Nation	Terrace, BC	PO Box 544, Terrace, BC V8G 4B5	1-250-635-6177	1-250-635-4622
Lax Kw'alaams Band	Lax K'alaams, BC	206 Shashaak Street, Lax Kw'alaams, BC V0V 1H0	1-250-625-3293	1-250-625-3246
Metlakatla First Nation	Prince Rupert, BC	PO Box 459, Prince Rupert, BC V8J 3R2	Band Office 1-250-628-3234 MSO 1-250-624-3315	Band Office 1-250-628-9205 MSO 1-250-628-9259
Metis Nation of British Columbia	Surrey, BC	5668 192nd Street Unit 107, Surrey BC, V3S 2V7	1-604-557-5851	1-778-571-9402

7 Consultation with the Public and Other Parties

7.1 Principles of Engagement

The Proponent believes in building trusting and mutually beneficial relationships by collaborating with communities, governments, customers, supplier and business partners where we invest, and projects like Kitimat LNG are most successful when these parties succeed with us.

As part of building long-term trusting and mutually beneficial relationships, Chevron is committed to engaging with communities based on the values of inclusion, transparency, respect and accountability. Input from community members and leaders is taken into consideration and incorporated into project planning, where possible and practical.

The Proponent is committed to providing benefits to the communities where it operates. Chevron also builds partnerships by investing in communities through grants and sponsored programs and events—focused in the areas of health, education, economic development and community partnerships.

7.2 Government Engagement Activities

The Proponent and its predecessors have engaged with all levels of government to share information and seek input throughout the course of the Project. Engagement has included extensive discussions and dialogue with:

- Broadly across federal departments and agencies including (but not limited to) ECCC, DFO, INAC, Natural Resources Canada and Transport Canada (see Section 1.4 for meeting dates);
- Broadly across BC provincial departments and agencies including (but not limited to) the Ministry of Energy, Mines and Petroleum Resources, the Oil and Gas Commission, the ECCS, the BCEAO, the Ministry of Forestry, Lands and Natural Resource Operations and Rural Development (See Section 1.4 for meeting dates); and
- Municipalities and regional districts including the District of Kitimat. Recent engagement include:
  - On April 3, 2019 Chevron met with Mayor and Council of District of Kitimat to provide an update on the new concept design with a subsequent meeting with Chevron and Woodside executives on June 21, 2019 to further engage on the KLNG project in general as well as answer questions on the new concept design.
  - May 8, 2019 a letter outlining anticipated field work in and around the Industrial site and Bish Cove was provided to District of Kitimat
  - June 5, 2019 an email invitation to the June 20, 2019 Open House was sent to District of Kitimat.

7.3 Public Engagement Activities

As per requirements under the KLNG EA Certificate, the Proponent has provided opportunities for public engagement primarily through open house events in Kitimat, project newsletters, notices in local community newspapers, and the project website. In addition, the Proponent maintains and staffs a KLNG community office in downtown Kitimat and provides a toll-free feedback line.

KLNG typically has held two open houses in Kitimat a year that are advertised in local newspapers, local radio stations and emailed invitation to select local organizations and associations. In 2019, Chevron on behalf of the KM LNG Operating General Partnership has participated in key LNG conferences and events in BC including: the Haisla LNG Conference and Trade Show, Kitimat, BC (April 2-4, 2019); the Canada Gas and LNG Conference, Vancouver, BC (May 20-23, 2019) and the KLNG Open House, Kitimat, BC (June 20, 2019). At each of these events, we highlighted the new concept and enabled the public to see a video of the flyover or experience an interactive virtual reality presentation of the KLNG Project.

Discussion and dialogue are also ongoing with several local community groups including the Kitimat Valley Institute, Kitimat Valley Naturalists, Douglas Channel Watch, Kitimat Chamber of Commerce, and Kitimat Economic Development Association. Recent engagement includes:

- August 23, 2018 provided a site visit to Bish Cove for Kitimat Chamber of Commerce, Terrace Chamber of Commerce, Kitimat Economic Development Association, District of Kitimat Councillors and staff.
- February 15, 2019 a letter describing the upcoming work that was to be conducted in the Kitimat River was sent to the District of Kitimat, Douglas Channel Watch, and Kitimat Valley Naturalists.
- April 4, 2019 Chevron held a meeting with Kitimat Chamber of Commerce and Kitimat Economic Development Association to provide an update on the project and, specifically, on the new concept design.
- May 8, 2019 a letter outlining anticipated field work in and around the Industrial site and Bish cove was provided to Douglas Channel Watch, Kitimat Valley Naturalists, and the Kitimat Chamber of Commerce
- June 5, 2019 an email invitation to the June 20, 2019 Open House was sent to various local organizations and associations, including the Kitimat Valley Institute, Kitimat Valley Naturalists, Douglas Channel Watch, Kitimat Chamber of Commerce, and Kitimat Economic Development Association

The Proponent has been and will continue to work with local industry and industry organizations to provide information and facilitate briefings, as appropriate, to ensure local suppliers and contractors are fully aware of potential opportunities.

7.4 Key Issues Identified by the Public and Government Agencies

Most community members and leaders in Kitimat have expressed support for the KLNG Project and issues and concerns raised by the public to date have been limited.

Issues raised by the public have been primarily related to environmental concerns, socio-economic opportunities or opposition to LNG projects, in general, due to concerns about increased marine transportation. Overall public support in the Kitimat area has been positive and supportive of the project.

The federal and provincial governments have sought assurance that the KLNG Project adheres to the provinces four conditions for LNG, fills a growing global market demand for clean LNG, and aligns with the climate policy objectives (including but not limited to CleanBC strategy [BC Government 2018]). Issues raised by the federal and provincial levels of government have been related to specific permitting or regulatory issues, including the involvement of and support from First Nations.

7.5 Ongoing Engagement and Consultation Activities

The Proponent is committed to sharing information and updates on the KLNG Project with the external parties. Input will be incorporated into project planning where issues and concerns will be addressed through avoidance and/or mitigation measures. It is anticipated that the Kitimat Community office, open house events in Kitimat, the project website and direct stakeholder and rights holder engagement will continue to serve as important communication methods, supplemented from time to time by project newsletters and notices in local community newspapers, as appropriate.

Engagement with various levels of government and regulatory authorities will be ongoing as the project moves forward. The Proponent will develop an engagement plan for the various stakeholders that is aligned to the various future regulatory processes.

8 References

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BC Government, 2002, Kalum Land and Resource Management Plan. A Component of British Columbia's Land Use Strategy. May 2002. Available at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/skeena-region/kalum-lrmp/kalum_lrmp.pdf

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Canadian Environmental Assessment Act (CEAA), 2012 (S.C. 2012, c. 19, s. 52)

Canada Marine Act (S.C. 1998, c. 10)

Disposal at Sea Regulations (SOR/2001-275)

Explosives Act (R.S.C., 1985, c. E-17)

Fisheries Act (R.S.C., 1985, c. F-14)

Indian Act (R.S.C., 1985, c. I-5)

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Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22)

National Energy Board Act (R.S.C., 1985, c. N-7)

Navigation Protection Act (R.S.C., 1985, c. N-22)

Official Languages Act (R.S.C., 1985, c. 31 (4th Supp.))

Regulations Designating Physical Activities (SOR/2012-147)

Species at Risk Act (SARA) (S.C. 2002, c. 29)

APPENDIX A – KLNG Project Summary of Approved Permits

	Agency	Permit/Approval	Permit / License No.	Date Issued	Activity/ Component	Status/Comments
	General					
1	CEA Agency	Canadian Environmental Assessment Agency Decision	n/a	01-Aug-2006	Environmental Assessment Decision	Canadian Environmental Assessment Decision Statement
2	CEA Agency	Canadian Environmental Assessment Agency Decision	n/a	10-Dec-2008	Environmental Assessment Decision	Based on the revised project description, dated October 2008, the proposed changes will not require a new environmental assessment under the Act.
3	CEA Agency	Canadian Environmental Assessment Agency Decision	n/a	19-Apr-2013	Environmental Assessment Decision	CEAA letter stating EA amendment not required for increased capacity. Will allow for increased infrastructure to process LNG. Increased capacity to 10MTPA
4	BCEAO	Environmental Assessment Certificate	E06-01	01-Jun-2006	Environmental Assessment Certificate	Environmental Assessment Certificate
5	BCEAO	Environmental Assessment Certificate	E06-01	03-Sept-2015	Environmental Assessment Certificate	EAO Substantial Started Construction Determination

	Agency	Permit/Approval	Permit / License No.	Date Issued	Activity/ Component	Status/Comments
6	MOE	Stormwater Discharge Permit	107484	29-Jun-2017	Waste Discharge	Stormwater / Waste Discharge Permit Supersedes Pollution Prevention Order 107951 Amended June 29, 2017
7	NEB	Licence to Export Liquefied Natural Gas	GH-1-2011	11-Oct-2016	Export License	Long term export licence to export liquefied natural gas
8	OGC	Master Licence to Cut	M02304	21-Nov-2011	Timber Harvesting	Kalum Forest District Renewal to extend expiry date to August 31, 2020 from August 31, 2015.
9	OGC	Master Licence to Cut	M02404	04-Dec-2013	Timber Harvesting	Kalum Forest District
10	MOE	Generator of Hazardous Waste Registration	BCG 01790	13-Nov-2013	Waste Discharge	Hazardous Waste Generator Registration
11	OGC	Short Term Use of Water	0005055	09-Aug-2018	Roads Maintenance / Fire Suppression	Approval for short-term use of water from 3 PODs: POD 001 Bish Creek; POD 002 Renegade Creek; POD 003 A2 Creek
12	FLNRO	*Wildlife Act* Permit	SM17-276296	01-Sep-2017	Wildlife/Aquatic	Approval to hunt, trap or kill wildlife beaver during open or closed season as necessary for the proper management of the wildlife resource
	Bees IR No. 6 / Bish Cove					

	Agency	Permit/Approval	Permit / License No.	Date Issued	Activity/ Component	Status/Comments
13	INAC	Commercial Lease	n/a	01-Jan-2011	Commercial Lease	Agreement between Federal Government and KM LNG Operating General Partnership to lease IR No. 6. Amended October 2017.
14	INAC	Non-Metallic Minerals Extraction Permit	5643-07624-LNG	07-Sep-2011	Mineral Extraction	Approval to remove rock and fill from Bees I.R. No. 6. Amended 16-March-2016.
15	FLNRO	Foreshore Lease Agreement	6407766	25-Nov-2010	Commercial Lease	Foreshore Lease Agreement - Bish Cove Scope includes permanent MOF, Transport Canada Pioneer Jetty (aka Temporary Construction Jetty built in Winter 2011). Amended 04-Dec-2012.
16	TC	*Navigable Waters Protection Act* Approval	8200-2011-500423-001	07-Jun-2017	Pioneer Jetting	Bish Cove Clay Conveyor Trestle
	Logistics Areas					
17	OGC	Licence of Occupation	937195 (9636093)	01-Jun-2012	Well	North Logistics Area.
18	OGC	Temporary Occupation of Crown Land	9636093	01-Jun-2012	Ancillary Works	North Logistics Area. Permit renewed in 2014.
19	OGC	Temporary Occupation of Crown Land	9636165	01-Jun-2014	Powerline	North Logistics Area Due to the Haisla Nation Lease Issues with the OGC not being resolved, a replacement application was requested and submitted to the OGC. LOC pending.

	Agency	Permit/Approval	Permit / License No.	Date Issued	Activity/ Component	Status/Comments
20	OGC	Changes in and About a Stream	9642749	15-Oct-2015	In-Stream Works	North Logistics Area Restoration of NLA Drainages
	Other Facilities					
21	OGC	Licence of Occupation	953305 (9641738)	23-Jan-2017	Storage Site	Area A
22	SKS	Letter Agreement	n/a	01-Dec-2011	Timber Harvesting	Area A-1 Letter Agreement Regarding Removal of Felled Timber by Skeena Sawmills Ltd. KM LNG grants Skeena the option to access and remove all or a portion of felled timber which is cut by KM LNG. Applies to Area A
23	OGC	Temporary Occupation of Crown Land	9636459	15-Feb-2013	Storage Site	Area A-1 01-Oct-2014: Superseded by Revision Temporary Occupation of Crown Land Permit 9636459 10-Feb-2015: Amendment to decrease the total area by 0.20 ha from 1.92 ha to 1.72 ha
24	OGC	Temporary Occupation of Crown Land	9639332	09-Sep-2014	Storage Site	Area A-2 Temporary Occupation of Crown Land (Storage Area)
25	OGC	Licence of Occupation	952395 (9639332)	09-Sep-2016	Storage Site	Area A-2
26	MEM	Quarry Permit	1650759 (Q-1-057)	21-Jun-2013	Mineral Extraction	Area G Quarry Permit (Area G) for administering and operating a Quarry

	Agency	Permit/Approval	Permit / License No.	Date Issued	Activity/ Component	Status/Comments
27	OGC	Temporary Occupation of Crown Land	9636460	24-May-2013	Borrow-Pit	Area G amendment to exclude the Haisla Nation Lease portion - the traditional Crown portion will roll over into a LOC Amended 31-Jan-2014.
28	OGC	Licence of Occupation	9636460	24-May-2015	Borrow-Pit	Area G
29	OGC	Short Term Use of Water	9643009	24-Mar-2016	Borrow-Pit	Area G Approval for Short-Term Use of Water in Area G Borrow Pit
30	OGC	Short Term Use of Water	0005007	08-Aug-2018	Borrow-Pit	Area G Approval for short-term use of water in Area G Borrow Pit
31	OGC	Temporary Occupation of Crown Land	9636457	30-Sep-2014	Storage Site	Area H
32	OGC	Temporary Occupation of Crown Land	9637895	07-Jun-2013	Storage Site	Area L
33	OGC	Licence of Occupation	9637895	07-Jun-2015	Storage Site	Area L
34	MEM	Quarry Permit	1650760 (Q-1-054)	31-Dec-2012	Mineral Extraction	Borrow Pit: Quarry Permit (Borrow Pit 2) for administering and operating a Quarry Amended 27-Nov-2013
35	OGC	Temporary Occupation of Crown Land	9635105	19-Sep-2011	Storage Site	Storage Pit

	Agency	Permit/Approval	Permit / License No.	Date Issued	Activity/ Component	Status/Comments
36	OGC	Authorization for Access Road Construction	9624551	17-Oct-2008	Roads	LNG Plant Access Road
37	OGC	Petroleum Development Road	9624551	17-Aug-2011	Roads	LNG Plant Access Road Amendment 1 Amend right-of-way widths and change of workspace
38	OGC	Petroleum Development Road	9624551	06-Dec-2011	Roads	LNG Plant Access Road Amendment 2 Amend right-of-way widths
39	OGC	Petroleum Development Road	9624551	24-Jun-2015	Roads	LNG Plant Access Road Amendment 3 Reshape and Resize Plant Access Road
40	OGC	Changes in and About a Stream	9637899	11-Jul-2013	In-Stream Works	Bish FSR Approval for Changes In and About a Stream for A-2 Creek Bridge Replacement
41	OGC	Road Use Permit	RUP 0134	05-Jan-2012	Roads	Bish FSR Road Use Permit 0134 includes all or portions of Bish FSR - KM 0.00 - 4.5
42	OGC	Prescribed Roads Permit	9635729	16-Jan-2012	Roads	Bish FSR This permit covers road works from the start of RTA Highway to start of Bish FSR (FLNRO Section).
43	OGC	Prescribed Roads Permit (Temporary Occupation of Crown Land)	9635729	16-Jan-2012	Roads	Bish FSR Amendment increases area of Road Permit by 0.68 ha to total of 104.38 ha.

	Agency	Permit/Approval	Permit / License No.	Date Issued	Activity/ Component	Status/Comments
44	OGC	Prescribed Roads Permit Amendment	9635729	24-Jun-2016	Roads	Bish FSR Bish FSR R-2-84
45	OGC	Temporary Occupation of Crown Land	9637071	17-Oct-2012	Roads	Bish FSR Permit was issued to occupy a workspace adjacent to the FSR road.
46	OGC	Changes in and About a Stream	9636847	21-Aug-2012	In-Stream Works	Bish FSR Authorization to support construction of culverts on OGC Section of FSR.
47	OGC	Changes in and About a Stream	9636846	21-Aug-2012	In-Stream Works	Bish FSR Authorization to support construction of culverts on FLNRO Section of FSR.
48	OGC	Changes in and About a Stream	9637480	26-Jun-2013	In-Stream Works	Bish FSR Unnamed Creek 2
49	SKS	Road Use Agreement	n/a	01-Dec-2011	Roads	Bish FSR
50	SKS	Road Use Agreement	n/a	01-Dec-2014	Roads	Bish FSR Amendment 1 Amends RUA with respect to road and box culvert work.

