



# Construction Environmental Management Plan

Cedar LNG Project

PC21258-EV-PLN-0001

**Prepared by:**

Stantec Consulting Ltd.  
Project No. 123222394  
Revision: 2.1

**Prepared for:**

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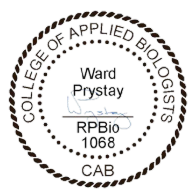
## REVISION HISTORY

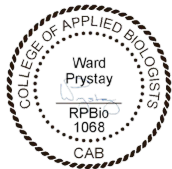
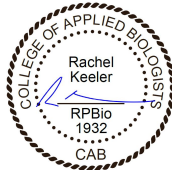
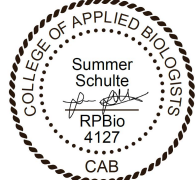

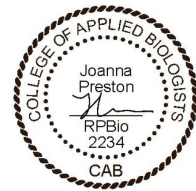

Revision	Issued For	Date
A	Cedar review	10/13/2023
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0	EAO review	06/05/2024
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2	Use	07/31/2024
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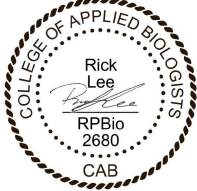
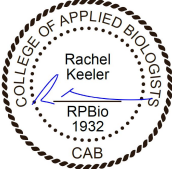
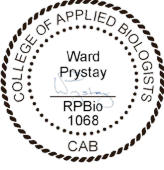
## Professional Review and Sign-off

This Construction Environmental Management Plan for the Cedar LNG Project documents the mitigation measures that are to be used to manage the environmental effects from construction of the project, outline the monitoring and reporting requirements, and identify the responsible parties for undertaking the associated work. It has been prepared to address conditions of approval from EAC #E23-01 and the Decision Statement issued at the conclusion of the environmental assessment process under British Columbia’s *Environmental Assessment Act* and Canada’s *Impact Assessment Act*, respectively. It has been prepared for use in the field by Cedar and its construction contractors and may also be relied upon by the Environmental Assessment Office and Impact Assessment Agency of Canada for compliance purposes. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Cedar, its consultants, and its contractors shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

For the sections on the Construction Environmental Management Plan with mitigation measures that are directly related to a right to practice area established by a regulatory body under the Professional Governance Act or other professional body, the name, professional certifications and professional stamps of the Qualified Professional responsible for preparation of the document are provided below. For the sections that present environmental management measures that are general in nature and/or are not directly related to a right to practice area, a “NA” (not applicable) is noted. These environmental protection measures have been developed by an environmental professional but not a Qualified Professional as defined by EAC #23-01. Final review and sign-off of this Construction Environmental Management Plan is provided by Ward Prystay, a member in good standing with the College of Applied Biologists.

Section No.	Mitigation Section Heading	Responsible Qualified Professional <sup>1</sup>
3	Access and Traffic Management	NA
4	Light Management	NA
5	Erosion and Sediment Control	Ward Prystay, M.Sc., R.P.Bio. 
6	Fueling and Spill Response	Sheri Gilmour, M.Sc., P.Geo.

Section No.	Mitigation Section Heading	Responsible Qualified Professional <sup>1</sup>
7	Waste Management	NA
8	Concrete Management	Ward Prystay, M.Sc., R.P.Bio. 
9	Noise Management	NA
10	Air Quality	NA
11	Freshwater Watercourses and Fish	Rachel Keeler, M.Sc., R.P.Bio. 
12	Marine Resources	Summer Schulte, B.Sc., R.P.Bio. 
13	Vegetation Management	Meghan Ryan O'Neill, B.Sc., R.P.Bio. 
14	Wildlife Management	Joanna Preston, B.Sc., R.P.Bio. 
15	Heritage and Archaeological Resources	Sarah Smith, MA, RPCA 
16	Emergency Management	NA

Section No.	Mitigation Section Heading	Responsible Qualified Professional <sup>1</sup>
17	Human Health Management	Rick Lee, MBA, M.Sc., R.P.Bio. 
18	Environmental Monitoring	Rachel Keeler, M.Sc., R.P.Bio.  Ward Prystay, M.Sc., R.P.Bio. 

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## Abbreviations

BC	British Columbia
BCER	British Columbia Energy Regulator
BMP	Best Management Practice
CO <sub>2</sub>	Carbon dioxide
CEMP	Construction Environmental Management Plan
CMT	Culturally Modified Trees
CWH	Coastal Western Hemlock
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
ECCC	Environment and Climate Change Canada
EMBC	Emergency Management British Columbia
FLNG	Floating Liquefied Natural Gas
FLNRO	Ministry of Forests, Lands & Natural Resource Operations
FSR	Forest Service Road
LNG	Liquefied Natural Gas
IAAC	Impact Assessment Agency of Canada
Km	Kilometre
LWRS	Ministry of Land, Water and Resource Stewardship
m	Metre
MOE	Ministry of Environment
MOF	Ministry of Forests
Pembina	Pembina Pipeline Corporation
QP	Qualified Professional
RoW	Right of Way
The Project	Cedar LNG Project
TSS	Total suspended solids

## Definitions

Abbreviation	Definition
Clearing	Removal of merchantable and non-merchantable timber.
Contractor	Refers to the entity(ies) hired by Cedar to construct one or more Project components and includes the personnel(s) responsible for the day-to-day oversight of construction activities, management of vendors and trades, and the communication of information to all involved parties throughout the course of Project construction.
Subcontractor	Refers to the personnel(s) hired by the Contractor to perform specific tasks as part of the overall Project construction component.
Footprint	Refers to the area affected by the development of the floating liquefied natural gas facility, marine terminal, supporting infrastructure, transmission line, distribution powerline, and temporary construction-related workspaces (e.g., access roads, laydown areas, borrow pits).
Grubbing	Removal and proper disposition of stumps, roots, lesser vegetation, and partially embedded rocks and boulders.
Indigenous Nations	In accordance with Schedule B of Environmental Assessment Certificate #EAC #23-01, Indigenous Nations who will be consulted regarding the Construction Environmental Management Plan are Haisla Nation, Gitga'at First Nation, Gitxaala Nation, Kitselas First Nation, Kitsumkalum First Nation, Lax Kw'alaams Band, and Metlakatla First Nation.
Authorized Representative	Cedar's Construction Manager or Senior Environmental Inspector and their designates.
Weeds	Plant species listed in Schedules A and B of the Weed Control Regulation under the <i>Weed Control Act</i> or identified in <i>Guide to Weeds in British Columbia</i> (British Columbia Ministry of Agriculture, Food and Fisheries and the Open Learning Agency, 2002)

# 1.0 Introduction

Cedar LNG Partners LP, by its general partner Cedar LNG Partners (GP) Ltd. (Cedar), a Haisla Nation-led partnership with Pembina Pipeline Corporation (Pembina), is constructing a liquefied natural gas (LNG) export facility within the District of Kitimat, British Columbia (BC) (the Project). The Project was subject to the requirements of the provincial *Environmental Assessment Act* and federal *Impact Assessment Act* and underwent a comprehensive environmental assessment from 2019 to 2023. Cedar received an environmental assessment certificate under the *Environmental Assessment Act* on March 13, 2023, and a positive Decision Statement under the *Impact Assessment Act* on March 15, 2023.

This Construction Environmental Management Plan (CEMP) has been prepared to address Condition 9 of EAC #E23-01. It documents the construction phase environmental mitigation measures that will be implemented to address commitments made during the environmental assessment process and conditions of approval from EAC #E23-01 and the Decision Statement. A table of concordance that documents how Condition 9 of EAC #E23-01 and the Decision Statement mitigation measures are addressed is provided in Appendix A. The CEMP also includes measures to address permit conditions in the British Columbia Energy Regulator (BCER) Determination of Application Number 100115227 for authorized activities, including the LNG facility (number 00027543) and changes in and about a stream (number 0007324).

The locations of the Project components relevant to this CEMP are shown in Figure 1 and consist of:

- A floating liquefied natural gas (FLNG) facility, marine terminal, and supporting infrastructure located within District Lot 99, a portion of two adjacent water lots (both water lots are within District Lot 5469), and an area of submerged Crown land.
- An approximately 8.5 kilometre (km) long transmission line within a 90 m wide right-of-way (except in the case of danger tree removal) running between BC Hydro's Minette Substation to the Facility Area.
- A 2.8 km long distribution powerline line along the Bish Creek Forest Service Road (FSR) to the Facility Area. The distribution powerline right-of-way is up to 15 m wide, except in the case if danger tree removal.

## 1.1 Purpose and Scope

The CEMP describes the environmental mitigation measures and commitments to be carried out by Cedar, its Contractor(s), and Subcontractor(s) during construction-related activities to avoid or reduce environmental impacts. The CEMP includes both general and site-specific environmental protection measures which have been developed based on industry best management practices, past project experience, and input from Indigenous Nations, the BCER, Environment and Climate Change Canada (ECCC), Northern Health, the Canadian Coast Guard, Transport Canada, the Ministry of Environment and Climate Change Strategy (MOE), and the Ministry of Land, Water and Resource Stewardship (LWRS).

Specifically, the CEMP:

- Outlines the environmental protection measures related to the construction of the marine terminal, supporting infrastructure, and powerline, as well as mooring of the FLNG facility
- Provides instructions for carrying out construction-related activities to limit or reduce environmental adverse effects
- Serves as reference information for construction and environmental personnel to support decision-making

## 1.2 Updates to the CEMP

Cedar may, or the EAO may require Cedar to, revise the CEMP in response to:

- Changes to the Project
- Feedback provided by CEMP reviewers
- One or more objectives set out in Condition 9 of EAC#23-01 or the purpose and objectives set out in Section 1.1 of this document not being fully addressed
- Changes in industry best practices or technology
- New conditions of regulatory permits and authorizations
- Unforeseen issues that may arise during construction

The environmental mitigation measures within the CEMP apply to pre-construction, construction, clean-up, and reclamation activities leading up to the operation of the Project. If specific protection measures need to be revised as a result of ongoing consultation or to address unforeseen site-specific conditions noted during a construction-related activity, the CEMP will be updated to reflect the additional measures.

Cedar will inform CEMP reviewers when minor revisions are made to the CEMP (i.e., small changes that would not affect the scope and objectives of the CEMP). If material revisions are required, Cedar will provide CEMP reviewers with the opportunity to comment on those revisions (i.e., changes to the scope or mitigation and monitoring requirements). The revised CEMP will be shared with the EAO and Indigenous Nations. If the revision falls within the mandate of one of the regulatory agencies that reviewed the original CEMP, the updated CEMP will also be shared with that regulatory agency. A document history table listing version, date, and distribution will be provided in the updated document.

Pursuant to condition 3.2(f) of EAC #E23-01, the implementation of this CEMP will use an interactive adaptive management approach in response to new information as it becomes available. This adaptive approach will occur on an ongoing basis to address feedback from Indigenous Nations, changing Project conditions, new engineering and design specifications, or results of monitoring programs as this information becomes available. As part of this adaptive approach, Cedar will continuously evaluate mitigation measures proposed in this CEMP for effectiveness throughout the construction phase. Various monitoring programs outlined in this CEMP will inform the necessity of altering/updating implemented mitigation measures if it is determined effects are not being mitigated, or effects are occurring counter to what was characterized in the application for EAC#23-01.

## 1.3 Construction Activities

Construction is scheduled to occur between July 2024 and mid-2028, with commissioning in Q3 and Q4 of 2028. A schedule for construction is provided in Appendix B. General activities to be undertaken as part of the construction phase of the Project are described in the Certified Project Description (Schedule A to EAC #E23-01) and include the following:

- Construction or upgrading of roads to provide access to project components
- Establishment of temporary work areas within the facility area, transmission line corridor, distribution powerline right-of-way, or on private property that are required only for construction. These include:
  - laydown areas and temporary workspaces
  - borrow pits
  - disposal areas for overburden, excess rock, and topsoil
- Clearing, preparation, and construction of the transmission line and distribution powerline
- Construction, refurbishment, or use of warehouse and office buildings on private property within the District of Kitimat
- Site preparation and construction of the marine terminal and supporting infrastructure, including:
  - a mooring system for connecting the FLNG facility to the shore
  - connections to the land-based natural gas supply pipeline, power supply, and other utilities
  - a small craft jetty for mooring tugs and other project-related vessels
  - support buildings including warehouse(s), electrical substation, security building, flammable liquids storage shelter
  - parking areas adjacent to the main buildings and in the vicinity of the marine terminal

## 1.4 Roles and Responsibilities

Cedar and its Contractors are responsible for compliance with all applicable regulatory requirements, commitments, and conditions for the Project. This section outlines the roles and responsibilities of the Project team for implementing, inspecting, and reporting on the effectiveness and execution of the environmental protection and mitigation measures covered by the CEMP (Table 1).

An Independent Environmental Monitor (IEM) will also be retained to independently observe and record the implementation of conditions set out in the provincial and federal environmental assessment approval documents. The IEM's role is to act as a third-party monitor and objectively report out on the course of construction and associated effectiveness of mitigation measures and shall report solely to the EAO; it is separate from the roles and responsibilities pertaining to this CEMP. The Independent Environmental Monitor's role is as defined in the terms of engagement prepared in accordance with Condition 8 of the EAC.

**TABLE 1 ROLES AND RESPONSIBILITIES OF THE PROJECT TEAM**

Role	Responsibilities
Cedar LNG Project Owner "Cedar"	<ul style="list-style-type: none"> <li>• Overall delivery of Project.</li> <li>• Provides team with Project-specific information.</li> <li>• Provides team notifications on contract, design, and schedule changes.</li> <li>• Contracts/hires to fill positions to carry out the Project.</li> </ul>
Construction Manager or Designate	<ul style="list-style-type: none"> <li>• Directs construction activities in compliance with permit conditions, commitments, and environmental management requirements.</li> <li>• Coordinates with the Senior Environmental Inspector(s) to provide assurance that site activities are conducted in compliance with the CEMP.</li> <li>• Supports Senior Environmental Inspector during training (i.e., kick-off meeting) with Contractor senior management (including site supervisors).</li> <li>• In conjunction with the Senior Environmental Inspector (or designate), makes decisions to halt, suspend, or modify construction where activities are deemed to have a potential adverse effect on the environment that is not approved through a regulatory instrument.</li> </ul>
Environmental Advisor	<ul style="list-style-type: none"> <li>• Provides regulatory, permitting, and compliance support during all stages of construction and works closely with the Senior Environmental Inspector where clarification of policies or regulations is required.</li> <li>• Provides the bridge between commitments in the environmental assessment and regulatory decisions.</li> <li>• Responsible for engagement with regulatory authorities on behalf of Cedar.</li> </ul>
Senior Environmental Inspector or Designate	<ul style="list-style-type: none"> <li>• Reviews Contractor workplans for compliance with this CEMP, permits, approvals, authorizations, notifications, letters of advice, and applicable legislation and guidelines.</li> <li>• Supervises Environmental Inspectors and Environmental Monitors and verifies compliance with local, provincial, and federal environmental regulations, permit/approval conditions, and the CEMP.</li> <li>• Provides direction on major decisions or courses of action (i.e. adaptive management) to address unexpected environmental conditions encountered during construction.</li> <li>• Liaises as required with the Environmental Advisor during construction.</li> <li>• In conjunction with the Construction Manager (or designate), makes decisions to halt, suspend, or modify construction where activities are deemed to have a potential adverse effect on the environment that is not approved through a regulatory instrument.</li> <li>• Issues notifications to agencies, as per the Spill Reporting Regulation, for materials and spill volumes as listed in Table 9.</li> </ul>



Role	Responsibilities
Environmental Inspector	<ul style="list-style-type: none"> <li>• Monitors construction activities to verify compliance with local, provincial, and federal environmental regulations, permit/approval conditions, and the CEMP.</li> <li>• Coordinates with Contractor staff regarding the implementation, maintenance, and monitoring of mitigation measures used to avoid and limit potential environmental effects.</li> <li>• Recommends approaches to avoid and mitigate effects where measures in this CEMP require modifications to improve effectiveness in the field.</li> <li>• May also function as a QP, where they have the appropriate qualifications, but does not need to be a QP.</li> <li>• Attends health and safety meetings and Contractor tailgate meetings, where appropriate, to communicate potential environmental concerns/requirements.</li> <li>• Maintains monitoring records, including measurements taken, sampling, field notes, photographs, and environmental incident reports.</li> <li>• Documents correction of environmental deficiencies by working directly with the Contractor.</li> <li>• Supports the Construction Manager and Senior Environmental Inspector on decisions to halt, suspend, or modify construction (i.e. adaptive management) where activities are deemed to have a potential adverse effect on the environment.</li> <li>• Advises the Construction Manager or Contractor on adjusting the works to maintain compliance with the environmental approvals and commitments.</li> <li>• Supports reporting of spills and environmental incidents to appropriate authorities.</li> <li>• May also be called an Environmental Monitor.</li> </ul>
Qualified Professional (QP) <sup>1</sup>	<ul style="list-style-type: none"> <li>• Provides advice and/or onsite support in relation to specific environmental concerns (e.g., archaeological sites, wildlife species of concern, wildlife habitat features, watercourse crossings, fish salvages), upon request by the Senior Environmental Inspector.</li> <li>• Provides advice on changes to the CEMP.</li> <li>• May also be called a Resource Specialist.</li> </ul>
Construction Contractor	<ul style="list-style-type: none"> <li>• Ensures understanding of requirements and implementation of appropriate training to field personnel, including Subcontractors.</li> <li>• Implements work in accordance with requirements, including their own internal requirements (whichever are most stringent).</li> </ul>

<sup>1</sup> The Qualified Professional must be a member of a professional organization regulated under the *Professional Governance Act*. Acceptable professional designations include Professional Agrologist (P.Ag.), Applied Technologist or Technician (i.e., A.Sc.T., R.B.Tech or C.Tech.), Professional Biologist (R.P.Bio.), Professional Engineer (P. Eng.) or a Professional Geoscientist (P.Geo.).