APPENDIX B – EA Certificate E06-01 Commitments

	Issue	No.	Project Phase	Commitment	Agency/ Group
1	General	1.1	All Phases	KLNG will develop a comprehensive Environment, Health and Safety (EHS) Management System for all phases of the Project, and conduct external audits of its EHS Management System at reasonable intervals.	DFO, EC, TC, INAC; MOE, OGC, ILMB, MTSA; DOK, Haisla Nation
2	General	1.2	All Phases	KLNG will provide environmental awareness training for all personnel, employees and contractors.	DFO, EC, TC, INAC; MOE, OGC, ILMB, MTSA; DOK, Haisla Nation
3	General	1.3	Design	KLNG will implement a design quality assurance system for the LNG terminal.	TC; INAC
4	General	1.4	Design	KLNG will ensure that all engineering design work is undertaken in accordance with all applicable codes and standards, and is supervised and approved by a Professional Engineer registered in the Province of British Columbia.	TC, EC, INAC; MOE, OGC
5	General	1.5	Construction	KLNG will prepare a Commissioning Manual that will provide detailed procedures for commissioning the facility.	INAC
6	General	1.6	Construction/ Operations	Environmental Protection Plans (EPPs) will be developed for the construction and operation phases of the Project, and will outline key environmental protection measures to be employed during these project phases. KLNG will provide draft EPPs to Environment Canada for review and comment prior to their completion.	DFO, TC, EC, INAC; MOE, OGC, ILMB, MTSA

	Issue	No.	Project Phase	Commitment	Agency/ Group
7	General	1.7	Construction/ Operations	The EPPs prepared for construction and operation phases of the Project and the associated ERPs (Emergency Response Plans) will include procedures for notification of appropriate government agencies.	DFO, EC, CWS, TC, INAC; MOE, OGC, ILMB, MTSA; DOK, Haisla Nation
8	General	1.8	Decommissioning	KLNG will develop a Project abandonment and restoration plan in discussion with appropriate agencies prior to decommissioning the facilities, in order to determine and apply the most up to date practices and guidelines.	DFO, EC, TC, INAC, MOE, OGC, ILMB, DOK, Haisla Nation
9	Atmospheric Environment	2.1	All Phases	KLNG will ensure that noise and air emission equipment is properly maintained and monitored. Equipment maintenance schedules will be followed to minimize changes to air quality.	EC; MOE; Haisla Nation
10	Atmospheric Environment	2.2	All Phases	KLNG will abide by all new emission reduction standards provided by either the federal or provincial agencies.	EC; MOE
11	Atmospheric Environment	2.3	Design	KLNG will review the Code of Practice in the DRAFT Report Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities and will apply appropriate practices to the Project's Environmental Management System.	EC, MOE
12	Atmospheric Environment	2.4	Construction/ Operations	KLNG will undertake a Hazard Operability analysis of the terminal design to assist in minimizing the potential for spills or unintentional releases of both LNG and natural gas.	TC; INAC
13	Atmospheric Environment	2.5	Construction/ Operations	Equipment will be operated using low sulphur diesel where possible.	EC; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
14	Atmospheric Environment	2.6	Construction/ Operations	Noise control measures will be employed on vehicles working in the terminal (e.g. use of strobe lights in substitution for back-up beepers) where WCB rules permit. The number and frequency of deliveries will also be minimized.	DOK; WCB
15	Atmospheric Environment	2.7	Construction/ Operations	Measures will be taken to mitigate against impacts to air quality, such as dust suppression, minimum clearing of vegetation, covers on trucks carrying dust-generating material, and erosion control measures.	MOE
16	Atmospheric Environment	2.8	Construction/ Operations	Activities that generate noise within the town of Kitimat or Kitamaat Village will be conducted during regular business hours only.	DOK
17	Atmospheric Environment	2.9	Operations	KLNG will work with regulatory agencies to manage greenhouse gas (GHG) emissions from the LNG terminal. Adaptive management will be used to minimize and control GHGs. Best Available Technology that is the norm for industry (or better) will be used.	EC
18	Atmospheric Environment	2.10	Operations	KLNG will provide an annual report on greenhouse gas emissions after the operation commences and prior to the federal government's reporting deadline.	EC
19	Atmospheric Environment	2.11	Operations	KLNG will manage GHG emissions from the LNG terminal as a member of the Large Final Emitters group.	EC
20	Atmospheric Environment	2.12	Operations	KLNG will abide by all new emission reduction standards provide by either the federal or provincial agencies.	EC; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
21	Atmospheric Environment	2.13	Operations	A preventative maintenance and leak detection and repair (LDAR) system will be implemented to minimize and correct any leaks associated with the terminal infrastructure.	TC; INAC; DOK
22	Atmospheric Environment	2.14	Operations	KLNG will minimize fugitive emissions of particulate matter by paving high-traffic areas within the terminal.	EC, INAC
23	Atmospheric Environment	2.15	Operations	KLNG will utilize LNG vessels powered by natural gas fired engines where possible, and use nitrogen purge of following LNG vessel unloading.	EC
24	Atmospheric Environment	2.16	Operations	KLNG will minimize impacts to air quality by ensuring steady-state operation of fuel burners in the terminal to minimize transient emissions.	EC
25	Atmospheric Environment	2.17	Operations	KLNG will undertake passive sulphur dioxide SO2 monitoring at three locations and for an appropriate period of time (as per discussions with Environment Canada and Health Canada). Monitoring will occur at the marine jetty, and two reference locations to both verify the dispersion modeling results and verify the conclusions of the air quality effects assessment.	EC, HC
26	Terrestrial Environment	3.1	Design	KLNG will develop and implement a Timber Harvest Plan for clearing of the ROWs and terminal.	INAC; MOE, MOFR
27	Terrestrial Environment	3.2	Design	For the Bish Cove terminal, KLNG will complete rare plant surveys in May/June 2006 to confirm that no rare plants are present within road, power and pipeline ROWs or facility sites. If rare plants are found a mitigation program to avoid or relocate the plants will be prepared and implemented prior to construction.	EC; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
28	Terrestrial Environment	3.3	Construction	The construction EPP will: -include an Erosion Control Plan that addresses requirements for each stream class, crossing type, and type of water body that will be crossed; and -address site preparation measures, sediment control and clean-up and revegetation measures to be implemented on the ROWs.	DFO, INAC; MOE
29	Terrestrial Environment	3.4	Construction	Reclamation seed mixes on steep approach slopes and watercourse banks will include an annual cover crop that will provide a quick cover over exposed soils to minimize erosion.	DFO; MOE
30	Terrestrial Environment	3.5	Construction	KLNG will develop and implement a Noxious Weed Management Plan to prevent introduction or spread of weeds on the ROWs following construction. This will include use of weed control measures for construction of the ROWs such as cleaning of equipment prior to arrival, and use of high-quality, weed free seed mixtures for revegetation.	MOE, MOFR, MAL
31	Terrestrial Environment	3.6	Construction	KLNG will minimize the removal of vegetation and grubbing along ROWs.	EC; MOE, MOFR
32	Terrestrial Environment	3.7	Construction	ROW layout and engineering design will take into consideration the location of listed plant communities and make adjustments to the ROW alignment where possible. ROW alignments will also take into consideration the location of existing disturbed habitats and selectively locate ROWs in these areas to minimize disturbance to mature forest communities.	MOE, MOFR

	Issue	No.	Project Phase	Commitment	Agency/ Group
33	Terrestrial Environment	3.8	Construction	KLNG will attempt to avoid areas of the Amabilis fir – Sitka spruce / Devil's club plant community through alignment adjustments wherever possible. If disturbance of the community cannot be avoided, mitigation measures such as drainage, erosion control and vegetation restoration will be utilized to protect and promote recovery of the altered plant community.	EC; MOE
34	Terrestrial Environment	3.9	Construction/ Operations	The operation phase EPP will include facility road and infrastructure maintenance. These aspects of the operation EPP may come into effect before Project construction is complete.	OGC
35	Terrestrial Environment	3.10	Construction	KLNG will implement Hazardous Spill Contingency Plan, Timber Clearing and Salvage, Clean-up, Reclamation, and Fire Prevention and Suppression sections of its EPPs.	DFO, INAC; MOE, MOFR
36	Terrestrial Environment	3.11	Operations	The operations EPP will include provisions for revegetation and erosion control on the ROW that it controls and manages.	OGC
37	Terrestrial Environment	3.12	Operations	KLNG will not use herbicides as a standard vegetation management technique on ROW that it controls and manages. Vegetation will be managed using mechanical means and herbicides will only be used around above-ground pipeline infrastructure.	OGC
38	Terrestrial Environment	3.13	Operations	KLNG will implement its pipeline and field services emergency response plan to minimize potential effects of a spill on the terrestrial environment and vegetation.	MOE, MOFR
39	Terrestrial Environment	3.14	Construction/ Decommissioning	KLNG will use native species for facility reclamation and revegetation of riparian areas affected by the Project.	MOFR, MOE, OGC; Haisla Nation

	Issue	No.	Project Phase	Commitment	Agency/ Group
40	Wildlife and Wildlife Habitat	4.1	Design	KLNG will minimize the loss of habitat by designing the LNG terminal within the smallest feasible footprint.	DFO, EC, INAC; Haisla Nation
41	Wildlife and Wildlife Habitat	4.2	Design	KLNG will minimize ROW width and clearing to the greatest extent possible, and where feasible, locate ROWs adjacent to other linear disturbances (i.e. roads and other ROWs).	MOE
42	Wildlife and Wildlife Habitat	4.3	Design	KLNG will complete a Marbled Murrelet survey to confirm absence in forested areas to be affected by the road, ROW and LNG facility footprint.	EC; MOE
43	Wildlife and Wildlife Habitat	4.4	Design	KLNG will participate in the Coastal Waterbird Survey Program for a period of ten years.	EC; MOE
44	Wildlife and Wildlife Habitat	4.5	Design	KLNG will complete a tailed frog survey to confirm predicted absence in streams to be affected by the facility footprint.	EC; MOE
45	Wildlife and Wildlife Habitat	4.6	Design	KLNG will conduct reconnaissance surveys prior to vegetation clearing along proposed ROWs to confirm habitat suitability ratings as well as identify any special habitat features (dens, wildlife trees, etc.) that may be affected.	MOE
46	Wildlife and Wildlife Habitat	4.7	Construction	KLNG will minimize blasting activities to avoid mountain goat critical periods (winter/lambing), critical bear feeding periods (spring and fall) and will incorporate a bear safety and site management plan, including firearm restrictions, in the construction and operation EPPs.	MOE
47	Wildlife and Wildlife Habitat	4.8	Construction	KLNG will minimize the extent and duration of construction disturbance.	MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
48	Wildlife and Wildlife Habitat	4.9	Construction	KLNG will confine clearing and grubbing activities to the ROWs and not adjacent areas.	MOE
49	Wildlife and Wildlife Habitat	4.10	Construction	Shrub removal will be minimized within 30 m of all streams and grubbing of the pipeline lateral trench will be limited to within 10 m of the stream banks.	MOE
50	Wildlife and Wildlife Habitat	4.11	Construction	KLNG will ensure maximum distance between forest patches is < 200 m where possible.	EC; MOE, MOFR
51	Wildlife and Wildlife Habitat	4.12	Construction	KLNG will restrict construction activities during peak grizzly and black bear foraging activities at Bish Cove (i.e. spring and fall).	MOE
52	Wildlife and Wildlife Habitat	4.13	Construction	KLNG will minimize the size of temporary workspaces, and avoid establishing them within 100 m of critical bear foraging areas or within 30 m of wetland or riparian habitat areas.	MOE
53	Wildlife and Wildlife Habitat	4.14	Construction	Where appropriate, KLNG will establish public access control points along the ROWs using berms, doglegs, and slash rollback.	MOE
54	Wildlife and Wildlife Habitat	4.15	Construction	Where possible, KLNG will provide visual screen buffers for bears, moose and deer.	MOE
55	Wildlife and Wildlife Habitat	4.16	Construction	KLNG will facilitate wildlife movement across construction areas by installing trench plugs and gaps as required.	MOE
56	Wildlife and Wildlife Habitat	4.17	Construction	KLNG will avoid re-seeding of road sides with cover species preferred by bear or ungulates (i.e. grasses, clover). A wildlife biologist will be used to provide advice on the proposed re-vegetation seed mix.	MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
57	Wildlife and Wildlife Habitat	4.18	Construction	The EPP will include mitigation measures to protect the coastal tailed frog. These will include: -minimization of the removal of trees and shrubs within 30 m; -isolation and inspection in-stream areas to ensure that no tailed frogs are present before commencing work; and -trenches that have been open over night will be inspected for tailed frogs prior to backfilling.	EC; MOE
58	Wildlife and Wildlife Habitat	4.19	Construction	Construction activities will be restricted during the peak spring migration for avifauna.	EC; MOE
59	Wildlife and Wildlife Habitat	4.20	Construction	KLNG commits to looking for nests (i.e. Great Blue Heron) as well as other significant wildlife features during the on-site environmental monitoring phase. This will be outlined in the EPP and will include an onsite monitor looking for heron nests prior to any forest harvesting activities regardless of time of year. If clearing overlaps the breeding bird season (April-July), then the existing commitment to conduct a nest survey prior to clearing during the breeding bird season would be conducted as required.	EC; MOE
60	Wildlife and Wildlife Habitat	4.21	Construction/ Operations	KLNG will develop and implement management and mitigation strategies for construction and operation to meet the requirements of the *Migratory Birds Convention Act* and BC Wildlife Act. KLNG will ensure that clearing of vegetation will not result in the injury, molestation or destruction of a migratory bird or its egg, or the nest of a migratory bird when the nest is occupied by a bird or its egg; or the nest of an eagle,	EC; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
				peregrine falcon, gyrfalcon, osprey, heron or burrowing owl.	
61	Wildlife and Wildlife Habitat	4.22	Construction/ Operations	Where vegetation clearing is to be undertaken during migratory bird breeding season, estimated by EC to be between April 01 and July 31 for the Project Area, KLNG will undertake nest surveys in advance of such vegetation clearing and, where migratory bird nests are found, provide nest survey results to the listed agencies to determine the appropriateness of clearing and the width and diameter of nest buffer zones as and where needed.	EC; MOE
62	Wildlife and Wildlife Habitat	4.23	Construction/ Operations	KLNG will look for blue heron foraging activity in the Cove selected for the marine facilities during the next breeding season (spring 2006) using standard survey methods. Consistent with the assumptions outlined by the Canadian Wildlife Service, a more focused nest search will be conducted should heron activity be observed during the spring breeding season. If a nest search is warranted based on the marine observations, the nest survey will be conducted prior to proposed vegetation clearing of any mature trees.	EC; MOE
63	Wildlife and Wildlife Habitat	4.24	Construction/ Operations	KLNG will maintain adequate hiding cover buffers (50 m) between access roads and important bear and ungulate habitat.	MOE
64	Wildlife and Wildlife Habitat	4.25	Construction/ Operations	KLNG will prohibit ATV use by industrial personnel outside the ROWs and LNG terminal footprint.	MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
65	Wildlife and Wildlife Habitat	4.26	Construction/ Operations	KLNG will develop and implement a bear safety plan as part of the construction EPP.	MOE
66	Wildlife and Wildlife Habitat	4.27	Construction/ Operations	As part of construction and operation EPPs, KLNG will ensure safe handling, storage and disposal of food and food wastes.	MOE
67	Wildlife and Wildlife Habitat	4.28	Construction/ Operations	KLNG will include fire contingency plans in its EPPs to minimize wildlife habitat destruction.	EC; MOE
68	Wildlife and Wildlife Habitat	4.29	Operations	Where appropriate, KLNG will post wildlife crossing signs along the Bish Forest Service Road and the terminal access road.	MOE
69	Wildlife and Wildlife Habitat	4.30	Operations	KLNG will minimize unloading time for tankers.	MOE; TC
70	Wildlife and Wildlife Habitat	4.31	Operations	Where appropriate, KLNG will create gaps in snow berms created by road plowing to allow ungulate movement.	MOE
71	Wildlife and Wildlife Habitat	4.32	Operations	KLNG will implement a coordinated access management plan to minimize the effect of public use on wildlife.	MOE
72	Wildlife and Wildlife Habitat	4.33	Operations	Requirements for hazardous materials storage and handling, equipment refueling constraints, spill reporting and containment response measures will be detailed in the EPPs.	INAC; MOE
73	Wildlife and Wildlife Habitat	4.34	Operations	If allowable under Transport Canada safety and navigation requirements, terminal security lighting will be down-shielded and similar to street lighting.	EC; INAC

	Issue	No.	Project Phase	Commitment	Agency/ Group
74	Wildlife and Wildlife Habitat	4.35	Operations	Repair work to pipelines will be undertaken in adherence to the same mitigation measures as required during construction of the pipeline laterals. The EPP will address potential avifaunal impact issues associated with scheduled maintenance and repair.	EC; MOE
75	Wildlife and Wildlife Habitat	4.36	Operations	Protocols for use of scare tactics will be integrated into the EPPs. KLNG will employ scare tactics if a spill is in close proximity to marine birds, or if birds are within the projected trajectory of the spill.	EC; MOE
76	Wildlife and Wildlife Habitat	4.37	Decommissioning	KLNG will avoid decommissioning activities during peak grizzly and black bear foraging activities (i.e. spring and fall).	MOE
77	Freshwater Environment and Fisheries	5.1	Design	Buildings, tanks and facilities will be located outside of Riparian Management Areas to the greatest extent possible, as outlined in the January 11, 2006 Bish Cove Addendum Report for a Bish Cove terminal.	DFO
78	Freshwater Environment and Fisheries	5.2	Design	With the exception of the road and pipe rack crossings, no facilities or infrastructure at a Bish Cove terminal will be located within 30 m of the stream top of bank (of streams to be maintained) or 20 m from the marine mean high water mark as per Figure 3.4.2 of the January 11, 2006 Bish Cove Addendum Report.	DFO
79	Freshwater Environment and Fisheries	5.3	Design	If any watercourse crossing constitutes a HADD, all work will be completed under DFO authorization. KLNG will provide a fish habitat compensation plan for each stream crossing resulting in a HADD.	DFO