## 1.5 General Construction Practices

Table 2 provides general environmental mitigation measures applicable to Project-related construction activities.

**TABLE 2 GENERAL MITIGATION MEASURES**

Category	Mitigation Measure
Approvals and Permits	<ul style="list-style-type: none"> <li>Copies of all issued permits and approvals will be readily available.</li> <li>Construction-related restrictions, conditions, or mitigation measures that are part of the regulatory permits will be communicated to Project personnel.</li> </ul>
Meetings and Communication(s)	<ul style="list-style-type: none"> <li>A pre-construction meeting with the Construction Manager, Senior Environmental Inspector, and Contractor will be held to promote an understanding of the Project, environmentally sensitive areas, the CEMP, reporting responsibilities, and emergency response plans.</li> <li>Meetings to update personnel on the status of ongoing work, approvals, permits, plans, or other related concerns will be held at a frequency sufficient to keep personnel up to date as determined by the Construction Manager in consultation with the Senior Environmental Inspector.</li> </ul>
Training	<ul style="list-style-type: none"> <li>The Contractor's managers, site supervisors, and crew leaders will be provided with a copy of the CEMP and must be familiar with the components of the CEMP appropriate to their scope of work.</li> <li>The Contractor's managers, site supervisors, and crew leaders will be provided with an orientation on the contents of the CEMP.</li> <li>Cedar will keep records of CEMP orientations.</li> <li>Personnel involved with construction activities will be adequately trained or experienced as determined by the Construction Manager.</li> </ul>
Stop Work	<ul style="list-style-type: none"> <li>The Construction Manager, Senior Environmental Inspector and IEM will have the authority to issue a stop work order to halt specific activities having an adverse effect or likely to have an adverse effect on the environment that has not been approved through a regulatory instrument.</li> <li>If the Contractor determines an activity may pose an environmental risk that is not addressed in this CEMP, the Contractor will stop work on the activity and contact the Senior Environmental Inspector for assistance prior to commencing or continuing the activity.</li> </ul>
Construction Area	<ul style="list-style-type: none"> <li>Prior to the start of construction, the Contractor will delineate the construction limits to keep construction activities within the designated project footprint. This may be via physical flagging or electronic delineation. This delineation will be sufficient to inform workers of the physical extent of the work areas.</li> </ul>
Application of Mitigation Measures	<ul style="list-style-type: none"> <li>Where there is uncertainty about the application of any mitigation measure identified in this CEMP, the Senior Environmental Inspector shall make the final decision on what measures are required.</li> <li>Implementation of mitigation measures is to be scheduled such that the minimum level of protection is in-place before or in conjunction with the start of an activity that may pose a risk to the environment. Additional measures are to be implemented as per this CEMP or at the direction of the Senior Environmental Inspector based on monitoring results.</li> </ul>

## 2.0 Environmental Setting

The Project's marine terminal is located on Haisla Nation-owned, fee-simple land within the Nation's traditional territory, on the west side of Douglas Channel, approximately 3 km west of Kitimaat Village across Kitimat Arm and approximately 10 km southwest of the Kitimat town centre. The powerline crosses un-surveyed Crown land and two parcels of private property. Road access to the marine terminal is via Highway 37 from Terrace, Haisla Boulevard through the Kitimat townsite, then Alcan Road, and finally, the Bish Creek Forest Service Road to the Marine Terminal Area.

Kitimat is located in the rainiest biogeoclimatic zone of British Columbia. The Canadian Climate Normals data (1981 to 2010) from the Kitimat 2 meteorological station shows:

- Average monthly precipitation ranges from a low of 62.4 mm in July to a maximum of 323.5 mm in October
- Annual average precipitation is 2,210.7 mm of combined rain and snow
- Historical extreme precipitation events included a daily rainfall high of 179.4 mm on October 31, 1987, and a daily snowfall high of 82.6 cm on January 17, 1974—higher snowfalls were recorded at the Kitimat Townsite station with 140 cm of snow on February 18, 1972
- Average number of days per year that have precipitation greater than or equal to 2 mm at the Kitimat 2 station is 217.7, with 34 days per year receiving  $\geq 25$  mm

Vegetation communities in the vicinity of the Project include upland forest, wetlands, shrub, and herbaceous assemblages. Upland forest is present over most of the area and no old forest will be affected by the Project. Terrestrial ecosystem mapping and field surveys completed to support the environmental assessment identified one wetland ecological community within the Project footprint (Western redcedar – Western hemlock/ Skunk cabbage swamp [blue-listed]) (Figure 2; Stantec 2022). The wetland was located in the Marine Terminal Area and infilled in 2024 as part of Project construction. In addition, 38 plant species that are traditionally gathered/harvested by Haisla Nation were documented during the field surveys.

Previous desktop review and field surveys recorded five invasive plant species that have the potential to occur within the Project footprint. This includes provincially noxious perennial sow thistle (*Sonchus arvensis*) and regionally listed invasive plants (NWIPC 2020) bull thistle (*Cirsium vulgare*), common tansy (*Tanacetum vulgare*), spotted hawkweed (*Hieracium maculatum*), and Himalayan balsam (*Impatiens glandulifera*).

The forest ecosystems in and around the Facility Area, Marine Terminal Area, Alternative Transmission Line Corridor, and distribution powerline right-of-way support a wide range of wildlife. Construction activities could affect migratory birds, wildlife features, and nests protected seasonally or year-round under the federal *Migratory Birds Convention Act* or provincial *Wildlife Act*. The locations of key wildlife features and observations are shown in Figure 3. The following high-priority wildlife (as defined in the Environmental Protection and Management Regulation under the *Energy Resource Activities Act*) have the potential to occur within or adjacent to the Project footprint:

- Fisher (*Pekania pennanti*)
- Grizzly bear (*Ursus arctos*)

- Moose (*Alces alces*)
- Black-tailed deer (*Odocoileus hemionus*)
- Band-tailed pigeon (*Patagioenas fasciata*)
- Marbled murrelet (*Brachyramphus marmoratus*)
- Great blue heron fannini subspecies (*Ardea herodias fannini*)
- American goshawk laingi subspecies (*Astur atricapillus laingi*)
- Western screech-owl kennicottii subspecies (*Megascops kennicottii kennicottii*)
- Rusty blackbird (*Euphagus carolinus*)
- Coastal tailed frog (*Ascaphus truei*)

Other wildlife species of conservation concern have the potential to occur within or adjacent to the Project footprint, are as follows:

- Little brown myotis (*Myotis lucifugus*) (blue-listed in BC, species at risk – endangered)
- Yuma myotis (*Myotis yumanensis*) (blue-listed in BC)
- Hoary bat (*Lasiurus cinereus*) (blue-listed in BC, assessed by COSEWIC as endangered)
- Silver-haired bat (*Lasionycteris noctivagans*) (assessed by COSEWIC as endangered)
- Olive-sided flycatcher (*Contopus cooperi*) (species at risk – special concern)
- Barn swallow (*Hirundo rustica*) (species at risk – threatened)
- Common nighthawk (*Chordeiles minor*) (blue-listed in BC, species at risk – special concern)
- Killdeer (*Charadrius vociferus*) (blue-listed in BC)
- Western toad (*Anaxyrus boreas*) (species at risk – special concern)

Amphibians have been detected within or in habitats adjacent to the Project's footprint (Stantec 2022), specifically:

- Northwestern salamander (*Ambystoma gracile*)
- Roughskin newt (*Taricha granulosa*)
- Wood frog (*Lithobates sylvaticus*)
- Long-toed salamander (*Ambystoma macrodactylum*)
- Columbia spotted frog (*Rana luteiventris*)
- Coastal tailed frog (*Ascaphus truei*)
- Western toad (*Anaxyrus boreas*)

Fish-bearing status of watercourses intersected by the transmission and distribution lines are shown in Figure 4. There are no fish-bearing watercourses in the Facility Area or Marine Terminal Area. The proposed transmission line right-of-way will intersect three fish-bearing watercourses and multiple small non-fish-bearing streams (i.e., S5, S6). The fish-bearing watercourses intersected by the

transmission line include a tributary to Beaver Creek (WC-01), Anderson Creek (WC-03), Moore Creek (WC-11). These watercourses provide good quality fish habitat and support populations of anadromous and resident fish. Anderson and Moore creeks only provide habitat for resident fish at the proposed transmission line crossing locations because both have barriers to anadromous fish downstream (Figure 4).

The distribution line crosses one fish-bearing (unnamed tributary to Douglas Channel; S3) and multiple non-fish bearing watercourses (S5-S6; Figure 4). The unnamed tributary to Douglas Channel (WC-14) is considered to have good rearing habitat, moderate spawning habitat, and poor overwintering and migration potential. Smaller watercourses that are intersected by the transmission and distribution line flow directly into Douglas Channel are not fish-bearing and are mostly dry in the summer.

No instream works or water withdrawals are anticipated for fish-bearing watercourses.

Riparian vegetation clearing is anticipated to be minimized where possible; large spans between transmission line structures for the Anderson Creek and Moore Creek crossings will reduce the need for riparian clearing along the transmission line route. Habitats in these watercourses are protected under the federal *Fisheries Act* (for fish-bearing streams) and provincial *Water Sustainability Act* (all watercourses).

The marine environment near the Marine Terminal Area supports a diverse community of attached invertebrates, soft bottom benthic invertebrates and seasonal migrations of Pacific salmon (*Oncorhynchus spp.*), oolichan (*Thaleichthys pacificus*), and herring (*Clupea spp.*). At least 75 species of fish (e.g., salmon, halibut [*Hippoglossus stenolepis*], rockfish [*Sebastes spp.*]), over 100 species of marine invertebrates and plants, and 12 species of marine mammals (e.g., northern resident killer whale [*Orcinus orca*], harbour seal [*Phoca vitulina*]) occur in Kitimat Arm. Many of these species have high ecological and socioeconomic values.

Cedar has completed an archaeological impact assessment to establish the potential for heritage resources protected under the *Heritage Conservation Act* to be impacted by construction of the Project. The assessment was completed with support from Haisla Nation. Three culturally modified tree (CMT) sites registered as GaTe-20, GaTe-21 and FITe-133 are recorded within the transmission line clearing extent and impacts are anticipated during construction (Figure 6). Additionally, GaTe-11 is recorded within the transmission line clearing extent but will be impacted during the pipeline construction right-of-way clearing prior to transmission line construction.

GaTe-20 is a single western redcedar tree with a notched feature. GaTe-21 consists of one notched western red cedar FITe-133 is comprised of one remnant basal taper bark strip scar feature on a historically logged western redcedar stump that has been windthrown. All three CMTs within these sites will be impacted by transmission line construction.

To meet the requirements of Condition 15 of EAC #E23-01, Cedar completed soil sampling within the marine terminal area to assess the risk of contamination on the site. Twenty samples were collected within the proposed infrastructure locations. With the exception of one sample, polycyclic aromatic hydrocarbons and metals concentrations in all 20 soil samples were below Contaminated Soils Regulation and CCME soil quality standards/guidelines. The exception was a single soil sample with a reported cadmium concentration of 1.05 mg/kg, which is higher than the soil standard of 1.0 mg/kg. This soil standard is intended to protect marine aquatic life and applies when the underlying groundwater discharges to the marine environment. This location is within a grassy clearing that was previously used for recreational users accessing the Douglas Channel shoreline. The elevated cadmium level may be the result of a recreational land user disposing cadmium containing material (e.g., battery).

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Known environmental conditions that will be directly used in the monitoring under this CEMP include:

- The locations of key vegetation resources are shown on Figure 2
- The locations of key wildlife features and observations are shown on Figure 3
- Fish-bearing status of watercourses and potential clearing requirements near construction activities are shown on Figure 4
- The location where the elevated cadmium sample was collected is shown on Figure 5
- The locations of archaeological sites GaTe-11, GaTe-20, GaTe-21, and FITe-133 are provided on Figure 6

Water quality in streams and Douglas Channel is variable throughout the year due to seasonal factors such as snowmelt, rainfall, and extended dry periods. As a result, baseline conditions for water quality monitoring will be determined during construction by sampling in locations adjacent to, but outside of the Project's area of influence. Additional information on water quality monitoring is provided in Section 18.3.

### 3.0 Access and Traffic Management

The upgrading of existing access routes and the creation of new permanent or temporary access routes for the construction of the transmission line and distribution powerline has the potential to impact environmental resources (e.g., nesting birds) and features (e.g., wetlands, watercourses). Table 3 provides typical activities associated with the construction of vehicle access roads and associated mitigation measures to reduce potential impacts on the environment.

**TABLE 3 MITIGATION MEASURES FOR ACCESS AND TRAFFIC MANAGEMENT**

Activity/Concern	Mitigation Measure Requirement
Approvals	<ul style="list-style-type: none"> <li>• Prior to commencing access road development activities, the Construction Manager will confirm that that all required permits and approvals for access on private and Crown land are in place.</li> </ul>
Staking and Flagging	<ul style="list-style-type: none"> <li>• Apply flagging and signage (e.g., boundary markers, signs, gates, fences) sufficient to prevent Project vehicles from leaving designated Project access as determined to be required by the Construction Manager.</li> </ul>
Borrow Material	<ul style="list-style-type: none"> <li>• Source borrow material for access roads from approved sites. Borrow material locations identified by the Contractor must be reviewed and approved by the Senior Environmental Inspector or delegate to confirm that any resulting environmental effects from the borrow activities are consistent with regulatory approvals.</li> </ul>
Clearing and Construction	<ul style="list-style-type: none"> <li>• Install erosion and sediment controls in accordance with Section 5.0.</li> <li>• Clear vegetation in accordance with Section 13.0.</li> <li>• Implement appropriate weed control as per Section 13.0.</li> </ul>
Blasting	<ul style="list-style-type: none"> <li>• All blasting activities will follow the notification procedure as described in Section 9.0 (Noise Management).</li> <li>• The Contractor will determine blasting plans. The plans will take into account specific explosives, blasting patterns, and initiation systems that optimize blast efficiency and mitigate noise, vibration, dust, and fumes.</li> <li>• Blasting will not occur within identified wildlife habitat feature buffers during sensitive timing windows (see Section 14.0, Table 20 for setback distances) unless approved by the Senior Environmental Inspector in consultation with an appropriate QP.</li> <li>• Blasting will not be scheduled during nighttime (2200 to 0700) to avoid noise impacts on residents of Kitamaat Village.</li> <li>• Blast mats, berms, or barriers may be employed to attenuate noise and vibration. The need for these measures will be determined by the Contractor in consultation with the Senior Environmental Inspector.</li> <li>• If blasting is required for access road construction, mitigation measures in Section 9.0 (Noise Management) will be followed.</li> <li>• Restoration and rehabilitation of the blast site and surrounding areas must take place after the work is complete to the satisfaction of the Senior Environmental Inspector.</li> </ul>

Activity/Concern	Mitigation Measure Requirement
Rollback/ Corduroy	<ul style="list-style-type: none"> <li>• Access control rollback will be made up of non-merchantable logs and larger slash supplemented by merchantable materials, as available, to deter access by highway-registered vehicles and meet environmental assessment commitments.</li> <li>• Spread out rollback material in a manner that does not create or enhance a fire hazard within the construction area.</li> <li>• The installation of corduroy will take into consideration:               <ul style="list-style-type: none"> <li>• required approvals will be received prior to installation</li> <li>• a separation layer (e.g., geotextile fabric) will be required over the logs prior to placement of subsoil</li> <li>• the use of merchantable logs may be restricted or not possible, as determined by the Senior Environmental Inspector.</li> </ul> </li> </ul>
Fording	<ul style="list-style-type: none"> <li>• Fording will only occur to meet construction requirements.</li> <li>• If fording a watercourse prior to installation of the vehicle crossing structure, install mats temporarily to protect the banks of the watercourse.</li> <li>• To facilitate the construction of a crossing, a machine is permitted to ford the stream a maximum of one time in each direction at the crossing location.</li> <li>• Activities requiring fording of wetted watercourses will involve consultation with the Environmental Inspector, Environmental Monitor, or other QP.</li> <li>• Conduct fording following general guidance from DFO Code of Practice: Temporary Fords (DFO 2023c), Scope-specific Best Management Practices for Changes In and About a Stream under the WSA (BC Gov. 2022), and Fish-stream Crossing Guidebook (BC Ministry of Forests [MOF], Lands and Natural Resource Operations [FLNRO], BC Ministry of Environment [MOE], and DFO, 2012).</li> <li>• Equipment used for construction activities must not be situated in a stream channel unless it is dry or frozen to the bottom at the time of the activity.</li> <li>• Watercourse crossing mitigation measures specific to fish-bearing streams are provided in Section 11.0.</li> </ul>
Snow Fills and Ice Crossings	<ul style="list-style-type: none"> <li>• Install snow fills and ice crossings following general guidance from DFO's Code of Practice: Ice Bridges and Snow Fills (DFO 2023b) and Fish-stream Crossing Guidebook (FLNRO, MOE, and DFO, 2012).</li> <li>• Employ frost inducement measures, as determined by the Construction Manager or the Senior Environmental Inspector along the travel and work side of the construction area through wetlands to create vehicle and construction access during winter construction. These measures may include clearing surface vegetation, packing snow, and spraying with water or man-made snow.</li> <li>• Ensure clean snow (e.g., snow maker, other approved locations) is used in the construction of a snow fill. Water used to freeze down or make snow will be approved by the Senior Environmental Inspector and will comply with all requirements of water withdrawal permits.</li> </ul>
Clear Span Bridges	<ul style="list-style-type: none"> <li>• Install clear span bridges in accordance with DFO's Code of Practice: Clear Span Bridges (DFO 2023a) and Fish-stream Crossing Guidebook (FLNRO, MOE, and DFO, 2012).</li> <li>• Install sediment control structures around bridge abutments and construction workspaces.</li> <li>• Operate machinery from above the high-water mark.</li> </ul>



Activity/Concern	Mitigation Measure Requirement
Culverts	<ul style="list-style-type: none"> <li>• Install culverts for watercourse crossings only where regulatory approvals are in place.</li> <li>• Install culverts in accordance with approvals and the Fish-stream Crossing Guidebook (FLNRO, MOE, and DFO, 2012).</li> <li>• Culverts must be designed and fabricated in compliance with the applicable:                             <ul style="list-style-type: none"> <li>• Canadian Standards Association Standard CSA G401, Corrugated Steel Pipe Products, or</li> <li>• Canadian Standards Association Standard CSA B1800, Section B182.8, Plastic Non-pressure Pipe Compendium.</li> </ul> </li> <li>• Culverts will be designed to pass the 10-year peak flow period for a temporary culvert installed for three years or less and a 100-year peak flow period for a culvert installed for more than three years.</li> <li>• Maintain natural drainage patterns by aligning culverts with the drainage or watercourse.</li> <li>• Install the culvert so that fill materials do not encroach on the culvert inlet or outlet.</li> <li>• Confirm that the culvert has been installed such that obstacles and debris can be removed from within and around the culvert.</li> <li>• Provide an adequate spillway for the culvert in unstable areas or where road-fill materials are unprotected, as determined by the Senior Environmental Inspector, Construction Manager, or a respective delegate.</li> <li>• Where the outflow ends of culverts are located near the top of fill slopes, install downspouts to transport runoff down a slope into constructed ditches.</li> <li>• Routinely inspect culverts for blockages of flow and erosion at either end of the culvert, specifically before and after a forecasted heavy precipitation event (i.e., more than 25 mm in 24 hours, more than 60 mm over three consecutive days). Conduct remedial measures, where warranted, to maintain cross drainage.</li> <li>• Do not use rock from below the high-water mark of the watercourse or wetland in the construction of aprons.</li> <li>• Place rocks at a slope similar to the culvert and channel in a manner that will not interfere with fish passage or constrict the channel width.</li> </ul>
Road Ditches	<ul style="list-style-type: none"> <li>• Install road ditches so that drainage is not directed into watercourses, wetlands, or waterbodies unless limited by topography (e.g., steep, unsafe terrain).</li> <li>• Install drainage, erosion, and sediment control measures where turbid waters can enter watercourses, waterbodies, or wetlands.</li> <li>• Install mechanical methods to reduce the velocity of water in ditches to encourage sediment settlement and capture.</li> </ul>
Log Fills	<ul style="list-style-type: none"> <li>• A separation layer (e.g., geotextile fabric) will be placed on logs prior to placement of subsoil.</li> <li>• The geotextile fabric will be winged up and properly secured for full containment of the subsoil material.</li> <li>• Culverts installed within log fills will be appropriately sized to handle expected flow conditions during the period of installation (see culverts section of the table above).</li> </ul>



Activity/Concern	Mitigation Measure Requirement
Shooflies – Wetlands	<ul style="list-style-type: none"> <li>• Install swamp mat(s), matting, or geotextiles (or construct a subsoil ramp, if warranted) for a work surface or for construction traffic that needs to cross the wetland. Restrict access through wetlands to the shoofly, mats/matting, or ramp.</li> <li>• If matting or ramps cannot be installed, shooflies may be required around wetlands for construction traffic. Cedar will obtain the approvals necessary for the required lands.</li> <li>• Be prepared to install shooflies around wetlands for initial construction traffic in consultation with Cedar’s Construction Manager or Senior Environmental Inspector, if matting or ramps cannot be installed. Install swamp mat(s), matting, or geotextiles (or construct a subsoil ramp, if warranted) for a work surface or for construction traffic that needs to cross the wetland. Restrict access through wetlands to the shoofly, mats/matting, or ramp to the extent practical.</li> <li>• Employ frost inducement measures along the travel and work side of the construction area through wetlands to create vehicle and construction access during winter construction, as determined by the Contractor, Construction Manager or Senior Environmental Inspector. These measures may include clearing surface vegetation, packing snow, and spraying with water or man-made snow.</li> </ul>
Wet Terrain/Peatland	<ul style="list-style-type: none"> <li>• Under wet conditions, install corduroy, wooden mats, or equivalent in areas of wet or thawed soils to reduce terrain disturbance and soil structure damage. These materials must be removed during clean-up.</li> </ul>
Monitoring and Maintenance	<ul style="list-style-type: none"> <li>• The Environmental Inspector will conduct inspections of work areas and water quality monitoring, daily during construction activities, weekly during construction, monthly during extended periods of inactivity and immediately following heavy precipitation events (i.e., more than 25 mm in 24 hours, more than 60 mm over three consecutive days).</li> <li>• Monitor road crossings of watercourses and wetlands (e.g., culvert, bridge) for containment of subsoil material and verify sediment is not released into a watercourse or waterbody.</li> <li>• Maintain side cuts in roads in a stabilized or re-vegetated condition. Control chronic slumping problems that have the potential to contribute sediment to watercourses and/or wetlands.</li> <li>• Do not use de-icer or salt for road maintenance. Restrict the use of sand within 10 m of watercourses and wetlands.</li> <li>• Do not stockpile snow in riparian areas.</li> <li>• Repairs to any portions of the crossing structure will be completed in a timely manner and in accordance with all permits and approvals.</li> </ul>



Activity/Concern	Mitigation Measure Requirement
<p>Temporary Access Decommissioning</p>	<ul style="list-style-type: none"> <li>• Notify the BCER, private landowners, rights holders, or regulators, as appropriate, of the schedule for access road decommissioning activities.</li> <li>• Close temporary access no longer required for construction by implementing the following measures at a minimum:                             <ul style="list-style-type: none"> <li>• remove watercourse and wetland crossings and reclaim the associated disturbance</li> <li>• remove cross drainage culverts and excavate a shallow ditch for drainage</li> <li>• block access by using a permanent fence with a locked gate, boulders, ditches, berms, rollbacks, or other method suitable and safe for the site</li> <li>• de-compact the roadbed where soils are compacted to the degree that trees or shrubs may not regrow</li> <li>• re-contour the roadbed and replace salvaged topsoil</li> <li>• install erosion and sediment control measures where runoff may cause erosion or at the direction of the Senior Environmental Inspector.</li> <li>• remove all non-biodegradable erosion and sediment control mitigation measures (e.g., silt fencing, poly plastic sheeting etc.), when no longer required or when construction is complete.</li> <li>• leave decommissioned areas for natural regeneration or restoration as required by land tenure agreements</li> </ul> </li> <li>• When deactivating winter watercourse/wetland crossings constructed of snow or ice, scrape off the surface of the crossing to remove any tracked-on debris and then cut a notch into the surface of the crossing parallel to the watercourse channel. If there is embedded debris within the crossing, then all crossing material will be removed and located in a manner that does not accentuate erosion.</li> </ul>
<p>Traffic Management</p>	<ul style="list-style-type: none"> <li>• All vehicles must abide by posted speed limits.</li> <li>• Cedar and its contractors are to abide by all conditions of permits issued for use of the Bish Creek Forest Service Road.</li> <li>• Cedar and its contractors must utilize buses provided by Cedar to transport workers between the worker accommodation camp and work sites unless provided a written variance by the Construction Manager or Senior Environmental Inspector.</li> <li>• Recreational use of ATVs by Cedar or contractor staff is not permitted on the Project's access roads, transmission line right-of-way, distribution powerline right-of-way, or marine terminal site.</li> </ul>

## 4.0 Light Management

Lighting from construction-related activities has the potential to disrupt fish and wildlife and affect the visual quality of residents of Kitamaat Village and Kitimat. This section provides mitigation measures to be implemented to reduce the impacts of lighting from the Project on environmental resources and local residents (Table 4).

**TABLE 4 MITIGATION MEASURES FOR CONSTRUCTION LIGHTING**

Activity/Concern	Mitigation Measure
Light Management	<ul style="list-style-type: none"> <li>• Conducting construction activities during daylight hours will avoid potential lighting effects. When work occurs during twilight or at night, only use the lighting necessary to maintain a safe workspace.</li> <li>• Direct lighting on work sites and away from surrounding areas to reduce light pollution.</li> <li>• If lighting cannot be directed, additional mitigation measures to reduce light spill will be applied (e.g., light shielding or adaptive controls and variable lighting regimes such as timers, dimmers, and motion sensors).</li> <li>• Where LED lights are used, use low ultraviolet (UV) lights to reduce the attractiveness of lights to insects.</li> <li>• Notify Haisla Nation of nighttime construction work that may direct lighting toward Kitamaat Village.</li> <li>• For any work on or near water, focus lights on work areas and minimize, to the greatest extent possible, any spillage onto the water.</li> <li>• The effectiveness of the above measures will be monitored daily when construction lighting is being implemented in the field and will inform any adaptive management decisions that are required, as determined by the Senior Environmental Inspector.</li> </ul>

## 5.0 Erosion and Sediment Control

Construction activities for the Project will occur near and within aquatic environments, and the mitigation measures are designated to protect aquatic and terrestrial habitats from the effects of suspended sediments. Installation of erosion and sediment control measures will follow BMPs and are outlined in Table 5.

**TABLE 5 MITIGATION MEASURES FOR EROSION AND SEDIMENT CONTROL**

Activity/Concern	Mitigation Measure
<b>General Mitigation Measures</b>	
Site Management	<ul style="list-style-type: none"> <li>• Cedar will require Contractors to prepare erosion and sediment control plans, that are specific to their scopes of work. Cedar’s Senior Environmental Inspector or the Contractor shall be accountable to ensure the measures contained within the plan are implemented, inspected and modified if supporting monitoring and/or inspection data indicates that the environmental performance criteria set out in this plan are not being met (i.e., TSS and turbidity criteria in Section 18.3). Should it be determined that erosion and sediment control measures are not meeting the performance objectives, they will be modified using adaptive management principles and these decisions will be recorded in the Daily Environmental Inspection Reports.</li> <li>• Manage construction activities to reduce erosion and the discharge of sediment or other deleterious substances into nearby watercourses, wetlands, or waterbodies.</li> <li>• Prioritize erosion prevention over sediment control by utilizing cover practices on exposed soils that are no longer being actively worked.</li> <li>• Install silt fences or other sedimentation control devices (e.g., coir logs) in combination with erosion control devices on approach slopes (particularly next to watercourses or waterbodies), where sediment-laden runoff is anticipated, to prevent sedimentation and siltation, as directed by the Environmental Inspector or Senior Environmental Inspector. Sediment control measures are to be installed before or in conjunction with the start of activities that will allow for the generation of sediment-laden run-off.</li> <li>• Limit work activities within riparian management areas of streams containing fish or coastal tailed frog and do not stockpile erodible material (including snow) in these areas (Table 6).</li> <li>• Where clearing is needed within 30 m of a watercourse, only grub areas that are needed for the installation of infrastructure (e.g., culverts) or to support the construction footprint. Stabilize disturbed areas to prevent surface erosion and mitigate potential effects on water quality.</li> <li>• Salvage topsoil stripped from workspaces or import clean topsoil for re-use during reclamation activities.</li> <li>• Soil stockpiles will be diked, sloped, and seeded or appropriately covered when not being actively worked to prevent erosion. Silt fencing may be required around part or all of a stockpile. Erosion prevention measures will be installed and regularly maintained until the stockpiles are decommissioned.</li> <li>• Do not stockpile soil or other materials (including snow) within 15 m watercourses or other sensitive areas. This does not apply to non fish-bearing watercourses within the footprint that will be culverted or relocated as part of construction.</li> </ul>

Activity/Concern	Mitigation Measure
Site Management (cont'd)	<ul style="list-style-type: none"> <li>• Install silt curtains before grubbing and grading where construction activities will occur in intertidal areas or immediately adjacent to the marine environment to prevent surface erosion affecting water quality in Douglas Channel. The silt curtain will be specified for the work environment and installed per the suppliers' instructions.</li> <li>• Erosion and sediment control measures will remain in place and be maintained throughout construction regardless of weather conditions and will only be removed once construction is complete and ground conditions have stabilized. The Senior Environmental Inspector will determine when ground conditions have stabilized sufficiently to remove the erosion and sediment control measures.</li> <li>• Where pumping to vegetation is required for dewatering activities, pump-off locations shall be approved by the Senior Environmental Inspector and, when in use, inspected daily by the Environmental Inspector and/or the Contractor.</li> </ul>
Contaminated Soils	<ul style="list-style-type: none"> <li>• Excavate soils within the area with cadmium exceeding the Contaminated Sites Regulation Industrial Land Use Soil Standards and dispose of affected soils at an approved off-site landfill. To establish the volume of soil to be removed, additional step out surface soil sampling around Site #13 in accordance with BC Contaminated Sites Regulation Technical Guidance 1: Site Characterization and Confirmation Testing 3 (TG1) will be undertaken to determine the extent that cadmium concentrations are above 1.0 mg/kg. The location of Site #13 is shown in Figure 5.</li> </ul>
Water Diversion	<ul style="list-style-type: none"> <li>• Divert overland flows from undisturbed areas away from or around construction areas.</li> <li>• Treatment and/or disposal methods for sediment-laden water shall include the use of sediment containment or mechanical means that settle or filter out the sediment (e.g., silt fences, filter fabric, straw bales, gravel filter dikes). An oil skimmer may be incorporated into the process if there is a potential for hydrocarbons to be present in the water.</li> <li>• Diversion or cut-off ditches shall be constructed in the dry until tie-in with the watercourse.</li> <li>• Diversion ditches shall be armored with clean, non-erodible rock that is adequately sized as determined and documented by the QP.</li> </ul>
Weather Events	<ul style="list-style-type: none"> <li>• Inspect erosion and sedimentation control measures following a rain event of more than 25 mm in 24 hours, a rain event totaling more than 60 mm over three consecutive days, or a rapid snow melt event to ensure continued effectiveness. If a rain event of more than 25 mm in 24 hours is forecast, inspect existing erosion and sedimentation control measures and implement additional measures if deemed necessary by the Environmental Inspector.</li> <li>• Repairs and maintenance to any impacted erosion or sediment control devices will occur to restore effectiveness and functionality.</li> </ul>
Soil Management	<ul style="list-style-type: none"> <li>• Rock and fill materials used for in-water work will be clean (i.e., free of dirt and silt or other contaminants) before being placed. Rock will be screened to be free of dirt and smaller fraction material, free of significant silt, and rinsed to reduce fine dust.</li> <li>• Rock source will be confirmed to be non-acid generating (NAG).</li> <li>• The Environmental Inspector will require the Contractor to provide supporting lab analysis for all imported materials that could be acid-generating.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Potential deleterious substances to riparian, aquatic, or marine habitats, including construction waste, overburden, and soil, will be stored or disposed of to prevent the entry of such substances into riparian, aquatic, or marine areas.</li> </ul>