	Issue	No.	Project Phase	Commitment	Agency/ Group
80	Freshwater Environment and Fisheries	5.4	Design	KLNG will conduct a habitat assessment on the final road and plant footprint with DFO area staff to finalize habitat compensation requirements, and incorporate DFO advice into the design and location of stream crossings.	DFO
81	Freshwater Environment and Fisheries	5.5	Design	KLNG will ensure that designs for all stream crossings are reviewed and approved (where necessary) by Transport Canada, DFO, BCMOE, and BC Oil and Gas Commission in accordance with the *Navigable Waters Protection Act*, *Fisheries Act*, *BC Water Act* and regulations, and the *BC Oil and Gas Commission Act*. The Haisla Nation will be given an opportunity to review and comment on the design prior to finalization.	DFO, TC; MOE, OGC; Haisla Nation
82	Freshwater Environment and Fisheries	5.6	Design	KLNG will develop a Stormwater Management Plan (SMP) prior to construction of the facility. KLNG will provide the draft SMP to Environment Canada and the Haisla Nation for review. The SMP will include a site runoff control program.	EC, INAC; OGC, MOE; Haisla Nation
83	Freshwater Environment and Fisheries	5.7	Construction	All hydrostatic test water will be discharged in accordance with Provincial and Federal regulations and more than 100 m from any watercourse or water body.	DFO; MOE
84	Freshwater Environment and Fisheries	5.8	Construction	Best Management Practices for stream crossings will be incorporated into the construction EPP for the Project.	DFO; MOE
85	Freshwater Environment and Fisheries	5.9	Construction	All stormwater diversion ditches will be designed and constructed to convey the anticipated maximum daily flow around or through work sites and will include armouring to ensure protection from erosion during the period of construction and use of the ditch.	DFO; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
86	Freshwater Environment and Fisheries	5.10	Construction	Any/all ditches will be completely backfilled and the area returned as closely as possible to the natural state on completion of construction works.	DFO; MOE
87	Freshwater Environment and Fisheries	5.11	Construction	Removal of vegetation and soils within Riparian Management Areas will be minimized. Vegetation retention within these areas will be maximized.	DFO; MOE
88	Freshwater Environment and Fisheries	5.12	Construction	All clearing and grubbing associated with site preparation activities will be conducted as soon as practical, prior to construction efforts and pipeline installation.	DFO; MOE
89	Freshwater Environment and Fisheries	5.13	Construction	Upon completion of construction activities and pipeline installation, stream banks and riparian areas will be replanted with native vegetation to stabilize channel banks.	DFO; MOE, OGC
90	Freshwater Environment and Fisheries	5.14	Construction	A bio-engineered (soft) approach will be used to restore disturbed banks at watercourse crossings, involving the salvage and re-planting of any existing riparian shrubs supplemented by the planting of willow clumps and/or willow staking. In general, hard erosion protection measures such as rock armour will only be considered where a bio-engineered approach cannot achieve sufficient bank/pipeline erosion protection.	DFO; MOE, OGC
91	Freshwater Environment and Fisheries	5.15	Construction	All S1 and S2 streams will be crossed using bridges (roads) and horizontal directional drilling or aerial methods (pipeline). Within the plant site boundaries, aerial pipeline crossings and open bottom arch or over-sized/countersunk road culverts will be used.	DFO; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
92	Freshwater Environment and Fisheries	5.16	Construction	All stream crossings will be completed during the period of least risk to fish and fish habitat (i.e. the freshwater in-stream work window) or within windows approved by DFO. Work areas will be isolated and fish will be salvaged before stream crossing work commences.	DFO; MOE, OGC
93	Freshwater Environment and Fisheries	5.17	Construction	Streambeds disturbed by pipeline or road works will be restored to pre-construction status, with large woody debris and boulders replaced in stream channel.	DFO; MOE
94	Freshwater Environment and Fisheries	5.18	Construction	Topsoil and subsoil stockpiles will be stored away from riparian areas. Trench spoil from instream excavation will be stored upland and be encompassed by secured siltation fencing in such a way that sediment-laden water does not flow back into the water course. Erosion control measures such as siltation fencing, temporary diversion berms, timber sandbags, rock or straw bales will be installed and maintained as determined appropriate by an environmental inspector during construction.	DFO; MOE
95	Freshwater Environment and Fisheries	5.19	Construction	Erosion control measures and structures will be implemented to mitigate potential sedimentation related environmental effects to adjacent and downstream fish habitats. Measures such as silt fences, interception ditches, check dams, mulch covers, filtration cloth, straw bales, and sediment ponds will be used as appropriate to minimize or prevent potential entry of sediment-laden water into any streams affected by the Project.	DFO, INAC; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
96	Freshwater Environment and Fisheries	5.20	Construction	All pipeline crossings with flowing water will be constructed using either trenchless methods or an isolated crossing technique.	DFO; MOE, OGC
97	Freshwater Environment and Fisheries	5.21	Construction	Disruption of water flow during stream channel trenching will be prevented through implementation of standard temporary diversion procedures.	DFO; MOE, OGC
98	Freshwater Environment and Fisheries	5.22	Construction	Prior to construction of any trenched stream crossing or culvert placement/replacement, a fish and amphibian salvage program will be undertaken.	DFO; MOE, OGC
99	Freshwater Environment and Fisheries	5.23	Construction	During road widening activities, all replacement culverts will be oversized, bottomless or countersunk below existing stream grade with appropriate flow reduction techniques implemented (e.g. in-culvert baffles or large cobbles).	DFO; MOE
100	Freshwater Environment and Fisheries	5.24	Construction	Stream channel trenching (temporary diversion) will be used for all flowing non-fish bearing (S5-S6) and small, fish bearing watercourses (S4 and small S3 streams) to be crossed by the pipeline lateral. Precautionary sedimentation barriers will also be established immediately downstream from all dry (ephemeral) channel crossings.	DFO; MOE, OGC
101	Freshwater Environment and Fisheries	5.25	Construction	The construction EPP will include requirements for isolated watercourse crossings to prevent fish mortality and will include typical drawings.	DFO; MOE, OGC
102	Freshwater Environment and Fisheries	5.26	Construction	To prevent the migration of chemicals into the aquatic environment, guidelines for treatment and disposal of concrete wash water, stormwater that comes into contact with uncured concrete and	DFO; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
				hydrostatic test water will be addressed in the construction EPP. All high pH waters will be collected and neutralized with carbon dioxide prior to disposal.	
103	Freshwater Environment and Fisheries	5.27	Construction	Environmental effects to fish and fish habitat from blasting will be minimized through: - exclusion of fish from the blasting area using appropriate methods (e.g., installation of barrier nets on either side of the work area and removal of fish from between the nets); - use of non-propagating explosives; use of time-delay blasting caps for detonation of multiple, smaller charges; - no use of ammonium nitrate-fuel oil mixtures in or near water due to the production of toxic ammonia; - recovery of all residual blasting components (e.g., shock tubes and detonation wire); and, - no detonation of explosives that are likely to produce an instantaneous pressure change greater than 100 kPA in the swimbladder of a fish in or near fish habitat.	DFO
104	Freshwater Environment and Fisheries	5.28	Construction	Blasting in or near fish bearing watercourses will be undertaken in the fisheries window (between July 15 and September 1) to avoid critical life stages and potential fish/ova mortality.	DFO; MOE
105	Freshwater Environment and Fisheries	5.29	Construction	KLNG will work with DFO and relevant agencies to develop a riparian management plan for areas within the LNG terminal fenceline. KLNG will provide an opportunity for the Haisla Nation to comment on the plan prior to finalization.	DFO; Haisla Nation

	Issue	No.	Project Phase	Commitment	Agency/ Group
106	Freshwater Environment and Fisheries	5.30	Construction	KLNG will apply for Section 8 *Water Act* approval for short term use of water to obtain water required for hydrostatic testing of the LNG tanks and pipelines. Intakes will be screened as per DFO's Freshwater Intake End of Pipe Fish Screen Guideline.	DFO; MOE, OGC
107	Freshwater Environment and Fisheries	5.31	Construction	Stream crossings and repairs will not be undertaken while heavy, sustained precipitation is forecasted. Pumping capacity for stream diversions will be sufficient to convey a 1:2 year storm event.	DFO; MOE
108	Freshwater Environment and Fisheries	5.32	Construction	All construction activities will be inspected and monitored to ensure erosion and sediment control structures are appropriately installed, maintained and removed.	DFO; MOE
109	Freshwater Environment and Fisheries	5.33	Construction/ Operations	KLNG will ensure that treatment and discharge equipment for waste water and runoff management is properly maintained and monitored.	DFO; MOE
110	Freshwater Environment and Fisheries	5.34	Construction/ Operations	Spill response procedures to protect fish and fish habitat will be incorporated into the construction and operation EPPs.	DFO; MOE
111	Freshwater Environment and Fisheries	5.35	Operations	Dedicated refueling areas will be established >100 m from fish habitat.	DFO; MOE
112	Marine Environment and Marine Mammals	6.1	Design	Marine structures will be designed and placed as generally depicted in the February 2, 2006 Supplement to the Bish Cove Addendum Report as modified by the March 14, 2006 Updated Bish Cove Facilities Map).	DFO, TC

	Issue	No.	Project Phase	Commitment	Agency/ Group
113	Marine Environment and Marine Mammals	6.2	Design	KLNG will conduct a habitat assessment within the jetty and marine terminal footprint, including an eelgrass survey, to determine habitat loss and establish habitat compensation requirements.	DFO
114	Marine Environment and Marine Mammals	6.3	Design	KLNG will negotiate and implement a habitat compensation program under authorization of the *Fisheries Act* for marine facility disturbance of fish and fish habitat. KLNG commits to providing compensation at a minimum of 1:1 ratio of habitat loss/habitat compensation and will look at other locations for any additional compensation work required.	DFO
115	Marine Environment and Marine Mammals	6.4	Design	KLNG will solicit input/involvement from the Haisla Nation and local experts (e.g., Kitimat Valley Naturalists) as appropriate, during the development and implementation of the habitat compensation plan.	DFO, Haisla Nation
116	Marine Environment and Marine Mammals	6.5	Design	KLNG will work with the TERMPOL committee to confirm the number of tugs required.	TC, DFO
117	Marine Environment and Marine Mammals	6.6	Design	KLNG will develop a marine terminal manual for operations. The manual will be developed using local knowledge from operators and other sources to address the specific requirements for operation of the LNG facilities and off loading and transfer to storage in accordance with federal and provincial legislation and company policies. This manual will include: - a speed/thrust management plan for tugs and tankers; - identification of operating areas for tankers and tugs;	TC, DFO

	Issue	No.	Project Phase	Commitment	Agency/ Group
				- operating procedures for tugs; and - identification and physical marking of environmentally sensitive areas for restricted operation of marine vessels working at the terminal as per the February 6, 2006 No-Go Zone Map for Bish Cove. Additional TERMPOL recommendations will be fulfilled and incorporated, as appropriate in the Marine Terminal Manual.	
118	Marine Environment and Marine Mammals	6.7	Design	KLNG will investigate current practices for tanker and tug bilge management through the Chamber of Shipping and Kitimat area industries and local government.	TC
119	Marine Environment and Marine Mammals	6.8	Design	The construction EPP will include: - marine sediment control measures; - a marine water quality monitoring program; - a marine mammal monitoring program; and - marine life salvage measures.	DFO
120	Marine Environment and Marine Mammals	6.9	Design	The construction and operation EPPs will include spill preparedness, prevention and response provisions in accordance with the *Canada Shipping Act* and all other applicable provincial and federal legislation and regulations. An Emergency Response Plan will also make up part of the EPP. The ERP will address planning and response for a LNG spill, and detail requirements for addressing potential effects on the marine environment, intertidal wetlands and streams that intersect the shoreline.	DFO, TC, MOE
121	Marine Environment	6.10	Construction	The number of piles, dredging and blasting for the barge and tug berth will be minimized to the greatest extent practicable. Dredged material will	DFO, EC

	Issue	No.	Project Phase	Commitment	Agency/ Group
	and Marine Mammals			be removed from site as required. Dredging and blasting are not anticipated for the Bish Cove marine facilities.	
122	Marine Environment and Marine Mammals	6.11	Construction	KLNG will adhere to current DFO guidelines for blasting and pile drilling and will review the plans with DFO prior to construction.	DFO
123	Marine Environment and Marine Mammals	6.12	Construction	Any future blasting requirements for the LNG jetty will be minimized through engineering design and construction methods. Blasting methods will be selected to minimize pressure waves. Blasting in water is not anticipated for the Bish Cove marine facilities.	DFO
124	Marine Environment and Marine Mammals	6.13	Construction	Any in-water and near-water blasting, as well as any dredging or vibro-densification processes will be scheduled within DFO's marine fisheries work window to avoid key biological processes (migration, spawning, etc.).	DFO
125	Marine Environment and Marine Mammals	6.14	Construction	Positioning of any dredge barge will be stable for accurate sediment removal and anchoring. Dredging is not anticipated for the Bish Cove marine facilities.	DFO
126	Marine Environment and Marine Mammals	6.15	Construction	A grab dredge will be utilized to minimize sedimentation, where dredging is required.	DFO
127	Marine Environment and Marine Mammals	6.16	Construction	KLNG will utilize a vibro-densification process to compact and stabilize marine sediments for the purposes of marine facility construction. Procedures will be put in place to ensure capture and control of silt and other fine sediments displaced by this process. Marine bottom surface	DFO

	Issue	No.	Project Phase	Commitment	Agency/ Group
				areas altered by this process will be covered with a soft sediment substrate to a thickness to be determined by DFO.	
128	Marine Environment and Marine Mammals	6.17	Construction	Admixtures with underwater concrete application will be utilized to avoid increased sedimentation and pH levels.	DFO
129	Marine Environment and Marine Mammals	6.18	Construction	To provide additional habitat, pilings will provide hard attachment surfaces for invertebrates and algae.	DFO
130	Marine Environment and Marine Mammals	6.19	Construction	Berth orientation and design will minimize potential shade effects of decking and eelgrass habitat.	DFO
131	Marine Environment and Marine Mammals	6.20	Construction	KLNG will submit a permit application to Environment Canada for any proposed ocean disposal of dredged material after an EA certificate and a federal EA decision has been made.	EC
132	Marine Environment and Marine Mammals	6.21	Construction	The presence of acid generating rock will be investigated during geotechnical surveys. If acid generating rock is found, KLNG will adhere to any applicable federal or provincial legislation and guidelines respecting management and disposal of acid generating rock into the marine environment.	EC
133	Marine Environment and Marine Mammals	6.22	Operations	Construction vessels will operate outside of biologically sensitive and fisheries sensitive timing windows.	DFO

	Issue	No.	Project Phase	Commitment	Agency/ Group
134	Marine Environment and Marine Mammals	6.23	Operations	Use of night lighting will be minimized.	DFO, TC
135	Marine Environment and Marine Mammals	6.24	Operations	Federal and provincial regulatory processes and environmental codes of practice will be followed.	DFO, EC, TC
136	Marine Environment and Marine Mammals	6.25	Operations	KLNG will require in its shipping contracts that ships include and adhere to Transports Canada's National Ballast Water Management Guidelines and the Oil Pollution Prevention Regulation with respect to bilge water management. This will be further reviewed in the TERMPOL process.	TC, DFO
137	Marine Environment and Marine Mammals	6.26	Operations	KLNG will modify the Port of Vancouver's ballast water management guidance package for the LNG terminal and provide it to contracted carriers prior to delivery of the LNG.	TC, DFO
138	Marine Environment and Marine Mammals	6.27	Operations	Through its contracts with the LNG carriers and tug operators, KLNG will ensure in that no bilge water is released by vessels at berth.	TC, DFO
139	Marine Environment and Marine Mammals	6.28	Operations	KLNG will develop a brochure including information on seasonal marine mammal activity and provide it to shipping contractors prior to delivery of the LNG. The brochure will include: - critical areas to avoid (based on available data and local and traditional knowledge); - mammal identification information; and - any relevant requirements from the *Fisheries Act* Marine Mammal Regulation and response and reporting requirements.	DFO, Haisla Nation, DOK

	Issue	No.	Project Phase	Commitment	Agency/ Group
				KLNG will solicit additional information from local residents and the Haisla Nation.	
140	Marine Environment and Marine Mammals	6.29	Operations	KLNG will investigate current practices of marine pilots respecting marine mammal reporting and strike avoidance.	DFO, TC
141	Marine Environment and Marine Mammals	6.30	Operations	KLNG will implement an automatic neutralization control process to ensure that vapourizer discharges have a pH between 6.5 and 9.0. Water will be held in a cooling pond and discharged at a maximum temperature of 15oC in summer and 9oC in winter.	INAC; DFO
142	Marine Environment and Marine Mammals	6.31	Operations	KLNG will work with DFO and MOE to determine an appropriate location for the discharge of process water into the marine environment during LNG terminal operation, and to confirm acceptable water quality (pH and temperature) and discharge infrastructure requirements.	DFO; MOE
143	Heritage and Archaeological Resources	7.1	All Phases	KLNG will document all heritage and archaeological sites identified in the Project Area.	PC; MTSA, OGC; Haisla Nation
144	Heritage and Archaeological Resources	7.2	All Phases	KLNG will design the Project to avoid disturbance of known archaeological sites wherever possible. Where this is not possible, KLNG will contact the appropriate provincial agency for necessary permits or authorizations on provincially administered land and consult with Parks Canada for federally administered land.	PC; MTSA, OGC; Haisla Nation