Activity/Concern	Mitigation Measure
<b>Sedimentation and Control Measures</b>	
Topsoil stripping and grading	<ul style="list-style-type: none"> <li>• As topsoil stripping and grading are progressing, install the applicable sediment control measures at watercourses and waterbodies to reduce the off-footprint release of large sediment particles.</li> <li>• Cover all piles of topsoil or other erodible material. If stockpiles will be in place for the growing season, the cover may consist of seed and spray tackifier.</li> </ul>
Sediment fencing	<ul style="list-style-type: none"> <li>• Install sediment fencing 2 to 4 m from the base of approach slopes to the watercourse and/or waterbodies or as directed and documented by the Senior Environmental Inspector.</li> <li>• Where soil conditions permit, key sediment fencing into the substrate. Excavate a narrow, shallow trench between 15 to 20 cm below grade to install the bottom portion of the geotextile fabric of the fencing into the trench and backfill excavated soil against the geotextile material. Where keying-in the silt fence is not practical, bury the bottom of the fencing with clean crushed rock.</li> <li>• Install posts (e.g., wood/metal posts) on the downhill-facing side so run-off pushes the fabric against the post.</li> <li>• When installing several lengths of sediment fencing end to end, overlap the ends a minimum of 45 cm or two wood post lengths (if already in a roll with wood posts).</li> <li>• At the end of the roll, a small J-hook can be made to contain any sediment that may migrate off the construction footprint.</li> <li>• Remove sediment when the loading has reached two-thirds the height of the sediment fencing or as directed and documented by the Senior Environmental Inspector.</li> </ul>
Coir logs/wattles	<ul style="list-style-type: none"> <li>• Prior to installation, ensure there is a depression/trench in the existing grade to lay down the device. This will prevent water from undermining the device.</li> <li>• The depression/trench shall be perpendicular to the slope or direction of water flow.</li> <li>• Ends of the device shall be turned up-slope so as to retain water and prevent it from flowing around the end of the device.</li> <li>• Stake down the device with wood or metal stakes every 0.9 to 1.2 m across the entire length of the device.</li> <li>• The stakes will be driven through the center of the wattle and into the ground with 5 to 10 cm projecting above the top of the wattle. A stake will be placed within 5 to 15 cm of the end of the wattle.</li> <li>• When joining two wattles, tightly abut both ends or overlap the wattles by at least 15 cm.</li> </ul>
<b>Erosion and Control Measures</b>	
Streambank erosion or failure	<ul style="list-style-type: none"> <li>• If streambank erosion or failure is a concern, the Contractor will execute the measures compatible with watercourse commitments outlined in Section 11.0, as determined by the Senior Environmental Inspector. These measures may include:                         <ul style="list-style-type: none"> <li>• plant willow stakes</li> <li>• transplant willow clumps, tree revetments, install willow wattles, or brush layering</li> <li>• apply netting or netting with straw mulch complete with seed mix</li> <li>• install log cribwall bank protection</li> <li>• armour bank with rock riprap or install groins, rock deflectors</li> <li>• install vegetated geogrid</li> <li>• install rock gabions or rip rap</li> <li>• reconstruct stream profile to remove scour holes or instream obstructions.</li> </ul> </li> </ul>



Activity/Concern	Mitigation Measure
<p>Steep slopes, areas prone to compaction and rutting or topsoil erosion</p>	<ul style="list-style-type: none"> <li>• To prevent the loss of topsoil, salvage and store any remaining topsoil away from the area to be re-graded.</li> <li>• On steeper slopes prone to erosion, create micro-sites to retain moisture and enhance seed germination success by aligning the final pass of dozers straight up and down the slope.</li> <li>• Regrade ruts or furrows.</li> <li>• Employ erosion control measures as determined by the Senior Environmental Inspector. Example measures include:                         <ul style="list-style-type: none"> <li>• construct temporary subsoil, sandbag, or bail firms during construction activities to control surface water flow.</li> <li>• install cross-ditches and berms with decreased spacing on steeper slopes or soils with high erosion potential. armor upslope side of berms with rock, coarse woody debris/logs, geo textiles, or sandbags.</li> <li>• cover disturbed areas with slash.</li> <li>• reseed with cover suitable to land use.</li> <li>• plant willow stakes during the winter when dormant or employ other bio-engineering techniques.</li> <li>• netting or netting with straw mulch complete with seed mix.</li> </ul> </li> <li>• Where unstable slopes are encountered, the Construction Manager, with recommendation from the Senior Environmental Inspector, may determine the need for consultation with a geotechnical engineer to assist in identification of appropriate mitigation.</li> </ul>
<p>Diversion berms and cross stitches</p>	<ul style="list-style-type: none"> <li>• Install subsoil diversion ditches, berms, or other structures on erosion-prone approach slopes, high seepage areas, and locations that aggregate precipitation runoff (depressions or bowled slopes) to manage surface water run-on and run-off. Exact location and direction of berms will be determined in the field by the Contractor in consultation with the Construction Manager and/or the Senior Environmental Inspector based on local topography and drainage patterns.</li> <li>• Skew berms and cross ditches across the area of works at a downhill gradient of 5-10%.</li> <li>• Protect the upslope of the berm and base of the cross ditch by lining with erosion control blankets (e.g., coir matting).</li> <li>• Use diagonal berms and cross ditches where direction of slope and surface water movement is oblique to the construction area.</li> <li>• Typical height of a diversion berm is 0.75 m.</li> <li>• Use herringbone berms and cross ditches where direction of slope and surface water movement is parallel to the construction area.</li> <li>• Decrease the spacing of diversion berms on steeper slopes or more erodible soils.</li> <li>• During restoration, subsoil diversion ditches and berms shall be capped with topsoil and seeded. In areas of high erosion potential consideration may be made for diversion berms to be lined and staked with coir matting.</li> </ul>
<p>Rock apron/barriers</p>	<ul style="list-style-type: none"> <li>• Rocks or boulders may be placed at the end or within the diversion ditch or within the eroded area to slow down the movement of sediment-laden waters</li> </ul>



Activity/Concern	Mitigation Measure
Sediment traps and sediment ponds	<ul style="list-style-type: none"> <li>• Settlement traps may be installed by constructing one to two trenches at the top of the slope or at the end of a diversion ditch to intercept sediment-laden waters.</li> <li>• Any sediment ponds shall be constructed in a manner which excludes amphibians from utilizing these structures as potential breeding locations.</li> <li>• Any sediment ponds constructed on-site shall be inspected weekly or as determined and documented by the Senior Environmental Inspector.</li> </ul>
Rollback/coarse woody debris	<ul style="list-style-type: none"> <li>• Place the rollback in a scattered fashion at the pre-determined location.</li> <li>• Rollback material shall consist primarily of coarse woody debris (e.g., unmerchantable tree trunks, large branches, root balls, and stumps).</li> <li>• Rollback is to be spread in a manner that does not create a fire hazard, particularly in relation to coniferous stands. Fire breaks can be created in the rollback, at the discretion of the Senior Environmental Inspector.</li> <li>• Rollback must remain flat on the ground and in contact with the soil and have a ground cover that does not exceed 50%.</li> <li>• For slopes in excess of 10%, retain additional larger slash materials from the slope in question. Where insufficient slash is available, the slash may be supplemented with merchantable timber.</li> </ul>
Erosion Control Blanket	<ul style="list-style-type: none"> <li>• Before placing down the blanket (e.g., coir matting), the topsoil must be smoothed out to ensure greater surface contact.</li> <li>• Seeding of the topsoil shall occur before placement of the blanket.</li> <li>• Roll out the erosion control blanket starting from the top of the slope.</li> <li>• Ensure a minimum of 15 cm overlap for the next row of erosion control blanket. For structural integrity of the blankets, stagger the start of each row.</li> <li>• At the top of the erosion control blanket, ensure the edge is keyed/anchored into the soil by at least 15 cm.</li> <li>• Install wood nails or metal staples 45 to 60 cm apart in a “X” pattern.</li> <li>• If installing the blanket on the banks of a watercourse, the blanket shall be secured by using willow cuttings in combination with wood nails/metal staples or by other methods as directed by the Senior Environmental Inspector.</li> </ul>
Seeding	<ul style="list-style-type: none"> <li>• At the discretion of the Senior Environmental Inspector, Cedar will engage a QP to prepare a suitable short-living, non-persistent cover crop species prescription for a temporary rapid vegetative cover on erosion-prone areas such as moderate to steep slopes, exposed windy areas, and areas with coarse-textured soils. Potential cover crop species may include annual ryegrass, winter wheat, fall rye, slender/awned wheatgrass, Canada wild rye, hairy wild rye, and triticale. Perennial forage species will not be used (BCER 2020, 2021).</li> <li>• Areas that will not be used for operational purposes shall be reclaimed following recommendations in Section 13.0.</li> </ul>

Activity/Concern	Mitigation Measure
Monitoring and Adaptive Management	<ul style="list-style-type: none"> <li>• During periods of active construction, the Environmental Inspector and/or the Contractor will inspect erosion and sediment control measures weekly and prior to a forecast weather event (as defined above) for effectiveness and will record where/if maintenance is required. These inspections will be documented via the Daily Environmental Inspection Report or the Contractor's equivalent.</li> <li>• Repairs and maintenance to any impacted erosion or sediment control devices will occur within one week or prior to a forecasted precipitation event upon identification of damage to restore effectiveness and functionality. Corrective actions will be documented by the Environmental Inspector and/or the Contractor.</li> <li>• In-situ turbidity monitoring as described in Section 18.3 will be used to determine the effectiveness of erosion and sediment control mitigation measures and will be used to inform any adaptive management decisions required to maintain compliance with the BC Water Quality Guidelines in receiving waters (see Section 18.3.1).</li> <li>• Should turbidity monitoring indicate that erosion and sediment control measures are not effective (i.e. elevated turbidity above specified performance criteria in isolated freshwater drainages or the marine environment downstream of the work area), the Senior Environmental Inspector will direct the Contractor to modify the applicable erosion and sediment control measures using an adaptive management approach that considers the associated construction activity and phase of construction.</li> <li>• Adaptive management decisions and outcomes will be documented by the Environmental Inspector in the Daily Environmental Inspection Report.</li> </ul>

**TABLE 6 RIPARIAN MANAGEMENT AREAS BASED ON RIPARIAN CLASS SIZE**

Riparian Class	Average Channel Width (m)	Reserve Zone Width (m)	Management Zone Width (m)	Total Riparian Management Area Width (m)
S1 – large rivers	≥100	0	100	100
S1 (except large rivers)	>20	50	20	70
S2	>5 – ≤20	30	20	50
S3	1.5 – ≤5	20	20	40
S4	<1.5	0	30	30
S5 <sup>1</sup>	>3	0	30	30
S6 <sup>1</sup>	≤3	0	20	20
Note: <sup>1</sup> Non-fish bearing stream or fish not within community watershed.				

## 6.0 Fueling and Spill Response

Spills of hazardous materials during a construction-related activity have the potential to affect environmental resources (e.g., vegetation, soils, watercourses, waterbodies). Spill prevention and response guidelines recommend that appropriate spill abatement and clean-up materials (e.g., spill containment kits) be stored in a designated locations on-site, that used spill abatement and clean-up materials be promptly replaced, and that equipment be equipped with absorbent pads to quickly respond to spills from that piece of equipment. This section provides mitigation measures to be implemented to prevent spills from occurring during a construction-related activity and the steps to be taken to respond to and contain a spill of hazardous materials to reduce effects on environmental resources.

This plan addresses localized spills that are contained within the Transmission Line Corridor, distribution powerline right-of-way, Facility Area or Marine Terminal Area. Should a large enough spill occur that it results in off-site effects or requires support from parties other than Cedar or the Contractor, communication and response measures must be taken in accordance with the Accidents, Malfunction, and Communication Plan (PC21258-SA-PLN-00005).

### 6.1 Spill Prevention

Mitigation measures to prevent spills for fuels, hazardous materials, and wastewater are provided in Table 7. The Project workforce will be trained on their responsibilities and spill response procedures including the location of spill kits.

**TABLE 7 MITIGATION MEASURES FOR FUELING AND SPILL RESPONSE**

Activity/Concern	Mitigation Measure Requirement
Spill Kit	<ul style="list-style-type: none"> <li>• Keeping spill kits onsite and readily accessible to members of the work crew will allow for quick and effective cleanup of small spills and containment of larger spills until remediation actions can be taken. Spill kits are available in various sizes and may vary depending on the manufacturer. The minimum contents of a spill kit cache for working on or within 30 m of water is as follows:                             <ul style="list-style-type: none"> <li>• 100 sorbent pads (oil, gas, and diesel)</li> <li>• 4 bales of absorbent booms (160 feet)</li> <li>• 100 universal sorbent pads appropriate for water-based fluids (e.g., coolant)</li> <li>• 25 kg of dry oil sorbent</li> <li>• 4 sections of 4 foot long (~1.2 m) sorbent linkable socks (oil, gas, and diesel)</li> <li>• 4 sections of x 4 foot long (~1.2 m) universal sorbent linkable socks (e.g., coolant)</li> <li>• 4 sections of 10 foot long (3 m) sorbent linkable floating booms</li> <li>• 1 roll of 25 x 4 m polyethylene sheeting (for underlay)</li> <li>• 10 heavy-duty plastic garbage bags</li> <li>• Personal protective gear as required</li> </ul> </li> <li>• At least one spill kit must be on site at the start of construction.</li> </ul>



Activity/Concern	Mitigation Measure Requirement
Spill Kit (cont'd)	<ul style="list-style-type: none"> <li>• Emergency response materials will be strategically located in the Facility Area during construction. The material, along with a 24/7 contact list, can be activated during an environmental emergency with a minimal response time. The minimum emergency response materials to be within the Facility Area include:                             <ul style="list-style-type: none"> <li>• roll of heavy gauge polyurethane</li> <li>• roll of woven geotextile</li> <li>• box of spill absorbent pads (diapers)</li> <li>• a two or three-inch functional water pump with screened intake hose and 100 m of new discharge hose</li> <li>• heavy duty plastic bags for contaminated soils</li> <li>• 30 m + of surfactant booms</li> <li>• three rolls of silt fence</li> <li>• tee bars and pounder</li> <li>• snow fencing</li> <li>• shovels and fire axes</li> <li>• fire extinguishers and portable backpack water tanks for grass fires</li> <li>• Water buckets</li> <li>• “Tommy” containment tubs for pumps, etc.</li> <li>• small tool kit with rope, wire, duct tape, flashlights, pliers, ribbon, etc.</li> <li>• first aid kit</li> <li>• clipboard or logbook in the unit with an inventory listing all recommended contents, the Contractor’s 24/7 contacts and spill reports, and Cedar’s emergency reporting protocol and contacts (see Section 16.0).</li> <li>• spill kit in a barrel</li> <li>• a small light plant</li> <li>• non-woven geotextile (filter cloth)</li> <li>• empty bags for making sandbags</li> </ul> </li> </ul>
Fuel and Service Vehicles  Stationary Fuel Tanks	<ul style="list-style-type: none"> <li>• Equip all fuel and service vehicles with a minimum of 25 kg of commercial sorbent material and a tarp, shovel, and heavy plastic bags.</li> <li>• Containment around stationary fuel tanks will be constructed with earthen, concrete, or synthetic material that will not deteriorate or develop leaks.</li> <li>• Containment will be sized to be at least 110% or greater of the capacity of the largest tank within the dyke.</li> <li>• Employ secondary containments and drip trays in a manner that avoids the collection of rainwater and/or snow.</li> <li>• Secondary containment and drip trays will be inspected for damage or evidence of contamination on a weekly basis. Contaminated or damaged secondary containment will be cleaned, disposed of, or repaired as determined by the nature of the contamination and/or damage and as recommended by the Environmental Inspector and/or other QP.</li> <li>• Do not store fuel, oil, or other hazardous materials outside of designated refueling or storage sites.</li> </ul>



Activity/Concern	Mitigation Measure Requirement
Refueling and Servicing	<ul style="list-style-type: none"> <li>• Place a spill tray or impervious tarpaulin under equipment and vehicles during servicing and refueling.</li> <li>• Cedar’s Construction Manager or Senior Environmental Inspector will approve designated, long-term, refueling sites identified by the Contractor. Operators are to be stationed at both ends of the hose during fueling and an automatic valve shut-off must be used.</li> <li>• Cedar’s Construction Manager or Senior Environmental Inspector will approve the Contractor’s plan for use of refueling trucks.</li> <li>• When refueling equipment, the following precautions will be taken:                             <ul style="list-style-type: none"> <li>• Refueling of equipment will not occur within 30 m of a watercourse, wetland or water body.</li> <li>• Contain non-mobile equipment within large spill trays or a sufficiently constructed impermeable berm. Means of containment will be sufficient to hold 110% of the fluids kept in containment.</li> <li>• Inspect containers, hoses, and nozzles for leaks. If leaks are found, equipment is not to be used until properly repaired. Position an operator at the pump and nozzle during fueling to monitor for leaks and spills and return any fuel remaining in hoses to the storage tank.</li> </ul> </li> <li>• The Environmental Inspector will conduct weekly site inspections/walk through with Contractor(s) to assure good housekeeping is maintained.</li> <li>• In addition to the spill kits on site, each piece of mobile equipment (e.g., cranes, trucks) will have an appropriately sized spill kit. The minimum contents of an equipment spill kit are as follows:                             <ul style="list-style-type: none"> <li>• round-nose shovel or equivalent</li> <li>• 2 x 4 (~1.2 m) sorbent sock/roll</li> <li>• 20 sorbent pads (oil, gas, and diesel)</li> <li>• heavy-duty plastic garbage bags</li> <li>• personal protective gear as required</li> </ul> </li> <li>• The Contractor will verify spill kits are readily available within their work areas. Spill kits will be checked on a weekly basis and refilled after use.</li> </ul>
Constructing in a Watercourse/Waterbody	<ul style="list-style-type: none"> <li>• Use bio-degradable hydraulic fluids and lubricants in equipment that is working in a stream, wetland or intertidal area.</li> <li>• Inspect all fuel tanks, hydraulic hoses, and lubrication systems of equipment to be used in water crossing construction to ensure systems are in good condition and free of leaks.</li> <li>• Equipment must be clean and free of external grease, oil/fluids, mud, soil, and vegetation prior to watercourse or water body crossing construction to prevent discharge of materials toxic to fish and other aquatic life.</li> </ul>

## 6.2 Spill Response

During construction, there is potential to release or spill material (e.g., concrete, fuels, or hydraulic fuels) into the environment. The relevant contacts for notification following the discovery of a spill are provided in Table 8. Substances and volumes exceeding the minimum requirements of the *Environmental Management Act*, as outlined in Table 9, Cedar will report these to Emergency Management BC (EMBC). All spills to water will be reported to DFO by Cedar’s Environmental Advisor or the Senior Environmental Inspector. Spill events with the potential for public health effects (e.g., drinking water safety, air quality) will be reported to Health Emergency Management BC.