	Issue	No.	Project Phase	Commitment	Agency/ Group
145	Heritage and Archaeological Resources	7.3	All Phases	KLNG will undertake mitigative studies in consultation with the Haisla Nation if site disturbance is required.	PC; MTSA, OGC; Haisla Nation
146	Heritage and Archaeological Resources	7.4	Design	KLNG will undertake additional Haisla Nation interviews regarding the burial site of a 'giant' individual reported in the AIA Study for the KLNG Project. This will be completed prior to Project construction to determine if the burial site lies within the Project boundaries, and if so, further field investigation will be undertaken prior to Project construction.	PC; Haisla Nation
147	Heritage and Archaeological Resources	7.5	Design	The requirement for additional field work will be determined in consultation with the AB for provincially administered land and Parks Canada (Archaeological Services Branch) for federally administered land.	PC; MTSA, OGC; Haisla Nation
148	Heritage and Archaeological Resources	7.6	Design	KLNG will complete an AIA for unsurveyed portions of the road, ROW and terminal site to document archaeological resources. This will be done for provincially administered lands under a Site Inspection Permit, and for federally administered land in consultation with Parks Canada (Archaeological Services Branch).	PC; MTSA, OGC; Haisla Nation
149	Heritage and Archaeological Resources	7.7	Design	KLNG will, prior to disturbance, undertake additional inventory and assessment for any areas affected by facility sites or road, power and pipeline route alterations that were not within the study area of the initial AIA report, and for any substantial changes to Project design.	PC; MTSA, OGC; Haisla Nation
150	Heritage and Archaeological Resources	7.8	Design	KLNG will assess the potential impact of tanker traffic on the rock art sites on bedrock exposures flanking Douglas Channel in the vicinity of the	PC; MTSA

	Issue	No.	Project Phase	Commitment	Agency/ Group
				marine terminal and implement mitigative measures if required.	
151	Heritage and Archaeological Resources	7.9	Design/ Construction	KLNG will retain a qualified independent project archaeologist for site preparation and construction work.	PC; Haisla Nation
152	Heritage and Archaeological Resources	7.10	Construction	Proposed Project refinements, facilities additions or location changes that may require land-altering activity will be referred by KLNG to the project archaeologist, along with updated Project mapping as it becomes available, for referral to the appropriate federal or provincial agencies.	PC; MTSA, OGC; Haisla Nation
153	Heritage and Archaeological Resources	7.11	Construction	KLNG will develop a protocol for consultation with the Haisla Nation on heritage and archaeological resource assessment, monitoring and disturbance mitigation activities.	PC; MTSA; Haisla Nation
154	Heritage and Archaeological Resources	7.12	Construction	KLNG will ensure a Haisla Nation representative is present at all future heritage assessment work completed at the terminal and during construction monitoring (post disturbance audits).	Haisla Nation
155	Heritage and Archaeological Resources	7.13	Construction/ Operations	KLNG will ensure that all staff and contractors are advised of legal requirements and protocols for discovery, notification and management of archaeological finds that may be made during site preparation, construction and maintenance.	PC; MTSA, OGC; Haisla Nation
156	Communities and Economy	8.1	All Phases	KLNG will continue to work with the District of Kitimat to negotiate use of municipal services, such as fire, emergency services, waste treatment and disposal.	DOK

	Issue	No.	Project Phase	Commitment	Agency/ Group
157	Communities and Economy	8.2	All Phases	KLNG will hire people with appropriate qualifications and skills from the local community or region when practical.	MLCS
158	Communities and Economy	8.3	All Phases	KLNG will provide training opportunities to facilitate local hiring, where appropriate.	MLCS
159	Communities and Economy	8.4	Design	KLNG will negotiate a service agreement with the District of Kitimat for water supply to address any potable water requirements of the Project.	DOK
160	Communities and Economy	8.5	Design	KLNG will consult with and obtain input from the District of Kitimat in development of the Emergency Response Plan for the LNG terminal.	DOK
161	Communities and Economy	8.6	Construction	KLNG will use local education facilities where possible for delivering training programs and work with facilities on developing programs and delivery schedule.	MED, MLCS
162	Communities and Economy	8.7	Construction	KLNG will work with local professional and trade associations to encourage local hiring for construction of the terminal and for delivery of training programs.	MLCS; MED
163	Communities and Economy	8.8	Construction	KLNG will develop a listing of available accommodation options for construction workers in conjunction with the District of Kitimat and other applicable agencies.	DOK
164	Communities and Economy	8.9	Construction/ Operations	KLNG will make arrangements with appropriate parties regarding requirements for use of transportation, utilities, communications and municipal services.	DOK; MOT; BC Hydro

	Issue	No.	Project Phase	Commitment	Agency/ Group
165	Communities and Economy	8.10	Construction/ Operations	KLNG will develop a transportation strategy to facilitate employee access to the terminal, including bussing and car pools.	DOK; MOT; Haisla Nation
166	Communities and Economy	8.11	Construction/ Operations	KLNG will provide advance notice to local businesses about goods and services necessary for the Project.	MED
167	Communities and Economy	8.12	Construction/ Operations	KLNG will advise the local business community of any changes in operations relating to goods and services required.	MED
168	Communities and Economy	8.13	Construction/ Operations	KLNG will meet with the Kitimat Chamber of Commerce to discuss the benefits of a Joint Venture Business Program between new Haisla Nation businesses associated with the Project and Kitimat businesses.	MED; Haisla Nation; DOK
169	Communities and Economy	8.14	Construction/ Operations	KLNG will produce a list of jobs required during construction and operation, and required training for each and post these on its website.	MLCS
170	Communities and Economy	8.15	Operations	KLNG will develop a strategy for on-the-job training.	MLCS
171	Public Safety and Health	9.1	All Phases	KLNG will develop and implement health and safety plans and provide training to all personnel, employees and contractors.	WCB; DOK; Haisla Nation
172	Public Safety and Health	9.2	Design	KLNG will continue discussions with the Northern Health Authority to enhance the NHA's ability to plan for increased health service requirements, especially related to drug and alcohol abuse and sexually transmitted diseases.	NHA; DOK; Haisla Nation

	Issue	No.	Project Phase	Commitment	Agency/ Group
173	Public Safety and Health	9.3	Design	KLNG will develop an Emergency Response Plan (ERP) to document measures and procedures to be implemented in response to an accidental release of a substance to the environment.	TC, EC; MOE; DOK
174	Public Safety and Health	9.4	Design	KLNG will provide relevant federal and provincial agency responders with a draft of the ERP for comment, and consult with and obtain input from the District of Kitimat in development of the ERP for the facilities.	EC; MOE; DOK
175	Public Safety and Health	9.5	Design	KLNG will install and / or have on site all necessary emergency response equipment and provide responder training.	TC, EC; OGC, MOE; DOK; Haisla Nation
176	Public Safety and Health	9.6	Design	KLNG will utilize Safety by Design - stringent adherence to applicable design codes and standards for the design of LNG equipment and facilities. Intrinsically safe designs, effective emergency planning and preparedness, and operational procedures and training will be incorporated into every aspect of the proposed facility.	TC; OGC; DOK; WCB
177	Public Safety and Health	9.7	Design	The Front End Engineering Design (FEED) conducted by KLNG will include a seismic risk analysis for the terminal in accordance with governing standards.	INAC, NRCAN
178	Public Safety and Health	9.8	Design	KLNG will install wind anemometers at the entrance to the cove selected for the marine terminal, should Transport Canada determine that they are advantageous to berthing of LNG vessels.	TC
179	Public Safety and Health	9.9	Design	KLNG will ensure that the tugs required for the marine terminal will have the appropriate	TC

	Issue	No.	Project Phase	Commitment	Agency/ Group
				firefighting capabilities when the LNG facility is commissioned.	
180	Public Safety and Health	9.10	Construction	Delivery of large and heavy materials and equipment will occur by marine vessels where possible, to avoid potential safety hazards on access roads.	TC; Haisla Nation
181	Public Safety and Health	9.11	Construction	KLNG will post notices at the start of the access road and along the route, where necessary, to inform vehicle operators about construction work.	MOT; DOK; Haisla Nation
182	Public Safety and Health	9.12	Construction/ Operations	The construction and operation EPPs will include a Hazardous Spill Contingency plan that will detail measures to be implemented in the event of a spill including: initial response, spill containment procedures, management of spills, clean-up and reporting.	TC, EC; MOE; DOK
183	Public Safety and Health	9.13	Construction/ Operations	Operational procedures will be prepared to ensure the LNG transport, handling and process systems are operated within the design parameters and with the highest regard for safety.	TC, EC; OGC; DOK
184	Public Safety and Health	9.14	Construction/ Operations	All waste will be placed in proper containers and regularly removed for disposal at the Kitimat landfill.	DOK; Haisla Nation
185	Public Safety and Health	9.15	Construction/ Operations	Waste management will be included in environmental awareness training for all personnel, employees and contractors.	DFO, EC; OGC; DOK
186	Public Safety and Health	9.16	Operations	KLNG will implement a comprehensive security program to ensure public safety.	TC; DOK

	Issue	No.	Project Phase	Commitment	Agency/ Group
187	Public Safety and Health	9.17	Operations	KLNG will establish a marine exclusion zone for terminal and vessel access.	TC; Haisla Nation
188	Public Safety and Health	9.18	Operations	KLNG will maintain a map of recommended public safety areas on its website.	TC
189	Public Safety and Health	9.19	Operations	KLNG will implement a Worker Health and Safety Plan.	All Agencies
190	Public Safety and Health	9.20	Operations	KLNG will limit industrial vehicle movements to times of lowest worker travel to and from the terminal, and will schedule shifts during peak labour force periods to minimize traffic peaks.	MOT; DOK
191	Public Safety and Health	9.21	Operations	Employee awareness and driver safety training will be provided to ensure workers observe posted speed limits.	MOT; DOK
192	Public Safety and Health	9.22	Operations	KLNG will provide on-site LNG specific safety training and operator training to its staff.	MLCS
193	Public Safety and Health	9.23	Operations	The Marine Terminal Manual will address the specific requirements and operations of the LNG facilities and off loading and transfer to storage in accordance with federal and provincial legislation.	TC
194	Land and Resource Use	10.1	All Phases	KLNG will continue to inform the public, local communities and the Haisla Nation community of its Project schedule, permit approvals and construction schedules.	DOK; Haisla Nation

	Issue	No.	Project Phase	Commitment	Agency/ Group
195	Land and Resource Use	10.2	All Phases	KLNG will continue to work with the District, local recreational groups, other industries and the Haisla Nation to address public recreational access issues in Douglas Channel.	DOK; Haisla Nation
196	Land and Resource Use	10.3	Design	KLNG will maintain a public consultation program that provides interested parties with an opportunity to participate in further design, planning and review stages. Sample opportunities include: website, toll free phone line, newspaper advertisements, and interest group meetings.	DOK; Haisla Nation
197	Land and Resource Use	10.4	Design	KLNG will ensure that the District of Kitimat is consulted throughout the design stage on Project components and issues that are related to Official Community Plan and zoning amendment applications; building permits and inspections; and the application of the BC Building Code and Municipal Inspection Services.	DOK
198	Land and Resource Use	10.5	Design	KLNG will obtain any necessary local government zoning amendments.	DOK
199	Land and Resource Use	10.6	Design	KLNG will keep the pipeline, powerline and road ROW in a single corridor after the access road leaves the Bish FSR wherever possible, as shown in Figure 2.4-2 of the January 11, 2006 Bish Cove Addendum Report.	DFO, INAC, TC; OGC
200	Land and Resource Use	10.7	Design	KLNG will enter into an agreement with road operators / owners for access to the LNG terminal and will notify other road users and the public of the nature of these agreements.	INAC; MOFR; DOK

	Issue	No.	Project Phase	Commitment	Agency/ Group
201	Land and Resource Use	10.8	Design	KLNG will include a public turnaround on its access road at the perimeter of the LNG terminal.	MOFR, OGC; DOK
202	Land and Resource Use	10.9	Design	KLNG will design its access road and FSR road improvements in general accordance with the BC Ministry of Transportation's Low Volume Rural standard for Category C (Industrial Resource Roads) as per Appendix D of the August 2005 Access Road Report, and will incorporate design input/recommendations from a geotechnical engineer and environmental consultant. The Ministry of Forests, DFO, the District of Kitimat, the Haisla Nation and relevant stakeholders will be given an opportunity to review and comment on the design prior to finalization.	OGC, MOT; Haisla Nation; DOK
203	Land and Resource Use	10.10	Construction/ Operations	KLNG will enter into road maintenance agreements with West Fraser and Alcan for the upgraded existing FSR road. At a minimum, KLNG will comply with any existing road maintenance standards established in the existing road use permit.	MOFR; OGC
204	Land and Resource Use	10.11	Construction/ Operations	Plant facility road and infrastructure maintenance programs will be addressed in the EPP.	INAC; MAL
205	Land and Resource Use	10.12	Construction/ Operations	KLNG will develop a road maintenance plan for the existing FSR and the new access road that will include the existing requirements and the following subject areas: - roadside maintenance; - road signage; - surface drainage; - surface and bridge/structure maintenance; and - winter maintenance (including a salt	OGC; Haisla Nation; DOK

	Issue	No.	Project Phase	Commitment	Agency/ Group
				management plan and the use of BMPs). The Haisla Nation will be given an opportunity to review and comment on the road maintenance plan prior to finalization.	
206	Land and Resource Use	10.13	Construction/ Operations	KLNG will inform local communities and the public of plans regarding vehicle traffic.	MOT; DOK; Haisla Nation
207	Land and Resource Use	10.14	Operations	KLNG will manage public access on the foreshore through provisions of its foreshore tenures.	ILMB
208	Land and Resource Use	10.15	Operations	KLNG will post and regularly update the LNG vessel schedules on its website on a regular basis.	TC; Haisla Nation
209	Navigable Waters	11.1	Design	KLNG has committed to undertaking a TERMPOL Review to eliminate or minimize potential adverse effects on environmental components of value to First Nations and the public that may arise from physical disturbances or releases resulting from tanker movements.	TC**
210	Navigable Waters	11.2	Prior to Operations	KLNG will work with Transport Canada on establishing a designated route for shipping between shipping lanes and the marine terminal.	TC**
211	Navigable Waters	11.3	Design	KLNG will work with the TERMPOL review committee to ensure that preliminary commitments related to tug and tanker operation will be reviewed for operational feasibility by tug and tanker operators and local pilots before they are carried forward into the TERMPOL process.	TC**

	Issue	No.	Project Phase	Commitment	Agency/ Group
212	Navigable Waters	11.4	Design	KLNG will ensure that appropriate purpose-built tugs are available when the facility is commissioned.	TC**
213	Navigable Waters	11.5	Design	KLNG will conduct drift tests in Douglas Channel and the cove approved for the marine terminal, prior to facility commissioning and will provide data to the pilotage authority.	TC**
214	Navigable Waters	11.6	Design	KLNG commits to assessing the effects of potential shoreline erosion due to shipping activity along Douglas Channel during the TERMPOL review. Effects will be determined for significant sites identified through a review of areas that could potentially be physically affected, areas identified by the First Nations as having cultural significance and areas identified through existing archaeological information. Appropriate measures will be undertaken, as recommended by the TERMPOL committee.	TC**; Haisla Nation
215	Navigable Waters	11.7	Operations	KLNG will inform vessel operators and related organization of its plans for marine work and give notice of marine work and schedule to CCG for Notice to Mariners.	TC; Haisla Nation
216	Navigable Waters	11.8	Operations	KLNG will schedule LNG vessel arrival/departure times outside known times of traditional use of marine resources where possible.	TC; Haisla Nation
217	Navigable Waters	11.9	Operations	Kitimat LNG will provide the necessary notification to the CCG (Marine Communications and Traffic Services) in Prince Rupert, and consult with local fishers, recreational users, the Port of Kitimat, harbour pilots and relevant regulatory agencies to further reduce the potential for incidents.	TC**

	Issue	No.	Project Phase	Commitment	Agency/ Group
218	Navigable Waters	11.10	Operations	KLNG will comply with the *Marine Transportation Security Act* Regulations governing security requirements related to the marine terminal.	TC**
219	Navigable Waters	11.11	Decommissioning	KLNG will remove large and heavy materials and equipment by marine vessels where possible.	TC; Haisla Nation
220	First Nations	12.1	Design	KLNG commits to negotiating an economic benefits agreement with the Haisla Nation that includes financial compensation for potential loss of use by the Haisla Nation of traditional lands affected by the Project footprint and associated road, powerline and pipeline ROWs.	Haisla Nation
221	First Nations	12.2	Construction/ Operations	KLNG will include in its agreement with the Haisla Nation, provision for advance notice to local First Nations organizations about employment opportunities and qualifications required, and the hiring of Haisla Nation with appropriate qualifications and skills, from the local community or region where available.	Haisla Nation
222	First Nations	12.3	Construction/ Operations	KLNG will include in its agreement with the Haisla Nation, provision for working with local professional and trade associations to ensure Haisla Nation are considered for jobs.	Haisla Nation
223	First Nations	12.4	Construction/ Operations	KLNG will purchase goods and services from First Nation businesses where such goods and services are available on a competitive basis.	Haisla Nation
224	First Nations	12.5	Construction/ Operations	KLNG will provide advance notice to First Nations businesses about goods and service requirements for the Project.	Haisla Nation

	Issue	No.	Project Phase	Commitment	Agency/ Group
225	First Nations	12.6	Operations	KLNG will provide cultural awareness training for all personnel, employees and contractors.	Haisla Nation
226	First Nations	12.7	Operations	KLNG will develop a protocol to notify the Haisla Nation about LNG tanker arrivals and departure.	Haisla Nation
227	First Nations	12.8	Construction/ Operations	KLNG will utilize traditional knowledge identified in the Haisla Nation TUS during project design, construction and operation.	Haisla Nation
228	First Nations	12.9	Decommissioning	KLNG will consult with the Haisla Nation on its decommissioning plans.	Haisla Nation
229	Monitoring and Follow Up Program	13.1	Construction	An on-site environmental inspector will be present during construction to ensure that the EPP and approval conditions are met, including construction of all pipeline watercourse crossings and culvert and bridge upgrades.	All Agencies
230	Monitoring and Follow Up Program	13.2	Construction/ Operations	KLNG will continue to work with the federal agencies to address compliance, monitoring and follow-up to determine the accuracy of predicted effects and the efficacy of mitigation.	Federal Agencies
231	Monitoring and Follow Up Program	13.3	Operations	KLNG will implement any follow-up monitoring program required for potential impacts on the terrestrial environment (including vegetation).	EC; MOE; MOFR
232	Monitoring and Follow Up Program	13.4	Operations	After completion of any fish habitat compensation plans, the habitat compensation will be monitored for its effectiveness, thereby providing DFO with information to determine if the objectives of the plan were achieved.	DFO; MOE

	Issue	No.	Project Phase	Commitment	Agency/ Group
233	Monitoring and Follow Up Program	13.5	Construction	The ROWs will be monitored during and following construction to assess the effectiveness of sediment control measures and make repairs as required.	DFO; MOE, MOFR, OGC
234	Monitoring and Follow Up Program	13.6	Operations	Watercourse crossings will be inspected routinely during the first year of operation to ensure that erosion and sedimentation control measures are successful.	DFO; MOE
235	Monitoring and Follow Up Program	13.7	Operations	Any further marine environment monitoring required by regulatory authorities will be implemented as required.	DFO

APPENDIX C – Photographs

Figure C1-Error! No text of specified style in document.**1: View of Plant Site Looking South Towards Douglas Channel**

Figure C1-Error! No text of specified style in document.**2: Bish Cove, August 2017. Photo taken looking west**

Figure C1-Error! No text of specified style in document.**3: Bish Cove from the Plant Site looking southeast at Low Tide , August 2017**

Figure C1-4: Bish Cove, August 2017. Photo taken looking west

Figure C1-5: Marine Bird observed in along shipping route in Douglas Channel in 2018

Figure C1-6: Marine mammals observed along shipping route in Douglas Channel in 2018

Figure C1 Error! No text of specified style in document.**-7: Marine mammal signs observed along shipping route in Douglas Channel in 2018**

APPENDIX D – KLNG TERMPOL First Nations Engagement Summary Report

Kitimat LNG TERMPOL First Nations Engagement Summary Report

October 19, 2018

Table of Contents

1. INTRODUCTION

This report outlines the results of Kitimat LNG's (KLNG) engagement with the First Nations identified by Transport Canada for participation in the TERMPOL Review Process. It provides a summary of the information provided to First Nations, the general approach to engagement and the activities undertaken, and documents the communication with each First Nation. It also describes the main issues or concerns raised by First Nations in relation to the technical studies conducted under the TRP and the steps taken to avoid or mitigate those concerns.

1.1 Project Description

The proposed KLNG Project (KLNG Project or Project) is a joint venture between Chevron Canada Limited (Chevron) and Woodside Energy International (Canada) Limited (Woodside). The Project consists of development of natural gas resource found in shale and tight rock formations in northeastern B.C. Once developed, the gas will be transported across northern B.C. via third party pipeline and the proposed 480-kilometre Pacific Trail Pipeline from Summit Lake, B.C. to the Facility located at Kitimat, B.C. Sixteen First Nations along the proposed natural gas pipeline route have signed the innovative First Nations Limited Partnership agreement which will deliver specific economic as well as employment, training, and contracting benefits to First Nations for the lifetime of the KLNG Project.

The proposed Kitimat LNG facility (the Facility) will be built on land leased from the Haisla Nation. The Facility will include:

- Liquefaction trains: where the natural gas is cooled and converted to a liquid state at approximately -162C;
- LNG storage tanks: where the LNG is stored before loading onto LNG carriers;
- LNG Loading Lines: that transfer the LNG from the storage tanks to the LNG carriers; and
- Marine terminal: designed to berth up to two LNG carriers at a time.

The liquefied natural gas will be transported to Asian markets utilizing approximately 150 to 275 LNG carriers per year.

1.2 TERMPOL Review Process (TRP)

The TERMPOL Review Process (TRP) is a comprehensive marine safety assessment, led by Transport Canada. More specifically, it is a technical review process of marine terminal systems and transshipment sites designed to:

> "objectively appraise operational ship safety, route safety, management and environmental concerns associated with the location, construction and subsequent operation of a marine terminal system for the bulk handling of …liquefied gases…"[1]

Initiation of a TRP is voluntary—project proponents request a TRP through Transport Canada. Following the completion of identified technical studies and engagement with stakeholders and First Nations, project proponents submit a report to an interdepartmental committee, known as the TERMPOL Review Committee (the **Committee**). The Committee considers any potential problems and recommends potential mitigation measures.

The primary objective of the TRP is to help proponents develop an operationally safe marine transportation system. Once the list of required studies and surveys was finalized by the Chair of the Committee, the information was compiled into reports (the **KLNG TERMPOL technical reports** or **TERMPOL technical reports**) and distributed to the identified First Nations (see Section 2 below) for review and comment between April 2014 and April 2015.

Engagements with First Nations regarding the TRP and potential impacts of marine and related activities on the communities began in late 2011. Engagements continued throughout the years as the TERMPOL technical reports were being prepared. Engagement was undertaken to identify any issues and concerns related to the KLNG TERMPOL technical reports and to consider, where appropriate, measures which could be implemented to address concerns and mitigate any potential impacts from shipping activities along the selected marine shipping route.

2. ENGAGEMENT WITH FIRST NATIONS

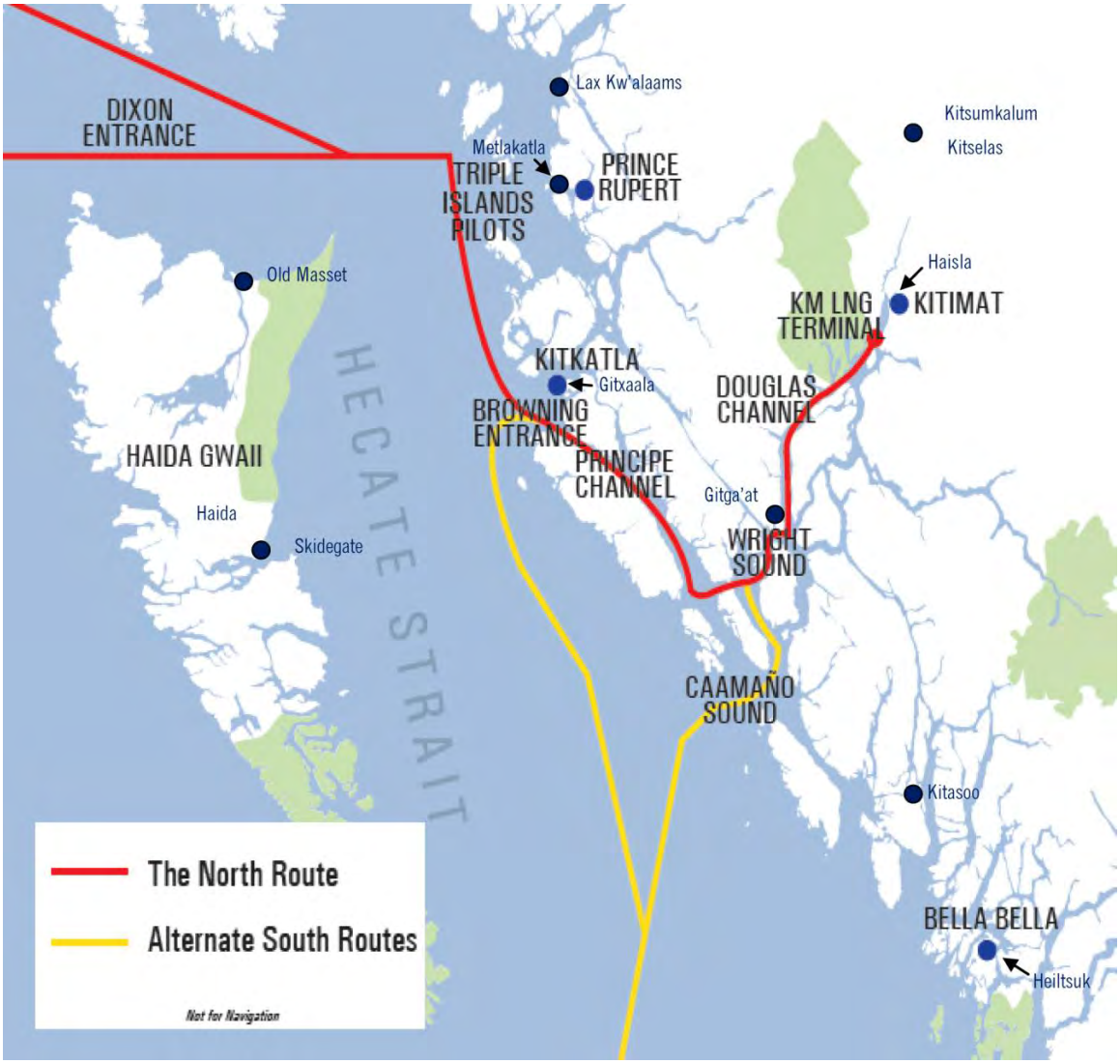
Transport Canada identified ten First Nations for participation in the TRP based on their locations relative to the two shipping routes originally proposed for the KLNG Project (listed in alphabetical order):

- Gitga'at Nation
- Gitxaala Nation
- Haida (Council of Haida Nation)
- Haisla Nation
- Heiltsuk Nation
- Kitasoo First Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- Lax Kw'alaams Band
- Metlakatla First Nation

[1] Transport Canada, TERMPOL Review Process 2001 (section 1.4.4)

The following map (Figure 2-1) shows both routes and the approximate location of the traditional territory of each First Nation.

Figure 2-1: Proposed KLNG Shipping Routes and First Nations Identified by Transport Canada (prepared by the KLNG Project)



Following evaluation of both proposed routes, the southern route was discounted and will not be pursued as a viable option. Due to the selection of the northern route in 2015, Heiltsuk and Kitasoo were no longer engaged as part of the TRP after that decision was made. Thereafter, engagement focused on the remaining eight First Nations.

2.1 KLNG Approach

Chevron Canada, as operator of the KLNG Project, is committed to collaborating with Indigenous peoples and their communities in Canada, to build long term trusting and mutually beneficial relationships based on the values of inclusion, transparency, respect and accountability.

Chevron Canada's Indigenous Relations Policy is based on the following principles:

Chevron Canada

- Acknowledges that Aboriginal and Treaty rights of Indigenous people in Canada are recognized, affirmed and protected by the Canadian Constitution.
- Acknowledges the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and is committed to working with Indigenous peoples within the Canadian legal and constitutional framework.
- Respects that each Indigenous community has its own unique connection with the land and environment in which they live.
- Recognizes the diversity of Indigenous peoples in Canada and is committed to interacting with each Indigenous community in a way that respects their history, culture and customs.
- Appreciates the importance of learning from and respecting local cultures in areas where we operate.

As part of building long-term trusting and mutually beneficial relationships, Chevron Canada is committed to engaging 'early and often' with Indigenous communities based on the values of inclusion, transparency, respect and accountability.

2.2 Phase 1 and Phase 2

Engagement with First Nations on the TRP has been underway since the process was initiated by the KLNG Project in early 2012. Since that time, engagement has progressed in two phases.

Table 2-1: KLNG Engagement Undertaken during Phase 1 and Phase 2

Phase 1	Early Process Information (January 2012 – April 2014) • Information about the TRP provided to First Nations included a list of the areas for technical studies. • KLNG expressed its interest in working with First Nations to understand areas of potential concern to them relative to proposed shipping routes. • Community meetings were held to provide general KLNG Project information and introduce the technical study areas. • A demonstrated willingness was shown by KLNG to engage early on specific areas of concern and to gather data and information to help identify potential impacts. • Regular updates were provided on the progress of Technical Report development.
Phase 2	Review of TERMPOL Technical Reports, Issue Identification and Avoidance or Mitigation (April 2014 – Oct 2018) • Distribution of draft Technical Reports – both summaries and full Technical Reports – was made as soon as the reports were available. • KLNG hosted community meetings to present reports, address questions and discuss areas of potential impact and concern. • Hosted (or participated in) workshops to gather input on specific areas and regional issues. • Gathered specific feedback and reviewed potential options for avoidance or mitigation. • Considered measures to address or mitigate concerns and reported back to First Nations.

2.3 Capacity Funding

Capacity funding was made available to all First Nations to support their participation in the TRP. The level of capacity funding varied significantly, based on the relative level of engagement—from limited funding to cover travel costs to workshops to detailed capacity funding agreements. In some cases, no specific funding was requested or provided.

3. ENGAGEMENT SUMMARY BY FIRST NATION

This section summarizes the following information for each of the ten First Nations:

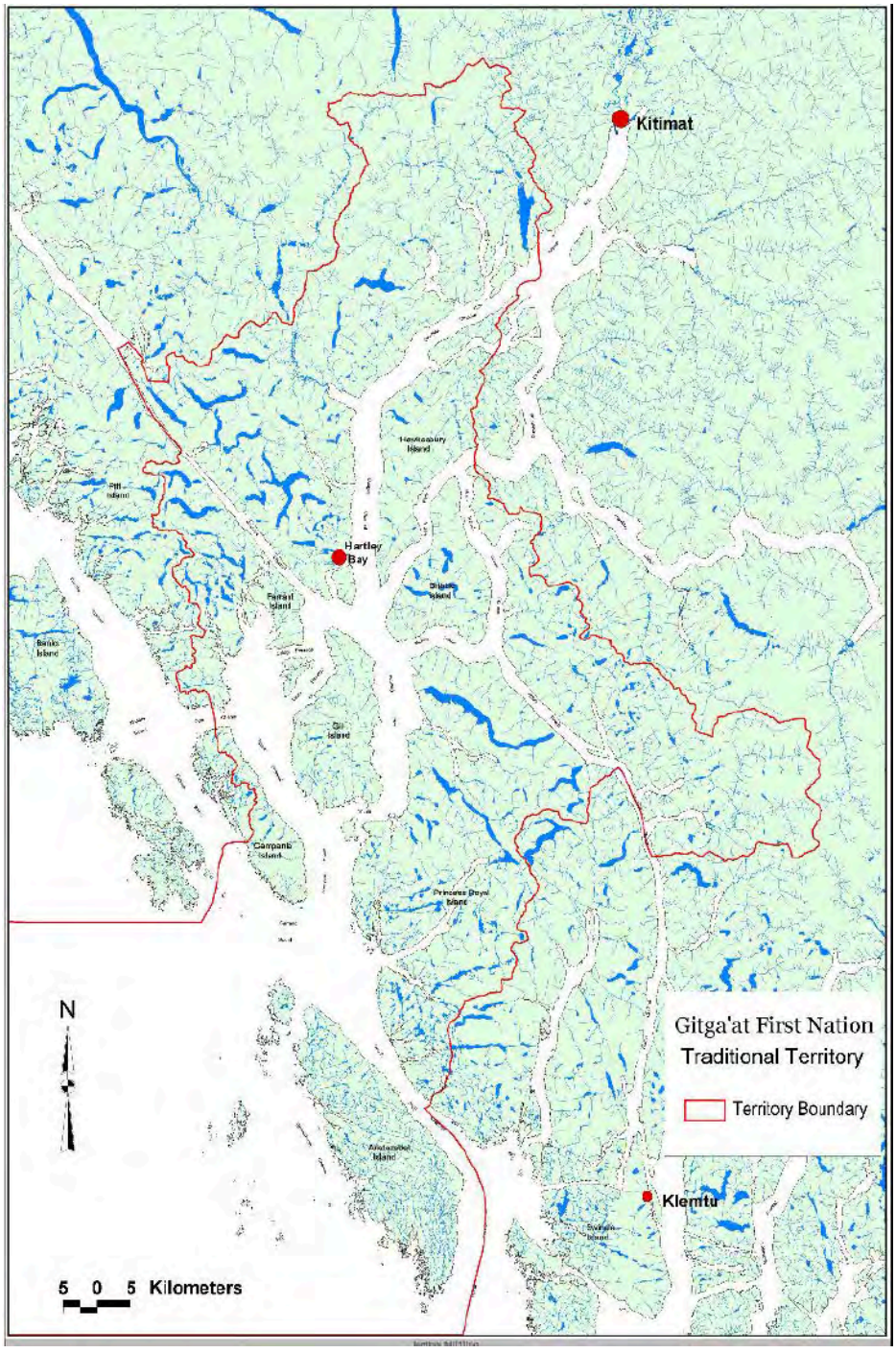
- a brief overview and background;
- a summary of TRP engagement milestones; and, as appropriate,
- a list of issues and concerns raised as well as any corresponding mitigation or avoidance measures proposed by the KLNG Project.

3.1 Gitga'at Nation

The traditional territory of Gitga'at Nation (Gitga'at) covers approximately 7,500 square km including the mainland and coastal islands in the lower part of the Douglas Channel, Whale Channel, Wright Sound, Lewis Pass to Caamano Sound. Hartley Bay is the main Gitga'at village. It is located approximately 80 km southwest of Kitimat and 145 km southeast of Prince Rupert. Approximately 160 people live in Hartley Bay. The total registered population in 2018 (on and off reserve) is reported as 771[2]. The Gitga'at are part of the Coast Tsimshian linguistic group and are part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups. Governance blends traditional, hereditary chieftainships and elected band governance systems.