**TABLE 8 SPILL RESPONSE CONTACTS**

Contact	Contact Information
Senior Environmental Inspector or Designate (Kurt Merrifield or Duncan Campbell)	604-839-9858 or 778-345-8528
Construction Manager or Designate (Garth Henry)	403-350-1173
Environmental Advisor (Jason Lyth)	604-908-0283
Emergency Services	911
Emergency Management BC (EMBC)	800-663-3456
Environment Canada Spill Reporting Line	800-663-3456
WorkSafe BC	604-276-6100
Health Emergency Management BC (HEMBC)	855-554-3622
Fisheries and Oceans Canada Observe, Record and Report Hotline	800-465-4336
Violations and Reporting, Report Poachers and Polluters (RAPP)	877-952-RAPP (7277)

**TABLE 9 REPORTABLE VOLUMES OF LISTED SUBSTANCES UNDER THE SPILL REPORTING REGULATION**

Substance	Quantity
Class 1, Explosives as defined in section 2.9 of the Federal Regulations	50 kg, or if a danger to public safety
Class 2.1, Flammable Gases, other than natural gas, as defined in section 2.14 (a) of the Federal Regulations	10 kg
Class 2.2 Non-flammable and Non-toxic Gases as defined in section 2.14 (b) of the Federal Regulations	10 kg
Class 2.3, Toxic Gases as defined in section 2.14 (c) of the Federal Regulations	5 kg
Class 3, Flammable Liquids as defined in section 2.18 of the Federal Regulations	100 L
Class 4, Flammable Solids as defined in section 2.20 of the Federal Regulations	25 kg
Class 5.1, Oxidizing Substances as defined in section 2.24 (a) of the Federal Regulations	50 kg or 50 L
Class 5.2, Organic Peroxides as defined in section 2.24 (b) of the Federal Regulations	1 kg or 1 L
Class 6.1, Toxic Substances as defined in section 2.27 (a) of the Federal Regulations	5 kg or 5 L
Class 9, Miscellaneous Products, Substances or Organisms as defined in section 2.43 of the Federal Regulations	25 kg or 25 L
Leachable toxic waste as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
Waste containing polycyclic aromatic hydrocarbon as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
Waste asbestos as defined in section 1 of the Hazardous Waste Regulation	50 kg
Waste oil as defined in section 1 of the Hazardous Waste Regulation	100 L

Substance	Quantity
Waste that contains a pest control product as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
PCB wastes as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
Waste containing tetrachloroethylene as defined in section 1 of the Hazardous Waste Regulation	50 kg or 50 L
A hazardous waste as defined in section 1 of the Hazardous Waste Regulation and not covered in this table	25 kg or 25 L
A substance, not covered by items 1 to 23, that can cause pollution	200 kg or 200 L
Natural gas	10 kg

If a spill occurs, work will stop, and the area will be secured and cleaned up. The Contractor will report any spills to the Construction Manager and Senior Environmental Inspector as soon as it is safe to do so. The Construction Manager and Senior Environmental Inspector are responsible for assessing the spill, regulatory reporting, and the corrective action process. The following spill response procedure will be followed:

#### 1. Initial Spill Response – Establish Site Control

- In the event of a spill of hazardous material, the first person on the scene will:
  - If possible without further assistance, control danger to human life (e.g., remove ignition sources).
  - Identify the material spilled and implement appropriate safety procedures.
  - Based on the nature of the hazard, cut off the source of the spill (if possible).
  - Immediately obtain the assistance of others and begin to contain and clean up the spill.
  - Notify the Construction Manager and Senior Environmental Inspector.
- If the source can be controlled in a safe manner, then steps will be taken to prevent the spread of material (Spill Containment).

#### 2. Spill Containment

- The following containment measures can be initiated to limit the spread of the spill, minimize effects on waterbodies or other areas of environmental concern, and prevent damage to property:
  - A shallow depression will be excavated, or surface berm constructed in the path of the spill to stop and contain flow. If practical, without delaying containment efforts, topsoil will be salvaged and stored separately during excavations.
  - Check the ground for human-made structures, such as piles, foundations, manholes, wells, or cracks within the soil that may provide a means of contaminate migration toward the subsurface. Verify that these subsurface features are protected with a berm, dyke, or other containment option, to prevent further environmental impact.
  - No traffic will be allowed in contaminated areas.
  - Culverts will be blocked to limit spill travel.
  - Wildlife will be restricted from entering the affected area using fencing.

### 3. Collection and Disposal

- All free products will be collected and transported to an approved waste treatment facility.
- In the event that a spill impacts fish, wildlife and/or their habitat, Cedar will consult with a QP and review relevant guidance material (e.g., National Wildlife Emergency Response Framework: Guidance and DFO Measures to Project Fish and Fish Habitat).

### 4. Spill Reporting

- All spills will be immediately reported to the Construction Manager and Senior Environmental Inspector. A record of all non-reportable spills will be maintained by the Environmental Inspector. All reportable spills will be recorded on an environmental incident form and reported by Cedar to the EMBC hotline at 1-800-663-3456. Spills within waterbodies will be reported to DFO (Violations and Reporting hotline 604-666-3500).
- The Contractor will document all spills by preparing a sketch with dimensions showing the spill location and a report describing:
  - Date, time, weather, and location of the spill.
  - Site description and surrounding area where the spill occurred.
  - Type and quantity of the substance spilled.
  - Description of circumstances, cause and effect of a spill, and the clean-up and reclamation procedures undertaken.
- An initial email report will be completed and submitted to the Construction Manager and Senior Environmental Inspector within 24 hours for internal/external reporting requirements. A final report will be required following the completion of the clean-up.
- The Senior Environmental Inspector or delegate may take confirmatory samples after spill clean-up has been completed to ensure all contaminated material has been removed.

## 7.0 Waste Management

Housekeeping is an important construction activity to ensure a clean working site for all phases of construction. Table 10 provides mitigation measures for waste management to reduce impacts on the environment.

**TABLE 10 MITIGATION MEASURES FOR WASTE MANAGEMENT**

Activity/Concern	Mitigation Measure Requirement
Construction Activities	<ul style="list-style-type: none"> <li>• The Contractor shall prepare a waste management plan prior to the start of work for approval by Cedar. At a minimum, the plan shall include the mitigation measures specified in Table 10 of this CEMP.</li> <li>• The Contractor will manage the re-use, recycling, and disposal of waste generated during construction, including construction wastes, domestic waste, and hazardous materials.</li> <li>• Wastes will be managed in a manner that is safe, non-polluting, and protected from wildlife.</li> <li>• Separate collection and storage containers will be provided for hazardous and non-hazardous waste.</li> <li>• Waste containers will be clearly labeled for sorting and located close to waste generating activities.</li> <li>• Waste material will be disposed of in accordance with regulatory requirements. Non-hazardous waste will be disposed of in a licensed waste receiver facility. Hazardous liquid and solid waste will be collected in a secure, enclosed location and transported offsite to a licensed hazardous waste facility (see Hazardous Waste below).</li> <li>• Food waste and other attractants will be stored in wildlife-proof bins and secured from tipping, which will reduce the potential of attracting wildlife to work areas.</li> <li>• Portable toilets, if required, will be located a minimum of 30 m from any waterbody or catch basin. Sewage from portable toilets will be disposed of in an approved sewage disposal facility on an as-needed basis.</li> <li>• Smoking will only be permitted in designated areas within the Marine Terminal Area, Facility Area, Transmission Line Corridor and distribution powerline right-of-way.</li> <li>• All designated smoking areas shall have appropriate fireproof containers for waste.</li> <li>• Cigarette butts may only be disposed of in the fireproof containers.</li> </ul>
Burning Activities	<ul style="list-style-type: none"> <li>• Open burning of construction waste material shall comply with the BC Open Burning Smoke Control Regulation, District of Kitimat burn requirements, and other relevant regulatory criteria established.</li> <li>• Open burning of construction waste material in the Facility Area and Marine Terminal Area shall use measures such as fireboxes and trench burners that include air curtains.</li> <li>• Open burning (or incineration) of waste materials will not occur near temporary construction offices or other areas where the workers may congregate.</li> </ul>



Activity/Concern	Mitigation Measure Requirement
Hazardous Waste	<ul style="list-style-type: none"> <li>• The <i>Hazardous Waste Regulation</i> will be followed for containment, storage and handling, disposal, and transportation of substances identified as hazardous waste.</li> <li>• Where activities involve the handling, storage, and removal of hazardous waste, the following records will be maintained:                         <ul style="list-style-type: none"> <li>• inventories of types and quantities of hazardous waste generated, stored, or removed</li> <li>• manifests identifying hazardous waste haulers and disposal destinations</li> <li>• disposal certification documents</li> </ul> </li> <li>• Sorbent materials or soils saturated with hydrocarbons (greater than or equal to 3% by weight) are classified as hazardous waste under the BC <i>Environmental Management Act</i> and will be managed accordingly.</li> <li>• Used petroleum products, including their empty containers and oil filters, will be collected, and transported to a licensed recycling facility in approved storage containers following applicable regulations.</li> <li>• Designated waste storage areas will be clearly marked, secured, and compliant with the Transport of Dangerous Goods Act and WHMIS regulations.</li> <li>• Do not mix or dilute hazardous waste with any solid or liquid, including waste, water or rainwater, or otherwise take action by dividing a hazardous waste to evade the BC Hazardous Waste Regulation.</li> <li>• Storage of hazardous materials will not occur within 30 m of waterbodies or other sensitive habitats (unless authorized by the Senior Environment Inspector) and the location of longer-term (i.e., greater than six months) hazardous materials storage will be identified on a construction drawing to provide current information to workers present at the site.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>• While active work is occurring on-site, Contractors and Subcontractors will conduct daily visual inspections and produce a weekly waste reporting log to ensure waste is being collected, stored, and handled according to the Project conditions and required regulations.</li> <li>• Environmental Inspector will include inspections of waste management and storage as part of its weekly inspection activities.</li> <li>• Environmental Inspector will document wildlife observed on site and/or attracted to the site because of waste.</li> </ul>

## 8.0 Concrete Management

Construction activities using concrete have the potential to affect water quality in nearby aquatic environments (i.e., streams and Douglas Channel) or impact terrestrial habitats. Table 11 provides mitigation measures for concrete management to reduce impacts on the environment.

**TABLE 11 MITIGATION MEASURES FOR CONCRETE WORKS**

Activity/Concern	Mitigation Measure
General	<ul style="list-style-type: none"> <li>• Pre-cast concrete structures will be used for outfalls and other small structures in and immediately adjacent to aquatic environments. Use of cast-in-place methods for installing outfalls and other small structures must be approved by the Construction Manager or Senior Environmental Inspector.</li> <li>• All work involving the use of concrete, cement, mortars, and other Portland cement or lime-containing construction materials (concrete) must not deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into or about any watercourse or waterbody. Concrete materials cast-in-place must remain inside formed structures.</li> <li>• A carbon dioxide (CO<sub>2</sub>) tank with regulator, hose and gas diffuser must be readily available and located adjacent to any work involving the mixing or pouring of concrete in or immediately adjacent to aquatic environments. Operators must be trained to operate such equipment and to release CO<sub>2</sub> gas and neutralize pH levels should a concrete (and/or derivative) spill occur.</li> <li>• Where concrete work occurs within or immediately beside a stream or Douglas Channel, a location immediately downstream of or adjacent to the work must be monitored regularly, as determined by the Environmental Inspector, for pH during the pour.</li> <li>• Wash-down water from concrete delivery trucks, concrete pumping equipment, and other tools and equipment must be contained in a manner that prevents wash-down water from entering a stream, stormwater runoff, or Douglas Channel.</li> <li>• Collect and dispose of all concrete waste as described in Section 7.0. Concrete waste materials must not be deposited into watercourses, marine environment, or stormwater runoff.</li> <li>• Concrete work in or immediately adjacent to any watercourse, stormwater system, or marine environment must be isolated from flowing water. Measures must be implemented to prevent raw concrete from entering into any watercourse or stormwater system.</li> <li>• Concrete work in or immediately adjacent to a watercourse or Douglas Channel must stop if the pH at a distance of 10 m from the work area has changed by more than 1.0 pH unit, measured to an accuracy of +/- 0.2 pH units from the background level.</li> <li>• Water that contacts uncured or partly cured concrete during activities, such as exposed aggregate wash-off, wet curing, or equipment washing, must be prevented from directly or indirectly entering any stream, stormwater system, or aquifer if it will adversely alter the water quality as compared to the pre-disturbed state.</li> <li>• All cast-in-place concrete and grouting must be protected from rainfall (e.g., covered with poly) for a minimum of 48 hours if ambient air temperature is above 0°C and for a minimum of 72 hours if ambient air temperature is below 0°C.</li> </ul>



Activity/Concern	Mitigation Measure
Pouring	<ul style="list-style-type: none"> <li>• Barriers will be used to prevent splashing over forms and into the water.</li> <li>• Cast in place concrete structures must remain isolated from marine and aquatic environments by remaining inside sealed structures that have been cured for a minimum of 48 hours if ambient air temperature is above 0°C and for a minimum of 72 hours if ambient air temperature is below 0°C.</li> </ul>
Spills	<ul style="list-style-type: none"> <li>• Tarpaulins, spill trays or other equivalent measures of capture shall be readily available beneath cementitious material pouring.</li> <li>• In the event of a spill, implement spill mitigation and clean-up measures (e.g., a carbon dioxide (CO<sub>2</sub>) diffuser, dry ice, and removal of the material).</li> <li>• Refer to the Spill Response for reporting requirements (Section 6.2)</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>• Where concrete work occurs within or immediately beside a stream or Douglas Channel, a location immediately downstream of or adjacent to the work must be regularly tested and be within BC WQG-PAL (freshwater – pH of 6.5 to 9.0; marine – 7.0 to 8.7) (BC ENV 2023).</li> <li>• Concrete work in or immediately adjacent to a watercourse or Douglas Channel must pause if downstream pH:                             <ul style="list-style-type: none"> <li>• has changed by more than 1.0 pH unit, measured to an accuracy of +/- 0.2 pH units from the background level; or,</li> <li>• has changed outside of the BC WQG-PAL for freshwater or marine environments</li> </ul> </li> <li>• Concrete work may only resume when pH levels have returned to levels within this range. This can be achieved by the use of a CO<sub>2</sub> diffuser.</li> </ul>
Source: Province of British Columbia 2022	

## 9.0 Noise Management

During construction, activities such as the operation of vehicles and equipment, blasting, pile installation, and helicopter use will produce noise. Higher levels of noise are generally correlated with aquatic and terrestrial wildlife disturbance, and annoyance risks to people. To limit the degree of wildlife disturbance and annoyance risk to people, the following noise mitigation measures are recommended during the construction phase (Table 12).