[2] All total registered population numbers taken from the Indigenous and Northern Affairs Canada (INAC) First Nations Profiles online and are current as of September 2018.

Figure 3-1: Map of Giga'at Traditional Territory (provided by Gitga'at Nation)



Summary of TRP Engagement with Gitga'at

The engagement with Gitga'at centered around marine activities and environment, emergency response, marine vessel traffic, community well-being, air quality, marine vessel casualties and community economic benefits. An Engagement Agreement is in place and funding has been provided to Gitga'at since 2013 to support participation in the TRP and other engagement activities.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community were provided to Gitga'at.

Throughout 2012, engagement and meetings occurred with Gitga'at. Through initial discussions, KLNG and Gitga'at worked towards drafting an Engagement Agreement and process to support Gitga'at participation in the TRP. Teleconferences, emails and meetings occurred throughout 2012. A fully executed Engagement Agreement, which included funding to support Gitga'at's involvement in the TRP, was reached in February 2013.

Throughout 2013, meetings and discussions continued. Early copies of draft KLNG TERMPOL technical reports were provided to Gitga'at as per the terms of the Engagement Agreement. Information about the Project was also shared and offers were made by KLNG to meet with Gitga'at and further explain the information.

On May 29, 2013, a full day meeting was hosted by KLNG to seek input on a number of Project-related matters. A concept paper titled "Coastal Emergency Response Vessels: A Benefit to First Nations, Coastal Communities and the Shipping Industry in BC", prepared by EnviroEmerg Consulting, was also provided for information.

On July 17, 2013, Gitga'at provided their first response to the draft KLNG TERMPOL technical reports and raised a number of concerns about the adequacy of the information and a range of potential impacts.

On January 14, 2014, a follow-up meeting occurred to seek input from the Gitga'at on a number of Project-related items, the TRP, a planned visit to the community and a socio- economic study. The willingness to develop a framework for mitigation and management plans was introduced at this time.

Throughout 2014, meetings and conversations occurred regularly with Gitga'at regarding updates to the KLNG TERMPOL technical reports, the availability of technical experts that could discuss the TERMPOL technical reports and answer questions with the community and the development of an Impact Management Plan (IMP). Discussions also continued around the development of an Impact Benefits Agreement (IBA).

In early April 2014, the majority of the draft KLNG TERMPOL technical reports were provided to Gitga'at for review and comment. KLNG also invited Gitga'at to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. A Gitga'at representative attended the workshop for a short time and later requested Gitga'at's own engagement process for this matter in Hartley Bay. Gitga'at also indicated the information gaps it

identified in the updated technical reports should become the focus of future meetings. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Gitxaala on June 3, 2014.

On July 11, 2014, Chevron met with Gitga'at, discussed the April 2014 HAZID workshop results and reviewed steps to develop an IMP which would address issues and concerns. Discussion also took place on baseline data collection, collecting information on sensitive shoreline areas with Gitga'at input, cumulative effects of LNG shipping and air emissions.

In Fall 2014, follow-up occurred throughout the fall of 2014 as KLNG gathered information and addressed technical questions. KLNG went to Hartley Bay in October 2014 to meet with community members and leaders. During this meeting, information on the TRP, the April 2014 HAZID workshop report, potential shoreline impacts from vessel wake and other Project-related matters were discussed.

Throughout late 2014 and into 2015, IBA and IMP discussions continued through late 2014 and into 2015. Drafts of the IMP and IBA were exchanged.

In August 2015, the remainder of the TERMPOL technical reports were provided to Gitga'at for their review and comments.

On October 28, 2016, KLNG sent the draft 2016 KLNG TERMPOL First Nations Engagement Summary Report for review and comment.

On November 16, 2016, Gitga'at provided feedback and comments on the KLNG TERMPOL First Nations Summary Engagement Report (Report). Gitga'at's negotiators advised that, based on an agreement with Apache Canada Ltd. (the predecessor Operator of KLNG), the Report content of discussions regarding a potential IBA and related matters were without prejudice and thus requested specific references to IBA negotiations and related matters be removed from the Report. It was later agreed the status of future discussions be clarified. A Communications Protocol was developed and used in subsequent meetings. It is still in effect and used today.

In January, February and August 2017, KLNG Project representatives met with Gitga'at to discuss the potential IBA. In between meetings, verbal and written communications continued regarding the potential IBA and rafts were circulated for review and comments. Discussions also took place regarding capacity funding, including an amendment to the existing Engagement Agreement to allow for further funding.

In March 14, 2018, KLNG informed Gitga'at the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG emailed an updated draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report for review. Questions or comments were requested by April 11, 2018. Input was received and has been incorporated into this report.

On September 26, 2018, KLNG re-sent digital copies of the TERMPOL technical reports to Gitga'at in response to their request.

3.2 Gitxaala Nation

Gitxaala Nation (**Gitxaala**) is located at the entrance to Hecate Strait. The main village of Kitkatla is situated on the north side of Dolphin Island approximately 45 km southwest of Prince Rupert. Approximately 490 people live in Kitkatla. The total registered population (on and off reserve) is reported as 2,000 (INAC First Nation Profiles, 2018). Gitxaala is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups. Governance blends traditional, hereditary chieftainships and elected band governance systems.

Figure 3-2: Gitxaala Nation Traditional Territory (provided by Gitxaala Nation)

Summary of TRP Engagement with Gitxaala Nation

The engagement with Gitxaala was centered on marine safety, wake effects, tides and weather, impacts to fishing and harvesting, interference with gear associated with fishing, pollution, invasive species, and environmental concerns. KLNG provided capacity funding for meetings, drafting and review of reports. A benefits agreement was reached in September 2011 outlining the commitments and responsibilities of the parties and how Gitxaala will share in the benefits of the operations.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community were provided to Gitxaala.

Throughout 2012, Gitxaala were actively involved early in the TRP–reviews of environmental studies and spatial data were undertaken. A community meeting was held in Prince Rupert, BC in January 2012—96 community members and leaders attended and received an overview of the KLNG Project and the TRP. KLNG agreed to provide funding for Gitxaala to conduct a desktop exercise to map areas suitable for traditional harvesting of keys species, hold community workshops for harvesters and elders to confirm data and mapping results and to provide expert support for review of completed TERMPOL technical reports.

On December 5, 2012, KLNG met with Gitxaala in Vancouver, BC and reviewed a number of topics related to the KLNG Project including: consultation, potential impacts, proposed environmental studies and the potential for additional studies. A non-disclosure and confidentiality agreement was developed to safeguard the information shared by Gitxaala.

On March 29, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Gitxaala regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Gitxaala provide review and comments.

In early April 2014, the majority of the draft KLNG TERMPOL technical reports were provided to Gitxaala for review and comment. KLNG also invited Gitxaala to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Gitxaala participated in the workshop on April 23 and 24, 2014, in Vancouver, BC along with representatives from the KLNG Project, Transport Canada, the Canadian Coastguard, and other federal and provincial agencies and regulatory authorities. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Gitxaala on June 3, 2014.

On May 22, 2014, KLNG met with Gitxaala in Vancouver, BC to share information on the KLNG Project and seek input. KLNG provided a general Project update and discussed contracting and benefits opportunities for Gitxaala member-owned businesses.

In August 2015, the remainder of the TERMPOL technical reports were provided to Gitxaala for review and comment. During August and September 2015, emails were exchanged to schedule a meeting to discuss further.

On September 16, 2015, Gitxaala sent a letter to KLNG with comments on the final draft of the TERMPOL reports. Gitxaala outlined two primary concerns: a) KLNG had proceeded to finalize the TERMPOL technical reports without using data that Gitxaala had provided; and, b) the TERMPOL technical reports do not address the expanded scope of the TRP as required by the National Energy Board (NEB) and committed to by KLNG. The letter further outlined 57 specific comments relating to their two main areas of concern.

On September 22, 2015, KLNG met with Gitxaala in Vancouver to discuss Gitxaala's comments, issues and concerns related to the TERMPOL technical reports. Through discussions, it was concluded that information collected by Gitxaala had been received by KLNG but never passed on to appropriate KLNG staff and Gitxaala's request for draft copies of KLNG TERMPOL technical reports had not occurred. It was agreed KLNG would include Gitxaala's information/data in a jointly developed Impact Management Framework (IMF) to address Gitxaala's issues and concerns and add it as an appendix to the KLNG TERMPOL First Nations Engagement Summary Report submitted to Transport Canada. Following this meeting, work continued through the spring of 2016 on categorizing concerns and drafting an IMF to address potential impacts of activities through avoidance or mitigation.

On October 21, 2015, Gitxaala provided a link to KLNG to download their *Kitimat LNG Terminal Project Gitxaala Nation TERMPOL Report October 2015*. This report includes a series of shape files delineating areas sensitive to one or more potential KLNG Project effects. Each of these areas is identified as containing specific species that are differentiated by season or month and could be affected by one or more perceived shipping effects. Gitxaala had also gathered information from harvesters about the areas used along these shipping routes for static activities such as anchorages, haul-out or gear locations and key travel routes frequented Gitxaala harvesters.

On January 25, 2016, KLNG emailed to Gitxaala a draft IMF to address the comments Gitxaala made in regarding the KLNG TERMPOL technical reports they had provided on September 16, 2015.

On January 27, 2016, KLNG met with Gitxaala in Vancouver, BC to further discuss the draft IMF. It was agreed KLNG would re-draft the IMF to incorporate the results from the meeting and provide the re-draft to Gitxaala for further review.

On June 1, 2016, KLNG emailed Gitxaala with the most recent draft of the IMF to Gitxaala for their review and comments.

On July 28, 2016, Gitxaala sent a letter to KLNG providing comments on the draft IMF. Gitxaala also stated the document reflected the main concerns of Gitxaala however, it also felt it lacked the detail they were expecting to see in an IMF. They identified specific examples of concerns.

On January 27, 2017, KLNG met with Gitxaala in Prince Rupert, BC to review and discuss the comments they provided.

On March 19, 2018, KLNG informed Gitxaala the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG provided a draft of the 2018 TERMPOL First Nations Engagement Summary Report to Gitxaala for review. KLNG also acknowledged further work was needed on the IMF and therefore, it was not included as an attachment. KLNG requested that any questions or concerns needed to be received by the end of March 2018. KLNG followed up by email in early April 2018.

On April 25, 2018, Gitxaala emailed a letter to KLNG providing input on the 2018 TERMPOL First Nations Engagement Summary Report. Gitxaala acknowledged that work was still required to finalize the IMF and indicated it looked forward to working with KLNG to finalize the plan. Gitxaala advised that while the draft report captured its key comments and concerns, it did not appear to incorporate the more detailed comments provided by Gitxaala in its September 16, 2015 letter regarding the final TERMPOL submission or its July 28, 2016 comments provided on the draft IMF. Gitxaala requested the TERMPOL First Nations Engagement Summary Report be updated to reflect these comments. The letter also provided a summary of previously raised issues and concerns on the TERMPOL technical reports and versions of draft IMF.

On May 8, 2018, KLNG met with Gitxaala in Prince Rupert, BC to provide an update on the IMF process and discuss latest comments on the KLNG TERMPOL First Nations Engagement Summary Report. Gitxaala stated a communications plan was critical and more work was needed to iron out the details of the IMF. It was agreed that KLNG would re-draft the IMF for Gitxaala's review and further discussion.

On October 17, 2018, KLNG sent a letter replying to Gitxaala's April 25, 2018 letter. As agreed at the previous meeting, KLNG advised that it had re-drafted the IMF to incorporate Gitxaala's recent comments and provided a copy of the re-drafted IMF for review and further discussion. KLNG indicated that it remains committed to continue to work jointly developing the IMF and to drafting and finalizing various operational plans and protocols to avoid or mitigate potential effects. The letter also included a table outlining responses to each of the issues and concerns summarized in Gitxaala's April 25, 2018 letter.

Summary of Issues and Concerns

Gitxaala provided detailed comments throughout the TRP. Engagement focused on five major areas of shipping related concerns:

- vessel wake – potential for adverse impacts harvesting activities which primarily occur at low tide and may be dangerous to people and small boats on or near the shore

- tides and weather – potential effects of increased shipping on access to harvesting locations at the required tide and weather conditions, and access to specific anchorages or travel routes needed to safely navigate in bad weather.

- garbage/waste, pollution and invasive species – potential for damage to areas of traditional use from garbage and waste, and effects from the possible introduction of invasive species.

- interference with gear associated with harvesting activities – potential for damage, loss or interference with harvesting gear or equipment, and loss of anchorage points.

- environmental and human health concerns - potential for general environmental impacts to marine mammals, fish and fish habitat and the overall ecosystem.

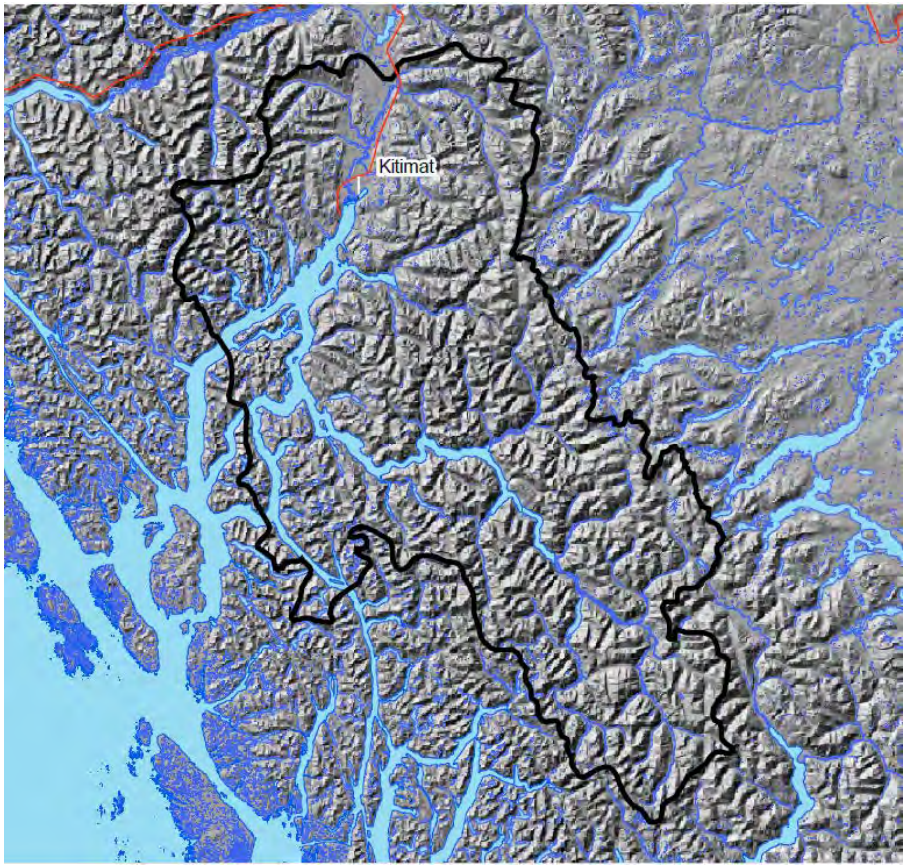
Engagement with Gitxaala is ongoing. Gitxaala and KLNG continue to work together to review and discuss proposed avoidance and mitigation measures for each of these key areas of concern. KLNG remains committed to working with Gitxaala on jointly developing the IMF (see Appendix), to address

each area. To support the IMF, KLNG will develop and finalize a number of operational plans and protocols, including: Communications Protocol, Complaint Protocol, Emergency Response Plan, Transit Management Plan, Marine Environment Protection Plan and Marine Mammal Protection Plan. These plans and protocols will be finalized 60 days prior to a Final Investment Decision (**FID**).

3.3 Haisla Nation

The Haisla Nation (**Haisla**) occupy the traditional territory of two historic bands–the Kitamaat of the Douglas and Devastation channels and the Kitlope of the upper Princess Royal Channel and Gardner. Kitamaat Village, located at the head of the Douglas Channel, is about 10km south of Kitimat and is the main Haisla village with a population of approximately 1,700 (INAC First Nation Profiles, 2018). The total Haisla population (on and off reserve) is reported as 1,930. The Haisla are part of the Wakashan linguistic group and follow a social system based on eight matrilineal clans; clans provide significant governance direction to the Nation. Haisla Nation is also a member of the Pacific Trails Pipeline (**PTP**) First Nations Limited Partnership (**FNLP**).

Figure 3-3: Haisla Statement of Intent (BC Treaty Commission)



Summary of TRP Engagement with Haisla Nation

Engagement has been underway with the Haisla since the very early stages of the KLNG Project. The Facility will be built on Haisla reserve land and a related Impact Benefit Agreement (IBA) is in place. Meetings are held regularly to discuss Project related and issues. Updates on the TRP were also discussed. Since 2006, capacity funding has been available to Haisla to support TRP engagement and other KLNG Project-related activities.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand potential impacts on the community were provided to Haisla.

On March 29, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Haisla regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Haisla provided review and comments.

In early April 2014, the majority of the draft KLNG TERMPOL technical reports were provided to the Haisla for review and comment. KLNG also invited Haisla to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Haisla participated in the workshop on April 23 and 24, 2014 in Vancouver, BC along with representatives from the KLNG Project, Transport Canada, the Canadian Coastguard, and other federal and provincial agencies and regulatory authorities. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Haisla on June 3, 2014.

On September 8, 2014, Haisla provided an email to KLNG which noted that although the TRP is not binding, it demonstrates that plans will be in place to ensure safe marine transportation. Haisla reserved the right to propose amendments to the navigation and marine safety elements as it learns more and as KLNG operations get underway. Haisla indicated this email was to be used as Haisla's letter of no objection to the KLNG TRP.

In August 2015, the remainder of the KLNG TERMPOL technical reports were provided to Haisla for their review and comment.

On February 28, 2018, KLNG informed Haisla that the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG provided an updated draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report to Haisla for review. Questions or comments were requested by the end of March 2018. KLNG followed up by email in April 2018, asking if Haisla had any comments. No comments have been received.

3.4 Haida (Council of Haida Nation)

The traditional territory of the Haida is located on Haida Gwaii—approximately 100 km west of Prince Rupert consisting of over 200 islands and covering approximately 3650 square miles. The

Haida Nation has both a nation government—the Council of Haida Nation (CHN)—and village or band councils. The registered population (on and off reserve) is reported as 3,077 for Old Massett Village Council and 1,665 for Skidegate Band Council (INAC First Nation Profiles, 2018). Clans and houses provide significant governance direction to the Nation through the Hereditary Chiefs' Council. The Nation has its own constitution and mandate over Haida Gwaii lands and surrounding waters.

Summary of TRP Engagement with the Council of Haida Nation

The engagement with the CHN was centred on increases in marine transportation and the potential for oil spills and other environmental impacts.

KLNG offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. To date, no specific funding has been requested or provided to the CHN for TRP engagement.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community were provided to the CHN. Efforts were made in 2013 and 2014 by KLNG to meet with the community. The community confirmed receipt of information and offers for meetings but did not request any meetings during that timeframe.

On March 31, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with CHN regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that CHN provide review and comments.

In early April 2014, the majority of draft the KLNG TERMPOL technical reports were provided to the CHN for review and comment. KLNG also invited CHN to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Haida representatives from Old Massett Village Council participated in the workshop on April 23 and 24, 2014 in Vancouver, BC along with representatives from Transport Canada, the Canadian Coastguard and other federal and provincial agencies and regulatory authorities. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to CHN leaders on June 3, 2014.

On June 19, 2014, CHN advised KLNG by phone it has general concerns about increased shipping north of Haida Gwaii—advising they view all shipping traffic as the same regardless of its source and are concerned about its impact on the relatively shallow Hecate Straight. CHN indicated they were scheduled to meet with provincial ministers to discuss emergency response planning and capabilities.

In August 2015, the remainder of the KLNG TERMPOL technical reports were provided to CHN for review and comment.

On September 18, 2015, CHN sent a letter to KLNG advising it was opposed to LNG traffic in Haida Gwaii waters because of potential cultural, social and environmental impacts. A number of general

comments on the draft TERMPOL technical reports were also provided. CHN pointed out the reports did not consider increases in vessel traffic due to other proposed developments or include any assessment of the risk or consequences of accidents due to collisions, grounding, fire or other causes. CHN advised it required a detailed environmental assessment of potential impacts of the KLNG Project on Haida Gwaii ecosystems and natural resources, including the risk and consequences of accidents and potential for introduction of aquatic invasive species.

On October 23, 2015, CHN sent a letter to KLNG advising they had reviewed additional sections of the draft KLNG TERMPOL technical reports. CHN advised the assessment of the risk of accidents addressed in part one of the gaps identified in its September 18, 2015 letter. A number of general comments were provided with respect to incident reporting, approach to risk modelling and risk of grounding on the northwest coast of Haida Gwaii. CHN requested KLNG provide concrete commitments on mitigation measures to reduce risks and ensure safe shipping.

On June 11, 2016, KLNG sent a letter to CHN in response to their 2015 input. KLNG advised feedback from CHN had been carefully reviewed by the interdisciplinary KLNG Project team. Comments were provided on some of the specific points raised in the letters. With respect to broader shipping impacts and cumulative effects, KLNG indicated the mandate of the TRP was to focus on the KLNG Project. KLNG committed to continuing engagement with the appropriate regulatory authorities to ensure government departments and agencies have the information required to assist with planning and decision making. With respect to mitigation measures, KLNG committed to providing opportunities to meet with coastal First Nations including CHN to discuss mitigation measures and processes for managing safety and environmental protection prior to the start of marine shipments from the Facility.

On June 28, 2016, KLNG sent the draft 2016 KLNG TERMPOL First Nations Engagement Summary Report, which included CHN's concerns on potential impacts and KLNG's proposed mitigation, for review and comment. KLNG followed up by email in August 2016.

On September 20, 2016, CHN emailed KLNG requesting the draft 2016 KLNG TERMPOL First Nations Engagement Summary Report be re-sent. KLNG provided the requested copy. No input was received by KLNG.

On February 28, 2018, KLNG informed CHN the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG provided an updated draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report to CHN for review. Questions and comments were requested by the end of March 2018. KLNG followed up by email in April 2018, asking if CHN had any comments.

In its April 13, 2018 letter, CHN advised the concerns contained in its two fall 2015 letters had not been addressed as the materials provided by the KLNG Project did not include new technical information. Several general comments were also provided regarding the need for KLNG to complete a more detailed review of the Haida Marine Traditional Knowledge Study prior to construction and the need to consider a recent vessel drift study released by Nuka Research and Clear Seas Centre Responsible Marine Shipping. CHN again requested KLNG provide concrete commitments on mitigation measures to reduce risks and ensure safe shipping. CHN reiterated the duty to consult and accommodate CHN is the responsibility of the Crown and cannot be imposed on or delegated to third parties.

On October 16, 2018, KLNG sent CHN a letter in response to their April 13, 2018 letter. KLNG apologized for the delay in responding and outlined the commitments it could make at this stage of the Project.

Summary of Issues and Concerns

Engagement with CHN centred on concerns related to safety and emergency response, cumulative effects from increased vessel traffic in the region, and other broader shipping impacts such as the potential for oil spills and the introduction of invasive species.

To address CHN's concerns, KLNG is committed to:

- drafting and finalizing, in consultation with CHN, various operational plans and protocols to avoid and/or mitigate potential adverse impacts.

- conducting a complete and detailed review of the Haida Marine Traditional Knowledge (HMTK) study, Protected Management Zones in the Haida Gwaii Marine Plan, the Gwaii Haanas Land-Sea-People Draft Management Plan and the SGaan Kinghalas – Bowie Seamount Draft Management Plan and incorporating information into the operational plans and protocols as appropriate.

- identifying and participating in suitable regional cumulative effects programs in and around the proposed transit route.

KLNG will continue to engage with CHN and has committed to working with CHN to draft and finalize operational plans and protocols 60 days prior to a Final Investment Decision (FID).

3.5 Heiltsuk Nation

The traditional territory of Heiltsuk Nation (Heiltsuk) covers the southern tip of Calvert Island, up Dean and Burke Channels as far as Kimsquit and the head of Dean Inlet to the northeast, and up the Mathieson and Finlayson Channels to the north. It includes Roscoe, Cousins and Spiller Inlets, and Ellerslie Lake, and the outer coast regions of Milbanke Sound, Queens Sound, and the Goose Island Group and Calvert Island. The main villages are located at Bella Bella and Klemtu. The total registered population (on and off reserve) is reported as 2,453 (INAC First Nation Profiles, 2018).

Summary of TRP Engagement with Heiltsuk Nation

Heiltsuk actively participated in TRP engagement until June 2015, when KLNG advised the northern shipping route had been selected (see details below). KLNG offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. To date, no specific funding has been requested or provided to Heiltsuk for TRP engagement.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community were provided to Heiltsuk.

On July 30, 2013, KLNG met with the community in Bella Bella to provide general information about LNG projects and KLNG specifically.

On March 29, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Heiltsuk regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Heiltsuk provided review and comments.

In early April 2014, the majority of the draft KLNG TERMPOL technical reports were provided to the Heiltsuk for review and comment. KLNG also invited Heiltsuk to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Heiltsuk participated in the workshop on April 23 and 24, 2014 in Vancouver, BC along with representatives from the KLNG Project, Transport Canada, the Canadian Coastguard, and other federal and provincial agencies and regulatory authorities. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Heiltsuk on June 3, 2014.

On September 16, 2014, KLNG met with the community in Bella Bella a second time to seek input on the KLNG Project and the KLNG TERMPOL technical reports. Information exchanged included an overview of the TRP, discussion of issues and concerns and next steps including Heiltsuk research and mapping of environmentally sensitive areas, transportation planning, identification of refuges as well as emergency planning and response.

On June 1, 2015, KLNG advised Heiltsuk the northern shipping route had been selected and since this route is outside of Heiltsuk traditional territory, there would not be any potential impacts to Heiltsuk interests. KLNG advised it would no longer be engaging with Heiltsuk as part of the TRP and offered to provide financial support for work undertaken by Heiltsuk as part of the TRP engagement.

3.6 Kitasoo First Nation

Kitasoo (Xai'xais) is located within the Great Bear Rainforest. The main village of Klemtu is located on the east shore of Swindle Island about 160 kms south of Kitimat. Their traditional territory covers 3,939 square kms and includes coastline, long fjords, deep valleys and mountains of the Pacific Coastal mountain range. The total registered population (on and off reserve) is reported as 511 (INAC First Nation Profiles, 2018). Kitasoo is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups.

Summary of TRP Engagement with Kitasoo First Nation

Kitasoo First Nation (Kitasoo) was included as part of the TRP engagement until June 2015, when KLNG advised the northern shipping route had been selected (see details below). KLNG offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. To date, no specific funding has been requested or provided to Kitasoo for TRP engagement.

In early 2012, information about the TRP and KLNG's desire to begin engagement to understand any potential impacts on the community were provided. Efforts were made in 2013 and 2014 to meet directly with the community. The community confirmed receipt of information and offers for meetings but did not request any meetings during that timeframe.

On March 30, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Kitasoo regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Kitasoo provide review and comments.

In early April 2014, the majority of the draft KLNG TERMPOL technical reports were provided to the Kitasoo for review and comment. KLNG also invited Kitasoo to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Kitasoo did not participate in the workshop on April 23 and 24, 2014 in Vancouver, BC. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Kitasoo on June 3, 2014.

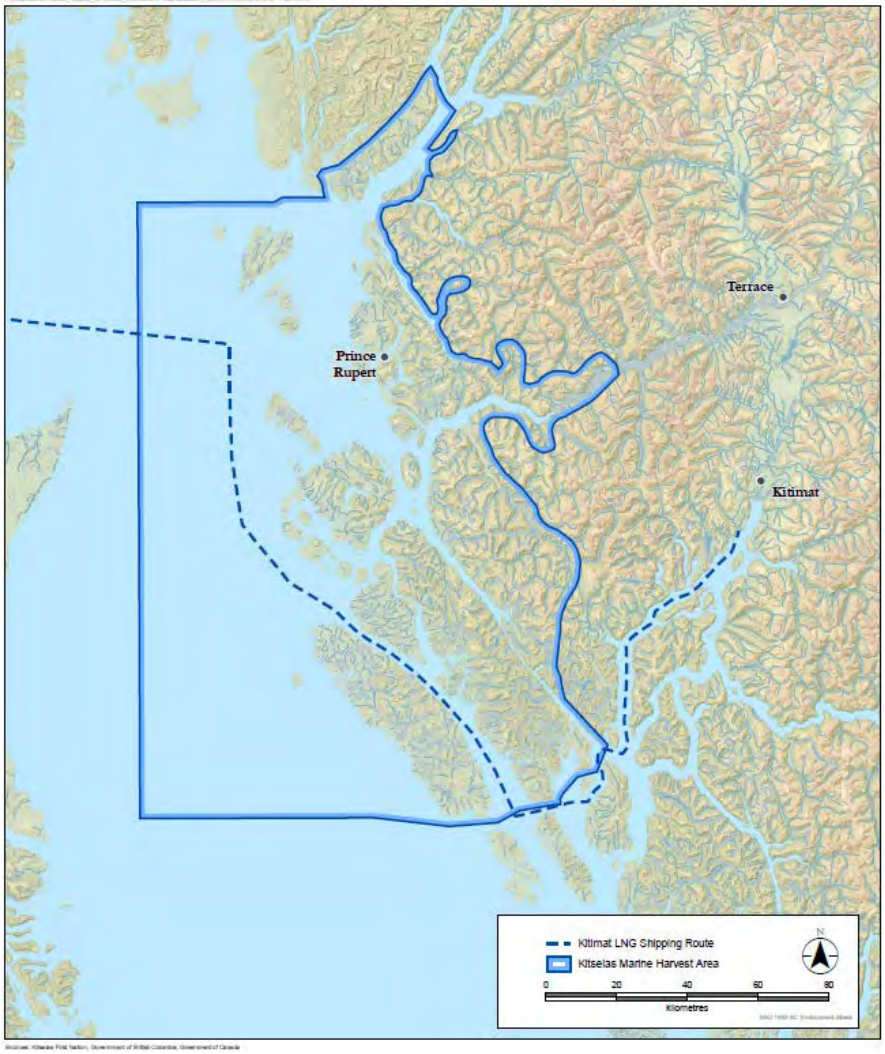
On October 16, 2014, KLNG met with Kitasoo in Klemtu. Information was shared about the KLNG Project, the TRP and the April 2014 Hazard Identification (HAZID) workshop.

On June 1, 2015, KLNG advised Kitasoo the northern shipping route had been selected, and since the route is located outside of Kitasoo traditional territory, there would not be any potential impacts to Kitasoo interests. KLNG advised that it would no longer be engaging with Kitasoo as part of the TRP and offered to provide financial support for work undertaken by Kitasoo as part of the TRP engagement. To date, no funding has been requested or provided.

3.7 Kitselas First Nation

The traditional territory of Kitselas First Nation (Kitselas) is located along the Skeena River 10 km east of Terrace, BC. Records suggest that the Kitselas have occupied up to five villages along the river for 5,000 years. The total registered population (on and off reserve) is reported as 681 (INAC First Nation Profiles, 2018). Kitselas is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups—and is a member of the Pacific Trails Pipeline (PTP) First Nations Limited Partnership (FNLP).

Figure 3-4: Map of Kitselas Marine Harvest Area (provided by Kitselas)



Summary of TRP Engagement with Kitselas First Nation

Kitselas has been included as part of TRP engagement since early 2012. KLNG offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. To date, no specific funding has been requested or provided to Kitselas for TRP engagement.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community were provided to Kitselas. Efforts were made in 2013-2014 to meet with the community. The community confirmed receipt of information and offers for meetings but did not request any meetings during that timeframe.

On March 29, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Kitselas regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Kitselas provide review and comments.

In early April 2014, the majority of the draft KLNG TERMPOL technical reports were provided to the Kitselas for review and comment. KLNG also invited Kitselas to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Kitselas participated in the workshop on April 23 and 24, 2014 in Vancouver, BC along with representatives from the KLNG Project, Transport Canada, the Canadian Coastguard, and other federal and provincial agencies and regulatory authorities. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Kitselas on June 3, 2014.

In August 2015, the remainder of the KLNG TERMPOL technical reports were provided to Kitselas for review and comment.

On September 17, 2015, Kitselas emailed KLNG advising their review of the TERMPOL studies was complete and included a letter with their comments. Kitselas highlighted TERMPOL report 3.3 Fishery Resources Survey section 5, which summarizes the marine harvesting activities by the Gitga'at, Gitxaala, Haisla and Haida Nations which is available in the public realm. The TERMPOL report also states the data will be augmented through formal consultation with each First Nation. Kitselas advised they have traditional marine harvesting areas in the area defined by the KLNG TERMPOL technical reports and as such, KLNG should initiate formal consultation with Kitselas as well as the other Nations identified in the report.

On June 1, 2016, KLNG responded to Kitselas' statement in the September 17, 2015 letter regarding the need for formal consultation. KLNG acknowledged there is limited public information regarding First Nation marine harvesting along the proposed transit route and as such, realized the need for augmenting the data through consultation with each of the First Nations identified by Transport Canada. Kitselas was one such identified Nation and as a result, KLNG had engaged with Kitselas since early 2012 by providing information on the TRP, inviting participation in the Hazard Identification (HAZID) workshop and providing draft KLNG TERMPOL technical reports for Kitselas' review and comment. KLNG affirmed its commitment to continuing this engagement to ensure it understands Kitselas' marine harvesting activities in relation to the KLNG Project.

On June 28, 2016, KLNG sent the draft 2016 KLNG TERMPOL First Nations Engagement Summary Report to Kitselas for their review. This Report included Kitselas' comments on the TERMPOL technical reports and KLNG's responses., KLNG followed up with Kitselas by email in late Summer and Fall 2016.

On February 9, 2017, Kitselas indicated by email it would review the draft KLNG TERMPOL First Nations Engagement Summary Report and provided KLNG with a marine harvest area map, as KLNG had requested.

On March 31, 2017, KLNG provided Kitselas with GIS data of the proposed shipping route, as requested.

On April 25, 2017, KLNG met with Kitselas in Terrace, BC and requested that Kitselas review the KLNG TERMPOL technical reports as well as the 2016 KLNG TERMPOL First Nations Engagement Summary Report. KLNG also requested Kitselas provide mapping of marine harvest areas, if possible. KLNG did not receive any input on these reports.

On February 28, 2018, KLNG emailed Kitselas to inform them the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG provided an updated draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report to Kitselas for review. Questions and comments were requested by the end of March 2018. KLNG followed up by email in April 2018 to ask if Kitselas had any comments.

On March 21, 2018, KLNG met with Kitselas in Terrace, BC to provide a KLNG Project update and to discuss the TRP process and recent TERMPOL communications.