**TABLE 12 MITIGATION MEASURES FOR CONSTRUCTION NOISE**

Activity/Concern	Mitigation Measure
Equipment	<ul style="list-style-type: none"> <li>• Standard mufflers or silencers will be used on equipment and equipment will be kept in good working condition. Covers and equipment panels will be well fitted to muffle noise. Chains, bolts, pins, and fasteners will be tight to avoid rattling.</li> </ul>
Timing	<ul style="list-style-type: none"> <li>• Cedar will notify occupants of residential dwellings within 3 km of the marine terminal or transmission line or distribution powerline about upcoming high disturbance noise-generating activities (including blasting, helicopter work and pile driving).</li> <li>• High disturbance noise-causing activities will be limited to daytime hours only. If nighttime construction is required, Cedar will seek the necessary permits to undertake this work.</li> </ul>
Monitoring and Maintenance	<ul style="list-style-type: none"> <li>• Regularly maintain machinery and equipment so that noise emissions are within range set by manufacturer when available.</li> <li>• Vehicles and equipment will be inspected by the Environmental Inspector and/or Contractor at least once per month.</li> <li>• Inspection and maintenance records will maintained on-site and will be provided to the Environmental Inspector upon request.</li> </ul>

## 10.0 Air Quality

During the construction phase, air quality is affected by dust from earthworks and combustion exhaust from vehicles and equipment. Higher levels of dust and air emissions are generally correlated with increased health risks to humans, wildlife, and vegetation. To limit the risks to human health and the environment, mitigation measures are applied to reduce the magnitude and duration of air emissions during the construction phase. This section outlines the mitigation measures to reduce or limit dust and air emissions, which has secondary effects of reducing potential risks to human health, wildlife, and vegetation (Table 13).

**TABLE 13 MITIGATION MEASURES FOR AIR QUALITY**

Activity/Concern	Mitigation Measure
Air emissions	<ul style="list-style-type: none"> <li>• Diesel fired vehicles and equipment will be powered by low sulfur fuel.</li> <li>• The Contractor will implement an anti-idling policy that will apply to all conditions except during adverse weather events or where safety concerns exist (e.g., cold or hot conditions, wildfire smoke, etc.).</li> <li>• The Contractor shall implement a regular inspection and maintenance program for all mobile vehicles and equipment required for construction activities to verify the vehicles and equipment are maintained in a state of good repair. Inspections shall be carried out in accordance with the manufacturers' specifications and results of inspection and/or maintenance activity conducted shall be documented. Vehicles or equipment producing excessive exhaust pollution will be repaired or replaced at the Contractor's cost prior to being used on the Project.</li> <li>• Emission control technologies shall not be removed from mobile vehicles and equipment, unless removal is required for repair or maintenance activities, in which case the Contractor shall reinstall or replace the technologies before the Contractor returns the mobile vehicles and equipment to service.</li> <li>• Burning of land clearing debris and construction waste will be carried out in accordance with the BC Open Burning Smoke Control Regulation for a high smoke sensitivity area. Burn piles will be constructed to minimize smoke and increase efficiency of the fire. Burning will occur when the ventilation index is good and over at most two consecutive days. Burning will occur for six days in one month or for a total of 12 days in a year. Smoke will be monitored to reduce effects to nearby receptors (i.e., residents, District of Kitimat).</li> </ul>
Dust Control Plan	<ul style="list-style-type: none"> <li>• The Senior Environmental Inspector or a delegate will monitor for conditions and activities that result in excessive dust conditions, reporting those conditions, and will be responsible for recommending changes to dust control mitigations. The Construction Manager or a delegate is responsible for implementing dust control mitigations including determining where and when it is or is not practicable to modify construction activities.</li> <li>• Excessive dust conditions occur when dust impedes the safety of construction activities on site or a visual plume greater than 10 m has the potential to leave the work site boundary.</li> <li>• Adverse conditions are periods that are conducive of creating excessive dust, including extended periods of more than 4-days of hot, dry, and high wind speeds.</li> <li>• During adverse conditions the application of dust suppression on roadways and work areas will be carried out by water spraying. If water spraying becomes in-effective leading to excessive dust conditions an alternative environmentally acceptable dust suppressant may be applied at the discretion of the Construction Manager. The optimum dust control product will be determined based upon the nature of the dust control challenge, the characteristics of the surface material, and location of application.</li> </ul>



Activity/Concern	Mitigation Measure
Dust Control Plan (cont'd)	<ul style="list-style-type: none"> <li>• Construction activities involving heavy equipment, that have the potential to generate higher levels of dust (i.e., demolition, drilling, bulk material movement) and when dust suppression is no longer effective will be conducted outside of adverse conditions as determined by the Senior Environmental Inspector.</li> <li>• Alternative environmentally acceptable dust suppressant include salts, organic compounds, surface active agents (surfactants), lignosulfonates, liquid polymers, paraffin / waxes, synthetic fluids, polymer emulsions. The optimum dust control product will be determined by the Construction Manager and Senior Environmental Inspector or their delegates based upon the nature of the dust control challenge, the characteristics of the surface material, and location of application.</li> <li>• Cover loads of dusty material when entering or exiting the Project.</li> <li>• High-traffic areas will be surfaced with coarse gravel or asphalt, as determined by the Senior Environmental Inspector.</li> <li>• Speed limits will be enforced to mitigate fugitive dust generation.</li> </ul>
Monitoring and Maintenance	<ul style="list-style-type: none"> <li>• Regular maintenance of machinery and equipment so that air emissions are within range set by manufacturer when available.</li> <li>• Vehicles and equipment will be inspected by the Environmental Inspector and/or Contractor at least once per month.</li> <li>• Inspection and maintenance records shall be maintained on-site and will be provided to the Environmental Inspector upon request.</li> </ul>

## 11.0 Freshwater Watercourses and Fish

Watercourse crossings are a unique and complex component of construction-related projects which typically involve a specialized, dedicated crew, specialized equipment, specific engineering design, detailed planning, and potentially extensive regulatory considerations. Constructing near a watercourse without adequate planning, design, and environmental mitigation can result in harmful effects on aquatic habitats, fish populations, aquatic wildlife (e.g., beavers, amphibians, waterfowl, etc.), water quality, and watercourse dynamics. This section outlines mitigation measures to reduce or avoid impacts to freshwater watercourses and fish (Table 14). These measures will also help to avoid or reduce effects to aquatic wildlife (e.g., coastal tailed frog); wildlife-specific mitigation measures are presented in Section 14.0.

**TABLE 14 MITIGATION MEASURES FOR FRESHWATER WATERCOURSES AND FISH**

Activity or Concern	Mitigation Measure
Timing Windows	<ul style="list-style-type: none"> <li>• Construction activities within a fish bearing stream or wetland must occur:               <ul style="list-style-type: none"> <li>• during the Skeena Region - Reduced Risk Work Windows, or</li> <li>• in accordance with alternative timing and associated mitigation recommended in a plan prepared by a QP and accepted by BCER, or</li> <li>• in accordance with an authorization or letter of advice from DFO that is provided to BCER.</li> </ul> </li> </ul>
Instream works	<ul style="list-style-type: none"> <li>• Instream work within non fish bearing streams must be completed in accordance with the applicable <i>Water Sustainability Act</i> approvals (i.e., approval under section 10 or a license under section 9 of the <i>Water Sustainability Act</i> for any temporary or permanent water withdrawals, respectively; approval under section 11 of the <i>Water Sustainability Act</i> for changes in and about a stream).</li> <li>• Instream work within fish bearing streams must be completed in accordance with the applicable <i>Water Sustainability Act</i> approvals (as above) and applicable <i>Fisheries Act</i> letter of advice or paragraph 35(2)(b) authorization.</li> <li>• Equipment used for construction activities must not be situated in a stream channel unless it is dry or frozen to the bottom at the time of the activity.</li> </ul>
Clearing and Grubbing	<ul style="list-style-type: none"> <li>• Clearing of vegetation, including in riparian areas and wetlands, will be limited to the extent necessary to meet the Project's design and safety requirements, as determined by engineering design drawings. Any additional area must be approved by a QP in consultation with the Contractor and Senior Environmental Inspector.</li> <li>• Refer to Section 5.0 for relevant controls during construction to prevent riparian vegetation and sediments from entering watercourses.</li> </ul>
General Watercourse Crossings	<ul style="list-style-type: none"> <li>• Watercourse crossings will be installed, maintained, and monitored as per instructions found in the Access and Traffic Management section of this CEMP (Section 3.0).</li> <li>• If a watercourse may be fish-bearing, install crossings in accordance with relevant DFO's Codes of Practice and Fish-stream Crossing Guidebook (FLNRO, MOE, and DFO, 2012).</li> <li>• Eliminate or reduce sediment-related problems during installation and prevent deleterious substances from entering streams by following measures outlined in Sections 3.0, 5.0, and 6.0.</li> <li>• Minimize or avoid disturbing fish habitat above and below the area required for actual construction of the stream crossing.</li> </ul>

Activity or Concern	Mitigation Measure
Protection of Water Quality	<ul style="list-style-type: none"> <li>• Refer to Section 5.0 for relevant erosion and sedimentation controls during construction to prevent sediments from entering watercourses.</li> <li>• To prevent the introduction of deleterious substances into watercourse, follow mitigation measures outlined in the Fueling and Spill Response plan (Section 6.0).</li> <li>• Manage construction runoff such that discharges to meet the guidelines for TSS and/or turbidity during storm events and dry periods as outlined in Sections 5.0 and 18.3.</li> <li>• Monitor for TSS and/or turbidity as outlined in Sections 5.0 and 18.3.</li> </ul>
Restoration – General	<ul style="list-style-type: none"> <li>• Reclaim bed and banks of watercourses to original contours and gradient immediately after construction activities. If instability prevents restoration of original gradient, establish a stable gradient that does not obstruct drainage or fish passage.</li> <li>• Any watercourse restoration that involves armoring or imported bed substrates must be approved by a QP in consultation with the Contractor and Senior Environmental Inspector. The QP must have relevant practice experience in the fields of aquatic ecology, civil engineering or hydrology.</li> <li>• Remove all crossing structures as outlined in Section 3.0.</li> <li>• Refer to Section 5.0 for relevant restoration measures and erosion and sedimentation controls during restoration to prevent sediments from entering watercourses.</li> <li>• Refer to Section 13.0 for general reclamation measures.</li> </ul>
Monitoring and Adaptive Management	<ul style="list-style-type: none"> <li>• In-situ manual turbidity monitoring as described in Section 18.3 will be used to determine water quality in watercourse that are adjacent to and within the construction footprint and will be used to inform any adaptive management decisions required to maintain compliance with the BC Water Quality Guidelines (see Section 18.3.1).</li> <li>• Adaptive management decisions and outcomes will be documented by the Senior Environmental Inspector in the Daily Environmental Inspection Report.</li> </ul>

## 12.0 Marine Resources

Marine resources have the potential to be affected by in-water construction activities (e.g., pile installation below the tide level) as well as those below the high tide line but completed in the dry (i.e., undertaken above the tide level). This section outlines mitigation measures to reduce or avoid impacts to marine resources (Table 15).

**TABLE 15 MITIGATION MEASURES FOR MARINE RESOURCES**

Activity or Concern	Mitigation Measure
General Measures	<ul style="list-style-type: none"> <li>• For any in-water work in Douglas Channel, Cedar will use a project-specific least risk work window of September 1 to February 15.</li> <li>• Pile installation in the intertidal zone for the FLNG facility mooring system will occur at lower tides to avoid in-water pile installation. If this is not technically feasible due to tides, the Contractor may construct a cofferdam that allows the piles to be installed in the dry or implement in-water piling mitigation measures as outlined below.</li> <li>• Temporary structures installed below the high-water mark (e.g., cofferdam) shall be decommissioned and removed when they are no longer being used for construction purposes.</li> <li>• In-water pile installation or blasting activities shall cease if any marine mammal is observed adjacent to or within the work area such that there is a risk of direct physical harm to the marine mammal. Construction activities shall only resume once the marine mammal has been confirmed to have left the immediate area or has not been sighted for 30 minutes (see Table 16) for pile installation mitigation measures).</li> <li>• Silt fences shall be installed to prevent eroded soils from upland work areas from entering Douglas Channel.</li> <li>• A QP will be present during in-water works, undertakings or activities with written authority to modify or stop any construction activity having an adverse effect or likely to have an adverse effect on fish or fish habitat, including marine invertebrates (e.g. crabs) that has not been approved through a regulatory instrument.</li> <li>• A QP will monitor and record the effectiveness of avoidance and mitigation measures implemented to avoid or reduce effects to fish and fish habitat. If monitoring indicates that the mitigation measures are not effective, contingency measures will be identified and implemented in consultation with the QP.</li> <li>• If a cofferdam is required, follow DFO's interim standard for in-water site isolation of practice temporary cofferdams and diversion channels (DFO 2023d) including the following:                         <ul style="list-style-type: none"> <li>• construct the cofferdam using non-earthen material (e.g., water-inflated portable dams, pea gravel bags, concrete blocks, steel or wood wall, clean rock, sheet pile or other appropriate designs</li> <li>• regularly inspect and maintain cofferdam during all phases of the work</li> <li>• do not excavate inside the cofferdam or sediment filtering curtain until it is completely isolated from flow</li> <li>• conduct a fish salvage as required</li> <li>• only install and operate dewatering pumps once the cofferdam is complete and isolation has been achieved</li> <li>• pumps shall be monitored regularly, and back-up pumps shall be readily available on-site in case of pump failure or high flow events.</li> </ul> </li> </ul>

The underwater noise mitigation measures outlined in Table 16 are designed to reduce injury or behavioral disturbance of marine fish and marine mammals associated with pile driving. The measures are intended to fulfill approval conditions and commitments from the environmental assessment process. If recommended setbacks cannot be followed, a QP will be engaged to determine set back adjustments or to outline additional mitigation measures, as needed.

**TABLE 16 MITIGATION MEASURES FOR UNDERWATER NOISE FROM PILE DRIVING**

Activity or Concern	Mitigation Measure
Pile installation	<ul style="list-style-type: none"> <li>• A vibratory hammer will be used for pile driving where determined to be practical and feasible by a Professional Engineer.</li> <li>• If in-water impact pile driving is necessary, the following measures will be implemented:</li> <li>• A bubble curtain around the full wetted length of the pile will be installed and functioning effectively prior to and during pile driving to reduce peak sound pressure level to below 207 dB re 1 <math>\mu</math>Pa at 10 m from the pile to avoid injury to or death of fish.</li> <li>• Visual inspections of the bubble curtain system from the construction barge or shore will be conducted daily to confirm that it is connected and functioning effectively (i.e., continuous bubble distribution around the pile and along the entire length of the pile) prior to pile driving.</li> <li>• Hydroacoustic monitoring will be conducted continuously to verify that underwater peak sound pressure levels do not exceed the 207 dB re 1 <math>\mu</math>Pa beyond 10 m from pile to prevent injury to a fish.</li> <li>• At a minimum, two hydrophone configurations will be used to monitor hydroacoustic sound levels at 10 m from the pile being driven. This will be achieved by positioning one hydrophone at the midpoint of the water column (e.g., equal distance between the surface and seabed) and another hydrophone within 2 m of the seabed.</li> <li>• If hydroacoustic monitoring indicates sound levels in excess of the 207 dB re: 1 <math>\mu</math>Pa (peak) threshold, pile driving will cease and only resume after additional mitigation measures (e.g., additional bubble curtain, modification of exclusion zone, etc.) are implemented to effectively reduce sound levels below the above-mentioned threshold.</li> <li>• A ramp up or soft start will be used (i.e., where the impact energy of equipment is gradually increased over 10 minutes). The ramp up or soft start procedure will also be completed anytime there is a break of 30 minutes or more in impact pile driving.</li> <li>• For cetaceans, a minimum 1 km (1,000 m) exclusion zone will be established prior to impact pile driving activities. If underwater noise recordings reveal at the behavioral threshold of 160 dB re 1 <math>\mu</math>Pa (rms) is exceeded at the 1 km cetacean exclusion zone boundary, the exclusion zone radius will be widened to a new outer limit. Similarly, if the underwater noise recordings reveal that the behavioral threshold of 160 dB re 1 <math>\mu</math>Pa (rms) is not exceeded at the 1 km cetacean exclusion zone boundary, the exclusion zone radius will be reduced to a distance where the 160 dB re 1 <math>\mu</math>Pa (rms) is met.</li> <li>• A separate pinniped exclusion zone of 75 m or where underwater noise levels reach 190 dB re 1 <math>\mu</math>Pa (rms), whichever is the greater distance, will be implemented during pile installation.</li> <li>• Experienced and qualified marine mammal observers will be present during pile driving and will monitor for marine mammals within the cetacean and pinniped exclusion zones for at least 30 minutes prior to the start of impact pile driving.</li> <li>• Pile driving will not start if cetacean or pinniped is present within the respective exclusion zone. If a marine mammal enters their respective exclusion zone prior to the commencement of pile driving activities, pile driving will be delayed until the individual has left the exclusion zone or has not been sighted for 30 minutes.</li> </ul>



Activity or Concern	Mitigation Measure
Pile installation (cont'd)	<ul style="list-style-type: none"> <li>• If a marine mammal enters their respective exclusion zone during pile driving, pile driving activities will be temporarily suspended until the individual has left the exclusion zone or has not been sighted for 30 minutes.</li> <li>• Pile driving will be carried out when environmental conditions enable effective visual monitoring of the marine mammal exclusion zone, unless other monitoring methods deemed acceptable to DFO are employed.</li> </ul>

## 13.0 Vegetation Management

Construction activities have the potential to adversely affect vegetation resources, such as native plants and ecological communities (including uplands and wetlands), through clearing and grubbing activities and through the introduction or spread of noxious weeds or other regulated invasive plants. Mitigation measures for construction activities to reduce impacts on vegetation resources are provided in Table 17.