On April 30, 2018, Kitselas emailed to KLNG a letter, advising they had reviewed the draft 2018 TERMPOL First Nations Engagement Summary Report and did not have any comment at this time. Kitselas went on to advise they did not have the capacity to review the KLNG TERMPOL technical reports and they would be following up directly with Transport Canada. Kitselas also provided their traditional harvesting area map as had been previously requested by KLNG. A copy of the map has been included in this section of the report (see Figure 3-4).

3.8 Kitsumkalum First Nation

The traditional territory of the people of Kitsumkalum is located 5 km west of Terrace where the Kitsumkalum River joins the Skeena River. Their traditional territory spans both coastal and inland areas covering the Kitsumkalum watershed and the Zimacord River watershed. The total registered population (on and off reserve) is reported as 764 (INAC First Nation Profiles, 2018). Kitsumkalum is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups.

Summary of TRP Engagement with Kitsumkalum First Nation

Kitsumkalum First Nation (Kitsumkalum) has been included in TRP engagement early 2012. To date, Kitsumkalum have not participated in any TRP workshops and have not provided any feedback on the KLNG TERMPOL technical reports or draft KLNG TERMPOL First Nations Engagement Summary Report. No issues or concerns have been raised.

KLNG offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. To date, no specific funding has been requested or provided.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community was provided to Kitsumkalum. Efforts were made in 2013 and 2014 to meet with the community. The community confirmed receipt of information and offers for meetings but did not request any meetings during that timeframe.

On March 29, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Kitsumkalum regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Kitsumkalum provide review and comments.

In early April 2014, the majority of draft KLNG TERMPOL technical reports were provided to the Kitsumkalum for review and comment. KLNG also invited Kitsumkalum to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Kitsumkalum did not participate in the workshop on April 23 and 24, 2014 in Vancouver, BC. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Kitsumkalum on June 3, 2014.

In August 2015, the remainder of the KLNG TERMPOL technical reports were provided to Kitsumkalum for review and comments.

On February 28, 2018, KLNG informed Kitsumkalum that the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG provided an updated draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report to Kitsumkalum for review. Questions or comments were requested by the end of March 2018. KLNG followed up by email in April 2018, asking if Kitsumkalum had any comments. No comments have been received.

3.9 Lax Kw'alaams Band

Lax Kw'alaams Band (Lax Kw'alaams) is located at Port Simpson, approximately 30 km northwest of Prince Rupert. Originally a camping spot of the Gispaxlo'ots tribe, it became a Hudson Bay Trading Post in 1834. The total registered population (on and off reserve) is reported as 3,883 (INAC First Nation Profiles, 2018). Lax Kw'alaams is part of part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups. Governance blends traditional, hereditary chieftainships and elected band governance systems. Lax Kw'alaams is a member of the Pacific Trails Pipeline (PTP) First Nations Limited Partnership (FNLP).

Summary of TRP Engagement with Lax Kw'alaams Band

Lax Kw'alaams has been included in TRP engagement since early 2012. To date, Lax Kw'alaams have not participated in any TRP workshops and have not provided feedback on the KLNG

TERMPOL technical reports or the draft KLNG TERMPOL First Nations Engagement Summary Report.

KLNG offered to provide funding to support the evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. To date, no specific funding has been requested or provided to Lax Kw'alaams for TRP engagement.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community were provided to Lax Kw'alaams. Efforts were made in 2013 and 2014 to meet directly with the community. Lax Kw'alaams declined the KLNG Project's offers for meetings.

On March 30, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Lax Kw'alaams regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Lax Kw'alaams provide review and comments.

In early April 2014, the majority of draft KLNG TERMPOL technical reports were provided to the Lax Kw'alaams for review and comment. KLNG also invited Lax Kw'alaams to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Lax Kw'alaams did not participate in the workshop on April 23 and 24, 2014 in Vancouver, BC. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report Lax Kw'alaams on June 3, 2014.

In August 2015, the remainder of the KLNG TERMPOL technical reports were provided to Lax Kw'alaams for review and comment.

On February 28, 2018, KLNG informed Lax Kw'alaams that the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG provided an updated draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report to Lax Kw'alaams for review. Questions or comments were requested by the end of March 2018. KLNG followed up by email in April 2018.

On April 23, 2018, Lax Kw'alaams emailed KLNG acknowledging they had not engaged in the TRP to date and requested the information be re-sent. KLNG followed up by email to confirm the information they required. Digital copies of the KLNG TERMPOL technical reports were re-sent in mid-May 2018. KLNG followed up by email to confirm the reports had been received and to find out if any further information was required.

On June 11, 2018, Lax Kw'alaams requested a printed version of the KLNG TERMPOL technical reports be provided. A capacity funding template was also requested for further discussion.

On June 14, 2018, KLNG provided a draft capacity funding agreement by email and advised that arrangements were underway to send a printed copy of the technical reports.

On June 15, 2018, KLNG sent the requested printed copies of the KLNG TERMPOL technical reports to Lax Kw'alaams. No further communication regarding the TRP has been received.

3.10 Metlakatla First Nation

Metlakatla First Nation (**Metlakatla**) is located at Metlakatla Pass 7 km west of Prince Rupert. Historically, the site was the winter village for nine the fourteen Tsimshian Tribes. The Metlakatla currently live on 16 reserves and oversee an area of approximately 3,464 hectares. The population of Metlakatla Pass is approximately 100. The total registered population (on and off reserve) is reported as 976 (INAC First Nation Profiles, 2018). Metlakatla is part of the matrilineal Tsimshian tribes—close associations and interconnections are maintained through clan groups—and is a member of Member of the Pacific Trails Pipeline (**PTP**) First Nations Limited Partnership (**FNLP**).

Figure 3-5: Map of Metlakatla First Nation Territory (provided by Metlakatla)

Summary of TRP Engagement with Metlakatla First Nation

Engagement with the Metlakatla was centered on their concerns over marine safety, impacts to their traditional and current use, cumulative effects and impacts to ecologically and traditionally important areas. KLNG offered to provide funding to support evaluation of the KLNG TERMPOL technical reports and participation in the Hazard Identification (HAZID) workshop. To date, no specific funding has been requested or provided to Metlakatla for TRP engagement.

In early 2012, information about the TRP and KLNG's desire to begin engagement and understand any potential impacts on the community were provided to Metlakatla. Efforts were made in 2013-2014 to meet with the community. The community confirmed receipt of information and offers for meetings but did not request any meetings during that timeframe.

On March 29, 2014, KLNG emailed an update letter on the status of the TRP and outlined the steps KLNG proposed for engaging with Metlakatla regarding the draft KLNG TERMPOL technical reports. The letter explained the draft technical reports were in the process of being finalized and it was anticipated most of the reports would be provided in early April. KLNG requested that Metlakatla provide review and comments.

In early April 2014, the majority of the draft KLNG TERMPOL technical reports were provided to Metlakatla for review and comment. KLNG also invited Metlakatla to attend a two-day Hazard Identification (HAZID) workshop and sent pre-read materials. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations located along the two proposed shipping routes were invited to exchange information and provide local knowledge. Due to scheduling conflicts, Metlakatla representatives were not able to participate in the HAZID workshop on April 23 and 24, 2014 in Vancouver, BC nor were they able to meet to provide comment, and/or identify issues with the shipping routes. Metlakatla expressed an interest in being kept informed of the KLNG Project and the development of technical reports as they advanced. KLNG sent the KLNG TERMPOL Hazard Identification (HAZID) Workshop Report to Metlakatla on June 3, 2014.

On August 26, 2014, Metlakatla sent an email to KLNG and explained that due to time and capacity constraints, Metlakatla had been unable to fully engage in the TRP. In lieu of providing detailed comments, Metlakatla outlined a list of general concerns regarding marine navigation and safety and asked they be taken into consideration, along with concerns of other First Nations. The general concerns outlined were: potential impacts to traditional use and marine safety, impacts on the Triple Islands and Stephen's Island – both areas of ecological and traditional significance-, and cumulative effects of the multiple LNG proposals with anticipated increased shipping activity in the area. Metlakatla did not suggest or request specific measures to mitigate the concerns identified.

In August 2015, the remainder of the KLNG TERMPOL technical reports were provided to Metlakatla for review and comment.

On June 28, 2016, KLNG sent the draft 2016 KLNG TERMPOL First Nations Engagement Summary Report to Metlakatla for their review. This Report included their concerns on potential impacts and KLNG's proposed mitigation measures in respect of such potential impacts. KLNG followed up by email in October 2016. Metlakatla emailed KLNG in November 2016 requesting the 2016 KLNG

TERMPOL First Nations Engagement Summary Report be re-sent. KLNG provided the requested copy.

On December 6, 2016, Metlakatla emailed to KLNG a letter providing detailed feedback on the draft 2016 KLNG TERMPOL First Nations Engagement Summary Report. In that letter, the Metlakatla clarified it expected further discussions to take place with KLNG in order to address their issues and concerns with respect to traditional use, marine safety, areas of ecological and traditional significance and cumulative effects. The letter expressed concern that KLNG's responses to date did not fully acknowledge potential project impacts to Metlakatla's interests and recommended KLNG further engage with Metlakatla to address potential impacts and collaboratively develop appropriate mitigation measures.

On January 20, 2017, KLNG met with Metlakatla in Prince Rupert, BC to discuss the location of the northern shipping route relative to Metlakatla traditional territory and potential KLNG Project impacts. KLNG committed to continue engagement with Metlakatla to address issues and concerns. Subsequently, KLNG provided a map showing the KLNG proposed shipping route and Metlakatla traditional territory to Metlakatla. It was KLNG's understanding Metlakatla would provide examples of potential KLNG Project impacts upon review and consideration of the map. Metlakatla emailed KLNG in February 2017 confirming it would review the information and contact KLNG with further comments. No comments were received.

On February 28, 2018, KLNG emailed Metlakatla to inform them the TERMPOL review process which had been on hold due to Transport Canada's queue and resources, was to begin again. KLNG emailed an updated draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report to Metlakatla for review. Questions and comments were requested by the end of March 2018. KLNG followed up with Metlakatla by email in early April 2018.

In its April 10, 2018 letter, Metlakatla advised the table in the draft of the 2018 KLNG TERMPOL First Nations Engagement Summary Report was out of date and failed to list Metlakatla's latest responses. Metlakatla advised t the table from its December 6, 2016 letter referred to as "Outstanding Metlakatla Concerns" should instead be used. Metlakatla also reiterated its interest in meeting with KLNG to identify additional mitigation measures and accommodation for shipping-related impacts. KLNG proposed a joint meeting to review Metlakatla's specific concerns with the shipping aspects of the KLNG Project and discuss mitigation and accommodation.

On May 8, 2018, KLNG met with Metlakatla in Prince Rupert, BC to share information and seek input on the KLNG Project. Metlakatla provided KLNG with a draft document summarizing Metlakatla's views of the expected impacts from the KLNG Project on their traditional and current use. Metlakatla also proposed mitigation measures and possible accommodation including contributions towards Metlakatla stewardship and cultural programs or emergency response planning and preparedness. It was agreed KLNG would populate potential avoidance and mitigation measures in the template provided by Metlakatla to facilitate information sharing and discussion on proposed mitigation measures.

On September 18, 2018, KLNG sent an email to Metlakatla, proposing mitigation measures to address potential impacts. KLNG highlighted the executive summary of the KLNG TERMPOL technical reports and specifically, the key topics identified and proposed mitigation measures.

With regards to the potential effects specific to Metlakatla, KLNG provided a table summarizing KLNG's proposed mitigation measures relative to each effect.

In addition, KLNG explained that given the current phase of the KLNG Project, it would be difficult to provide specific mitigation plans or protocols. KLNG committed to further engaging with Metlakatla to develop more specific mitigation measures at a later stage in the Project lifecycle. Metlakatla agreed some of the identified impacts may be resolved through consultations and further development of proposed plans. Metlakatla also recognized it would be difficult to identify at this time, if there will be any residual effects. Metlakatla highlighted that commitment to participate in regional cumulative effects could be strengthened. KLNG committed to explore how best it could participate in regional cumulative effects program.

Summary of Issues and Concerns including Proposed Mitigation

Engagement with Metlakatla centred on potential adverse impacts on traditional use, harvesting activities, human health and safety, the environment, and cumulative effects. Metlakatla was concerned about maintaining the quantity and quality of harvestable resources during all phases of the project, and protecting access to traditional harvest, spiritual and historical sites.

KLNG will continue to engage with Metlakatla and has committed to working together to draft and finalize operational plans and protocols 60 days prior to a Final Investment Decision (FID).

The following table (Table 3-1) summarizes the specific issues and concerns raised by Metlakatla during the TRP engagement process and includes mitigation measures proposed by the KLNG Project.

Table 3-1: Summary of Metlakatla Issues/Concerns and KLNG Proposed Mitigation

Potential Effects of the KLNG Project on Traditional Use	KLNG Proposed Mitigation
Fishing, harvesting and hunting • Loss of quantity and quality of harvestable resources during all phases of the project (pre-construction, construction, and operations). • Loss of income or livelihood. • Decrease in food security. • Increased risk to personal health or safety when harvesting or consuming harvested materials, both a real and perceived risk of contamination. • Increase in risk of losing harvestable area or material in the future (due to damage and increased vessel congestion from project-related activities). • Loss of physical use and access to traditional harvest sites • Negative impact on harvesters' qualitative experience, including an increased risk of collision with LNG Carriers and support vessels from project related operations. Cumulative Effects • Potential air quality impacts to humans and terrestrial species. • Potential water quality impacts to humans and marine species. • Potential impacts to traditional marine resources and access to resources through increased shipping activity and increased risk of spills, accidents and malfunctions.	LNG carriers transiting to and from the KLNG facility at Bish Cove will be required to navigate only existing maritime routes currently traversed by large ocean-going vessels. KLNG, in consultation with Metlakatla First Nation, will develop and finalize, 60 days prior to Final Investment Decision (FID): • a Communications Protocol - the protocol will outline procedures for the timely exchange of information on vessel and marine wildlife activity. As part of the protocol KLNG will provide forward notice of transit as well as real time vessel activity via very high frequency radio (VHF) and automatic identification systems (AIS), establish procedures for Metlakatla to provide information for inclusion in "notice to mariners" for pilots and other marine parties as well as other activities agreed upon such as, community meetings prior to construction or scheduling regular review of the protocol's effectiveness, • a Transit Management Plan - the plan will outline measures to be taken by the LNG carriers related to KLNG to safely transport cargo, while minimizing potential adverse impacts of vessel traffic on the marine environment and activities of First Nations. The plan will include the development of Speed Management Plan which will adhere to Transport Canada's shipping guidelines, will identify local and traditional navigation routes, fishing and harvesting areas and associated timing windows, as well as outline measures to minmize noise vibration and light pollution. *…continued on next page*

Potential Effects of the KLNG Project on Traditional Use	KLNG Proposed Mitigation
(List of potential effects continued from the previous page) Territory Cultural Use • Loss of physical use and access to traditional harvest sites, spiritual sites, and historical sites. • Negative impact on mental health and personal wellbeing (due to inability to practice traditional use activities, bond with community, etc.). • Negative impact on distinctiveness of culture including: loss of culture and history.	*(Mitigation measures continued from the previous page)* • a Marine Environment Protection Plan - the plan will ensure that all regulatory requirements and best practices are followed and processes are identified to minimze adverse impacts to the marine environment. The plan will outline the various regulatory regimes that KLNG related vessels will adhere to, including the International Marintime Organizaztion (IMO), International Converntion for the Prevention of Pollution from Ships (MARPOL), Canada Shipping Act and the Canadian Ballast Water Management Controal and Management Regulations. • a Complaint Protocol - the protocol will outline a process for the Metlakatla and their community members to submit complaints, specifically as it pertains to impacts / incidents caused by Kitimat LNG shipping activities as well as communication plan to ensure community is aware of the process of submitting a complaint. • a Marine Mammal Protection Plan - the plan will ensure that regulatory requirements and best practices are followed and processes are identified to minimize adverse impacts to marine mammals. As part of the plan KLNG will develop Speed Management Plans to mitigate potential effects of underwater sound and vessel contact, will provide KLNG related vessels with a brochure that identifies geographic areas and periods of time where vessels could encounter higher number of marine mammals and establish communication portocols for reporting of marine mammal sightings to KLNG related vessels. In addition, KLNG will identify and participate in suitable regional cumulative effects programs.

4. CONCLUSION

Throughout the engagement for the TRP, KLNG has made efforts to engage with the First Nations identified by Transport Canada as being potentially impacted by the proposed shipping routes. Early notification was provided to all First Nations along with invitations to receive KLNG Project presentations and information in advance of the completion and distribution of the TERMPOL technical reports.

The TERMPOL technical reports, when ready, were provided for review and First Nations were invited to participate in a two-day Hazard Identification (HAZID) workshop. The purpose of the multi-stakeholder workshop was to identify potential marine hazards. First Nations were invited to exchange information and provide local knowledge. KLNG made Project representatives and subject matter experts available to provide additional information to assist First Nations with the review of the lengthy and highly technical reports. Capacity funding was also offered to support engagement by First Nations.

A number of First Nations did not actively engage with KLNG in the TRP and provided limited or no responses to the KLNG TERMPOL technical reports. Input received from those that did engage was taken into consideration and incorporated into KLNG Project planning to further guide KLNG's commitment to protecting people and the environment. KLNG will consider additional changes, if any, that are recommended by the TERMPOL Review Committee.

KLNG is committed to ongoing engagement with First Nations potentially impacted by the KLNG Project. Engagement will include further dialogue to develop and finalize operational plans and protocols.