**TABLE 17 MITIGATION MEASURES FOR VEGETATION RESOURCES**

Activity/Concern	Mitigation Measure
Clearing and grubbing	<ul style="list-style-type: none"> <li>• Cedar will adhere to the required applicable permits or authorization agreements/conditions for clearing and construction activities.</li> <li>• Prior to the start of construction, the Contractor will delineate the construction limits to keep construction activities within the designated project footprint. This may be via physical flagging or electronic delineation; physical flagging will be used for clearing and grubbing adjacent to sensitive areas. This delineation will be sufficient to inform workers of the physical extents of the work areas.</li> <li>• As required by HSE and after periods of high winds, engage a BC Certified Danger Tree Assessor to conduct visual inspection of trees on site for danger risk and any required actions. Any required danger tree felling will be performed by a BC Certified Faller.</li> <li>• Limit disturbed areas and stripping of vegetation and soils, particularly on steep slopes. Stabilize exposed soils that are not being actively worked with erosion control measures (Section 5.0) and revegetate to reduce the ability for surface water to interact with disturbed soils.</li> <li>• Riparian areas will be hand-felled and trees will be felled in a safe manner that reduces the amount of woody debris being unintentionally introduced into watercourses.</li> <li>• Clearing within 20 m of known locations of noxious weeds will be monitored by the Environmental Inspector to confirm that mitigation measures are being followed.</li> <li>• Clearing, grubbing, and grading activities around watercourses and wetlands will be completed as per the mitigations applicable to amphibians (including tailed frogs) described for the Clearing, Grubbing and Grading activities in Section 14.0.</li> </ul>
Burning	<ul style="list-style-type: none"> <li>• Do not locate slash or burn piles within 30 m of a watercourse or waterbody that supports fish or amphibians or within 15 m of any un-cleared, vegetated areas. Locate burn piles on rock or mineral soils (i.e., where topsoil/upper surface material salvage has occurred).</li> <li>• Prior to burning, the Contractor must verify with the Senior Environmental Inspector that required permit(s) are in place and all conditions of the permit are met. The Contractor must confirm general fire prevention and response measures are available and prepared for extinguishing a fire.</li> </ul>
Invasive plants	<ul style="list-style-type: none"> <li>• Existing pre-construction invasive plant survey data identifying the baseline invasive plant presence, location, and abundance (surveyed in 2019, 2021), will be provided to the Contactor(s) by the Environmental Inspector or Senior Environmental Inspector prior to Project clearing activities. These data will form the basis of any site-specific work plan development.</li> </ul>



Activity/Concern	Mitigation Measure
<p>Invasive plants (cont'd)</p>	<ul style="list-style-type: none"> <li>• Known invasive plant infestations will be treated prior to clearing to reduce the potential for invasive plants to spread once clearing has started. Invasive plants requiring treatment include noxious weeds listed by the BC Weed Control Regulation, and invasive plants listed by the Northwest Invasive Plant Council as Early Detection Rapid Response, High or Medium Priority for treatment (NWIPC 2020). The Environmental Inspector or Senior Environmental Inspector will determine appropriate control options for known invasive plant infestations in consultation with a QP.</li> <li>• Inspect construction equipment prior to arrival on site or departure from site to verify it does not contain soil, plant matter and/or seeds.</li> <li>• After working in an area with invasive plants, clean all construction equipment prior to moving to a work area that is free from invasive plants.</li> <li>• If, as determined by the Senior Environmental Inspector, equipment washing is required on-site, a wash station/area will be established where vehicles and construction equipment will be cleaned and inspected to prevent the spread of invasive plants. Wash stations involve the use of water to remove accumulations of dirt, debris, and weed matter from vehicles and construction equipment (USDA 2005). Wash stations require containment of run-off and sediment to prevent further distribution of invasive plants or seeds via wash water or soil. Accumulated sediment will be stockpiled near wash stations and monitored for growth of invasive plants.</li> <li>• Where mats are used, verify they are free of soil, vegetation, and debris before arriving to site and are cleaned as they are removed.</li> <li>• Limit the placement or travel of vehicles, equipment, and construction material in areas infested with invasive plants.</li> <li>• Do not use fill or other materials suspected to have invasive plant propagules (seeds, or other plant parts) which could induce spread.</li> <li>• Soil from areas with invasive plant species present will only be reused or stockpiled within that specific site or areas where the invasive plant species are already present and subject to control measures.</li> <li>• The Environmental Inspector or designate will monitor construction areas with disturbed soils, including soil stockpiles, and areas adjacent to known invasive plants for new invasive plant infestations.</li> <li>• If invasive plants are discovered on site, the Environmental Inspector or Senior Environmental Inspector will document the location, type, density and distribution of each invasive plant species found. They will then determine appropriate control options in consultation with a QP. Refer to species-specific management guidelines from regional and provincial sources (Northwest Invasive Plant Council and Invasive Species Council of British Columbia, respectively).</li> <li>• Invasive plant control activities will be undertaken in accordance with regulatory requirements.</li> <li>• Dispose of invasive plant matter in a manner that does not induce spread. Options include double bagging then transporting to a landfill that accepts invasive plant material, incineration in an industrial curtain incinerator, or burial on private lands. Incineration and burial methods require consultation with a QP, as requirements vary by invasive plant species (ISC BC 2021). Disposal method is to be determined by the Environmental Inspector or Senior Environmental Inspector.</li> <li>• Cover and secure invasive plant matter that is being transported for disposal to reduce the potential for airborne dispersal from vehicles.</li> </ul>



Activity/Concern	Mitigation Measure
<p>Invasive plants (cont'd)</p>	<ul style="list-style-type: none"> <li>• Pesticides will be used in compliance with standards for the use of integrated pest management and the protection of human health and the environment, as specified in the <i>Integrated Pest Management Act</i> and Regulation.</li> <li>• Only use herbicides approved for use in BC. Ensure that herbicides are stored in the appropriate way to prevent spills and leaks. Store in appropriately sized, labelled, and secure containers.</li> <li>• Only people with appropriate training and certification will handle herbicides (certification is administered by the BC MOE).</li> <li>• Pesticides will be applied under conditions that control overspray (i.e., prevent pesticides from reaching non-target areas).</li> <li>• Favor alternative herbicide application techniques over spraying if conditions are present that may lead to spray drift.</li> <li>• Do not apply herbicide when rain is forecast or immediately after rainfall (refer to product-specific instructions for an appropriate time window).</li> <li>• A 10-m 'herbicide free zone' will be maintained around waterbodies, streams, or wetlands. Alternative methods of invasive species management within the 'herbicide free zone' will be determined by a QP.</li> <li>• Once vegetation clearing or treatment has taken place, monitor the area periodically for invasive plants and arrange follow up treatment (manual, mechanical, or chemical), as advised by a QP.</li> <li>• Maintain an invasive plant compliance record containing information about invasive plant assessment and monitoring activities (as per the <i>Energy Resource Activities Act</i>).</li> </ul>
<p>Windthrow Management and Danger Trees</p>	<ul style="list-style-type: none"> <li>• Contractor will hire a Forest Professional registered with Forest Professionals BC to assess windthrow risk where clearing will occur in areas of old forest (Figure 2) and prescribe edge stabilization techniques if required based on the assessment.</li> <li>• The windthrow risk assessment will use methods described in the Windthrow Handbook for British Columbia Forests (MOF Research Program 1994) and be recorded on an FS 712-2 field card (Windthrow Field Card Assessment)</li> <li>• The Contractor will require that the Forest Professional produce a summary windthrow hazard report. The report will summarize the windthrow hazard across the Project area in and adjacent to areas where old forest will be cleared and prescribe windthrow management strategies within a prescribed edge buffer to be implemented as justified in the windthrow hazard assessment. Edge stabilization treatments that could be prescribed include:                         <ul style="list-style-type: none"> <li>• edge feathering (selectively removing a percentage of trees within the prescribed edge buffer using a hierarchy of tree attributes);</li> <li>• pruning or topping trees within the prescribed edge buffer, where recommended by the Forest Professional; and</li> <li>• other measures as prescribed by the Forest Professional.</li> </ul> </li> <li>• Contractor will hire a BC Certified Danger Tree Assessor (certification approved by WorkSafe BC) to assess work areas for danger trees and/or snags, according to WorkSafe BC Occupational Health and Safety Regulation Policy.</li> <li>• Danger tree risk will be managed as per the advice of the BC Certified Danger Tree Assessor.</li> <li>• Any required tree felling will be performed by a BC Certified Faller (certification approved by the BC Forest Safety Council).</li> </ul>

Activity/Concern	Mitigation Measure
Wetland Management	<ul style="list-style-type: none"> <li>• Delineate work areas through wetlands to prevent unintentional encroachment or disturbance of wetlands (Figure 2).</li> <li>• Implement erosion and sediment control measures as listed in Section 5.0.</li> <li>• Construction activities adjacent to and within wetlands will be completed as per the mitigations described for amphibians (including tailed frog) in the Clearing, Grubbing and Grading activity in Section 14.0.</li> <li>• Vehicle crossing structures on any watercourse draining a wetland (e.g. culvert or bridge) must not alter the invert elevation that controls the water level in the wetland.</li> <li>• Do not locate temporary workspaces in wetlands.</li> <li>• Conduct activities adjacent to and within wetlands in a manner that will not result in the deposition or placement of debris, soil, or other deleterious materials into or through any wetland.</li> <li>• Do not dewater any wetland outside of the crossing.</li> <li>• Install “No Refueling” signs at all wetlands.</li> <li>• Recontour wetland to approximate pre-construction profile during reclamation.</li> <li>• Leave wetlands unseeded for natural recovery (e.g., wetlands that support emergent aquatic vegetation) where soils have not been stripped, or where soils have been lifted and replaced properly within one growing season (as propagules will survive stockpiling for a few months).</li> <li>• Cedar’s Wetland Follow-up Program, as required by the federal Decision Statement (Condition 10.12) will be implemented to guide monitoring activities around wetlands beginning in the construction phase.</li> </ul>
Clean-up and Restoration	<ul style="list-style-type: none"> <li>• Restoration activities will be considered during the development of the construction schedule and, in general, will be implemented in a manner that limits the amount of time between initial site disturbance and restoration.</li> <li>• Initial clean-up will be completed after construction activities cease, or as soon as conditions permit. Final clean-up and restoration will occur during the summer following construction, or as soon as conditions permit.</li> <li>• Natural revegetation will be allowed to occur on Crown land in all areas that are not required for operation (i.e., temporary workspace). Preparation of such areas will be in accordance with section 19 of the Environmental Protection and Management Regulation.</li> <li>• Reclamation measures, performance assessment methods and schedule, and performance targets/metrics on Crown land will be in accordance with the BCER Ecologically Suitable Species Guidelines Version 1.0 (BCER 2023).</li> <li>• Restoration on private property will follow requirements of the lease agreements with the owner(s)</li> <li>• At a minimum, all restoration works will include:                         <ul style="list-style-type: none"> <li>• stabilize any cut and fill slopes, and re-contour to re-establish approximate pre-disturbance drainage patterns and mitigate erosion potential; and</li> <li>• restore surface soil to similar, pre-disturbance productivity, using conserved topsoil to the depth approved by a QP.</li> </ul> </li> <li>• Prior to reclamation on Crown land, Cedar will consult with the Haisla Nation to identify any areas used for traditional harvesting purposes. In any identified areas, Cedar will engage a QP to develop prescriptions of ecologically suitable native plant species for use in reclamation, as per the BCER Ecologically Suitable Species Guidelines Version 1.0 (BCER 2023). The prescription will incorporate traditional use plant species of interest to Haisla Nation.</li> </ul>

## 14.0 Wildlife Management

Construction activities have the potential to affect wildlife and wildlife habitat. Potential effects include an increase in mortality risk, direct and indirect habitat change, and disruption of movement. Mitigation measures include using best practices and guidelines, managing human-wildlife conflicts, avoiding sensitive areas and periods, and establishing conditions to allow for natural revegetation of disturbed areas following construction (Table 18). Sensitive periods for wildlife are included in Table 19 and recommended setbacks (i.e., prescribed distance from a feature that establishes a buffer area) and sensitive periods for wildlife habitat features are included in Table 20.

Feature-specific mitigations are provided in Table 18, Table 19, and Table 20 and were determined by the QP responsible for this section of the CEMP (Professional Review and Sign-off). Where there is the potential to discover new features, undertake mitigations under a permit (e.g., amphibian salvage), or make adjustments to a mitigation (e.g., reduce a setback), a QP will be engaged in making further determinations applicable to feature-specific mitigation.

**TABLE 18 MITIGATION MEASURES FOR WILDLIFE AND WILDLIFE HABITAT**

Activity/Concern	Mitigation Measure
Wildlife Interactions	<ul style="list-style-type: none"> <li>• Employees and contractors will be required to comply with the following requirements when off the worksite or outside working hours while in the local assessment area as a result of their work on the Project:               <ul style="list-style-type: none"> <li>• obtain applicable licences and engage licensed fishing guides and follow local restrictions when fishing</li> <li>• no recreational ATVs or snowmobile on-site, on access roads, trails and along Project rights-of-way</li> <li>• no hunting or fishing outside of licensed guided activities</li> <li>• guns, bows and fishing rods will not be allowed in the Project site or accommodations, unless required for work (e.g., wildlife monitors)</li> </ul> </li> <li>• Workers will be provided an on-site orientation that includes bear awareness (e.g., grizzly bear), wildlife encounters in general, wildlife injury and mortality procedures, and wildlife reporting.</li> <li>• Waste management procedures in Section 7.0 will be implemented including those intended to avoid attracting wildlife (e.g., grizzly bear) to work areas.</li> <li>• Food and garbage will be stored in bear-proof areas or bear-proof (e.g., grizzly bear) containers to limit attractants to wildlife. Food waste will be transported to appropriate off-site facilities for disposal.</li> <li>• Once construction is complete, permanent fencing will be installed around the Facility Area to exclude wildlife (e.g., grizzly bear) and reduce the potential for human-wildlife interactions during operation. The timing of fence installation will be determined by the Construction Manager based on the construction approach.</li> <li>• Project personnel will avoid direct interactions with wildlife (e.g., grizzly bear) unless safety is at risk.</li> <li>• Workers will not feed, harass, or approach wildlife (e.g., grizzly bear).</li> <li>• Construction materials, storage areas, and temporary workspaces will not be located on known wildlife trails.</li> </ul>



Activity/Concern	Mitigation Measure
Wildlife Interactions (cont'd)	<ul style="list-style-type: none"> <li>• Clearing of vegetation, including in riparian areas and wetlands, will be limited to the extent necessary to meet the Project’s design and safety requirements, as determined by engineering design drawings. Any additional area must be approved by a QP in consultation with the Contractor and Senior Environmental Inspector.</li> <li>• Vegetation clearing will be reduced by:                             <ul style="list-style-type: none"> <li>• not establishing temporary workspaces or storage areas in riparian areas</li> <li>• topping trees, rather than clearing them, within the transmission line right-of-way through the Anderson Creek and Moore Creek ravines to the extent doing so does not interfere with safe operation of the transmission line as determined by the design engineer or appropriate QP</li> <li>• reducing the width of the road where access roads are within riparian areas</li> </ul> </li> <li>• Bird and wildlife incidents (e.g., collisions) and human-wildlife conflicts (e.g., grizzly bear attracted to the site) will be monitored during periods of active construction as follows:                             <ul style="list-style-type: none"> <li>• the Environmental Inspector or designate will undertake monthly carcass surveys of the construction site and document the survey effort and document findings (see Appendix C: Wildlife Reporting Form)</li> <li>• bird and wildlife incidents, mortalities, conflicts, and observations that could result in a conflict will be reported to the Environmental Inspector and documented (see Appendix C: Wildlife Reporting Form)</li> <li>• bird and wildlife incidents, mortalities, and conflicts will be maintained in a database managed by the Environmental Inspector</li> <li>• the database will be reviewed monthly by a QP to determine if additional mitigation measures need to be implemented</li> </ul> </li> <li>• additional mitigation measures that are to be implemented as determined by a QP will be incorporated into an updated CEMP</li> </ul>
Pre-Construction	<ul style="list-style-type: none"> <li>• Wildlife habitat features that have been identified will be protected through the implementation of setbacks during the sensitive periods listed in Table 20. These include eagle nests, amphibian breeding ponds, bear dens, potential bat roosts, pileated woodpecker nest cavities, and streams supporting coastal tailed frog. The locations of these features are identified in Figure 3. Setbacks and sensitive periods are provided in Table 20. Clearing, grubbing, grading, and construction activities will be avoided within the recommended buffer during the sensitive period. If clearing, grubbing, grading, and construction activities cannot be avoided within the buffer during the sensitive period a QP will be consulted.</li> <li>• Where construction activities will impact an amphibian breeding site during the breeding season (see Figure 3) or areas within 30 m of these sites during the dispersal period, a salvage and relocation program will be implemented prior to and during the construction activity. A permit application will be prepared by a QP to describe amphibian salvages and relocation. This will be consistent with the BC BMPs for amphibian and reptile salvages (FLNRO 2016) and road building (MECCS 2020).</li> </ul>



Activity/Concern	Mitigation Measure
<p>Clearing, Grubbing and Grading</p>	<ul style="list-style-type: none"> <li>• Forest habitats that are rated as having moderate or high suitability for marbled murrelet nesting (Figure 3) and field surveys have confirmed that they contain the biophysical attributes of critical nesting habitat will not be cleared and grubbed during the nesting period (April 1 - September 14; Table 19).</li> <li>• Where clearing, grubbing, or grading within areas that support wildlife habitat features (e.g., eagle nests, bear dens, bat maternity roosts, bat hibernacula, pileated woodpecker nest cavities) is scheduled during the sensitive periods of the features (Table 19), pre-clearing wildlife habitat feature occupancy surveys will be undertaken in advance of clearing. Surveys will be completed using species- or feature-specific survey methods.</li> <li>• Where clearing and grubbing during the migratory bird nesting period cannot be avoided, non-intrusive pre-clearing nest surveys will be undertaken in advance of clearing and grubbing work: The following conditions apply to the pre-clearing nest surveys:                         <ul style="list-style-type: none"> <li>• Surveys will be undertaken under the direction of a QP within 7 days in advance of clearing activities. An actual nest does not need to be found for the QP to determine that a nest is likely present to implement mitigation; bird cues alone can indicate that a nest is likely present.</li> <li>• Clearing and grubbing will only proceed in areas where pre-clearing nest surveys have been completed and no nests or suspected nests were found, preferably within 24 to 48 hours of the nest survey and no more than 7 days after. If clearing and grubbing has not started within 7 days of the nest survey, another nest survey will be completed by the QP if within the nesting periods.</li> <li>• Cedar will report on active nests identified, setbacks and restricted activity periods implemented, and compliance to IAAC.</li> <li>• Construction activities will not be allowed within the nest-specific buffers during the restricted activity period as determined by the QP and in a manner described in EAC Condition 4.1.</li> </ul> </li> <li>• Clearing, grubbing, and grading will be avoided within 30 m of amphibian breeding sites during the sensitive periods for amphibians (see Table 19 and Table 20). If clearing, grubbing, and grading activities cannot be avoided during this period, Cedar will undertake amphibian salvage and relocation during the amphibian active period. A permit application will be prepared by a QP to describe amphibian salvages and relocation. Additional measures (e.g., installation of silt fencing to direct amphibians away from work areas) may be specified by an Environmental Inspector or QP and implemented prior to clearing, grubbing, and grading.</li> <li>• Clearing, grubbing, and grading will be avoided within 30 m of watercourses known to be occupied by coastal tailed frog. If clearing, grubbing, or grading cannot be avoided within 30 m of a watercourse known to be occupied by coastal tailed frog, additional sediment control measures and/or salvages of coastal tailed frog will be undertaken, as determined by the Environmental Inspector in consultation with a QP.</li> <li>• Project personnel will avoid work within identified wildlife habitat feature (Figure 3) buffers during sensitive periods (Table 20). If construction activities must occur within the buffer area during a sensitive period, Cedar will consult with a QP to determine whether feature-specific additional actions and mitigation are required. Additional actions and mitigation may include inspection of the feature for occupancy, restricted periods for construction activities, monitoring by a QP for changes in behaviour of the occupant, and establishing when construction activities are to cease.</li> </ul>

Activity/Concern	Mitigation Measure
Watercourse Crossings	<ul style="list-style-type: none"> <li>Watercourse crossings will minimize works within 30 m of watercourses known to be occupied by coastal tailed frog (e.g., use of clear span bridges to cross the watercourse), where practicable.</li> <li>Where construction activities include clearing or crossing watercourses occupied by coastal tailed frog at all times of the year or within 30 m of that watercourse, Cedar will implement a salvage program in advance of work. Salvages will follow recommendations set out in the Best Management Practices for Amphibian and Reptile Salvages in British Columbia (FLNRO 2016) and Guidelines for Amphibian and Reptile Conservation During Road Building and Management Activities (MECCS 2020). A provincial permit application will be prepared by a QP to describe amphibian salvages and relocation.</li> </ul>
Chance Finds	<ul style="list-style-type: none"> <li>Wildlife habitat features (e.g., dens, raptor nests, bat roosts, mineral licks, amphibian breeding habitat) or active bird nests discovered incidentally during construction will be reported to the Environmental Inspector and work will be stopped immediately around the feature. Feature-specific mitigation measures will be determined by an Environmental Inspector in consultation with a QP. If setbacks are required for wildlife habitat features, these will be clearly delineated (e.g., flagging, fencing) in the field prior to restart of work immediately around the feature. Setbacks and sensitive periods for wildlife habitat features that could potentially be discovered are included in Table 20.</li> <li>Year-round protection is required for specific nests protected under the <i>Wildlife Act</i> (e.g., bald eagle, osprey, great blue heron) and Migratory Birds Regulations (e.g., pileated woodpecker). If a nest protected under the <i>Wildlife Act</i> or Migratory Birds Regulations is discovered, setbacks and restricted activity periods will be determined by an Environmental Inspector in consultation with a QP according to guidance (e.g., FLNRO 2014a, ECCC 2023b) and best practice.</li> </ul>
Reporting of Wildlife	<ul style="list-style-type: none"> <li>Project-related wildlife injuries, mortalities, and conflicts will be reported when found as required to appropriate authorities. Reporting requirements are provided in Appendix C: Wildlife Reporting Form.</li> <li>Incidental (non-project-related) finds of sick, injured, or dead wildlife will be reported to the Environmental Inspector who will follow government guidance, as applicable.</li> <li>Relevant information on what to do in the event of finding sick, injured or dead wildlife can be found at the following web sites:                         <ul style="list-style-type: none"> <li>What to do if you find sick, injured, or dead wildlife - Province of British Columbia (<a href="http://gov.bc.ca">gov.bc.ca</a>)</li> <li>Bird Health - Province of British Columbia (<a href="http://gov.bc.ca">gov.bc.ca</a>)</li> </ul> </li> <li>Injuries or mortalities related to migratory bird nests will be reported to <a href="mailto:IncidentalTake.PriseAccesoire@ec.gc.ca">IncidentalTake.PriseAccesoire@ec.gc.ca</a></li> <li>Reports of wildlife injuries and mortalities will be provided to Haisla Nation, Gitga'at First Nation, Gitxaala Nation, Kitselas First Nation, Kitsumkalum First Nation, Lax Kw'alaams Band, and Metlakatla First Nation as part of the follow-up program annual reporting.</li> </ul>

**TABLE 19 SENSITIVE PERIODS FOR WILDLIFE**

Species	Sensitive Period	Dates	Reference
Migratory birds	Primary Nesting Period, zone A2	April 4 to August 18	ECCC 2023a
	Nesting – wetland	April 4 to August 12	
	Nesting – open	April 8 to August 18	
	Nesting – forest	April 4 to August 12	
Bald eagle	Nesting	January 5 – August 31	MOE 2013
Western screech-owl	Nesting	February 17 – August 25	MOE 2013
American goshawk	Nesting	March 7 to August 21	MOE 2013
Marbled murrelet	Nesting	April 1 to September 14	FLNRO 2014c
Bats	Maternity season when females and pups may be present	May 15 to September 30	MOE 2016; FLNRO 2014c
	Hibernation	October 1 to May 31	
Grizzly bear	Spring – foraging areas	April to mid-June	FLNRO 2014c
	Fall - foraging areas	July to October	
Black bear	Denning	October 21 to May 15	Davis 2021
Pond-dwelling amphibians	Breeding (eggs, larva)	April to September	FLNRO 2014b, 2016
	Overwintering	October to March	FLNRO 2016; ECCS 2020
Western toad	Post-breeding dispersal (toadlets)	July to October	FLNRO 2014b, 2016
Stream-dwelling amphibians (coastal tailed frog)	Year-round	Year-round	ECCC 2018

**TABLE 20 SETBACKS AND SENSITIVE PERIODS FOR WILDLIFE HABITAT FEATURES KNOWN OR WITH POTENTIAL TO OCCUR<sup>1</sup>**

Wildlife Habitat Feature (if present)	Recommended Setback of the Feature <sup>2</sup>	Sensitive Period when Setback is in Effect	Reference
Migratory bird nest	As determined by the QP depending on species, nest type, surrounding area, and disturbance type	See Table 19	ECCC 2023b
Bald eagle nest	200 m	Year-round	MOE 2013
	300 m (200 m year-round plus 100 m "quiet buffer" during the nesting period)	January 5 to August 31	
Marbled murrelet suitable nesting habitat (i.e., moderate or high suitability where biophysical attributes of critical nesting habitat are present)	1,000 m (blasting) 100 m (road building, clearing, equipment operation)	April 1 to September 14	WLRS 2023
Band-tailed pigeon mineral source site	Not established; recommend 200 m	Mid-summer to October	COSEWIC 2008; ECCC 2019
Bats maternity roost	300 m (blasting and road construction)	May 15 to September 30	FLNRO 2014c
	100 m (tree clearing)		MOE 2016
Bat hibernacula	300 m (blasting and road construction)	October 1 to May 31	FLNRO 2014c
	100 m (tree clearing) or as directed by a QP		MOE 2016
Active black bear den	200 m	October 21 to May 15	Davis 2021
Ungulate mineral lick	500 m	April to October	FLNRO 2014c
Pond-dwelling amphibian breeding site and dispersal routes	30 m	March to September (breeding) July to September (dispersal)	FLNRO 2014b, 2016
Watercourses with coastal tailed frog	30 m	Year-round	ECCC 2018
Notes:			
1. Other wildlife habitat features may be identified through chance find processes. Where this occurs, a QP will be engaged to identify the appropriate setback distance and sensitive timing period.			
2. Where recommended setback distances cannot be implemented, a QP will be engaged to identify the appropriate mitigation measures.			

## 15.0 Heritage and Archaeological Resources

Construction activities have the potential to impact heritage resources, in particular through potential effects on recorded archaeological sites (e.g., GaTe-11, GaTe-20, GaTe-21, and FITe-133) (Figure 6). Table 21 provides mitigation measures related to heritage resources for construction activities.

**TABLE 21 MITIGATION MEASURES FOR HERITAGE RESOURCES**

Activity/Concern	Mitigation Measure
Pre-Construction	<ul style="list-style-type: none"> <li>• Avoid impacts to recorded archaeological sites through engineering controls (i.e., 30 m buffered 'no-work zone' flagging around site boundary, identification of 'no-work zone' on construction plans, education of construction personnel on heritage site impact management planning)</li> <li>• Flagging tape (pink- and black striped) has been laid out along the recorded site boundary and 30 m 'no-work-zone' to clearly demarcate the area where no vegetation clearing or other ground disturbing works can occur. The culturally modified tree (CMT) feature is flagged with yellow flagging.</li> <li>• A site revisit shall be conducted by a qualified archaeologist prior to any pre-construction activities within 30 m of the recorded archaeological site to ensure 'no-work zone' flagging demarcating the site boundary and 30 m-buffered 'no work zone' remains visible.</li> </ul>
Clearing, Grubbing and Grading	<ul style="list-style-type: none"> <li>• If impacts to the site features (e.g., CMTs) cannot be avoided through redesign, a section 12.4 Site Alteration Permit issued by BCER will be required to facilitate site impact mitigation measures.</li> <li>• Prior to vegetation clearing site impacts, a site visit shall be conducted and the suitability of the CMT assessed for the removal of a stem-round sample at the scar. If suitable the sample will be taken during vegetation clearing by a qualified archaeologist prior to vegetation clearing.</li> <li>• Under a section 12.4 archaeological sites including CMTs may be impacted during Project vegetation clearing.</li> <li>• After clearing and grubbing within the site boundary is complete a post-impact site visit shall be conducted by a qualified archaeologist and the Provincial Heritage Register shall be updated by a qualified archaeologist to confirm the Legacy Status of the site</li> </ul>
Chance Finds and Reporting	<ul style="list-style-type: none"> <li>• If suspected historical (archaeological, cultural) or palaeontological features not previously recorded are identified in the Facility Area, Marine Terminal Area or Transmission Line Corridor, or distribution powerline right-of-way during any construction activity, the activity in the immediate vicinity will be halted and the Environmental Inspector will be notified as per the Chance Find Protocol (Appendix D). A minimum 30 m-buffer will be established around the site.</li> <li>• The Environmental Advisor will notify the Haisla Nation, the BCER and BC Archaeology Branch within 24 hours of any chance find. The Senior Environmental Inspector will contact a QP to further investigate the nature (i.e., archaeological, cultural, historical) of the chance find and to provide management recommendations.</li> <li>• Work will not resume near newly identified sites until regulatory review has occurred and appropriate actions have been taken. Follow-up reporting will be completed as necessary by the Environmental Inspector along with the QP.</li> </ul>



Activity/Concern	Mitigation Measure
Chance Finds and Reporting (cont'd)	<ul style="list-style-type: none"> <li>• Previously identified sites that have received regulatory clearance (i.e., 'legacy status' has been assigned or mitigation has been completed under an HCA permit) will not require any additional mitigation. For all newly identified sites with regulatory clearance or those sites that have not received regulatory clearance, a site-specific mitigation plan will be developed for review and approval by the BCER and Haisla.</li> <li>• Historical and palaeontological feature collecting (e.g., fossils) by Project personnel is prohibited both during work hours and off time. Recognition and avoidance of historical and palaeontological features will be addressed during the Project's orientation training.</li> </ul>

## 16.0 Emergency Management

Cedar has prepared a stand-alone Accidents, Malfunctions and Communications Plan (AMCP) that provides details on emergency management and fire suppression measures. It provides guidance and direction to Cedar personnel and any Contractors acting on behalf of Cedar LNG to guide effective response actions during emergencies, aid in the prevention of injury to employees, emergency responders, and members of the public, promote effective communication with relevant stakeholders, and reduce impacts to the environment, property, and infrastructure. The AMCP applies to:

- Accidents and malfunctions
  - workplace hazards, injuries, and medical incidents
  - hazardous materials spills/product release
  - fire/explosion
  - motor vehicle accident
  - intentional hazards/threats
- Security incidents
  - bomb threat
  - public conflict and activism
  - environmental hazards, extreme weather, and acts of nature
- Severe weather
  - landslides
  - tsunami
  - earthquake/seismic activity
  - wildfire
  - wildlife encounters

The AMCP serves as Cedar's core emergency response plan and includes emergency response information for construction, including fire safety and response. It is intended to address incidents that escalate beyond the use of standard operating procedures. Construction activities covered by the AMCP consist of onshore construction within District Lot 99, including clearing and grubbing, site preparation, ground improvement, roads, and substation construction. It also includes land-based portions of the marine terminal. The AMCP has been designed to interface with Pembina's EMP to ensure effective emergency response practices are in place for Cedar.

The objectives of the AMCP are to:

- Provide guidance on the processes to be used in decision making and planning during an emergency.
- Provide a coordinated and consistent approach to emergency response that aligns with industry best practices.

- Provide a coordinated and effective communication to relevant stakeholders occurs in a timely manner during an emergency.
- Define the incident management system for Cedar's Incident Management Team and provide processes and tools to enable their success.
- Provide a consistent approach to post-emergency actions that aligns with the Pembina EMP.

Cedar requires all potential emergencies to be reported to the Pembina Sherwood Park Control Centre and required regulatory bodies. Figure 7 in Section 20.0 provides a diagram that details how to activate Cedar's Incident Management Team; this process applies to all Cedar activities.

Included in Appendix A of the AMCP is a Construction Fire Safety Plan. The Construction Fire Safety Plan establishes the basic fire protection needs and responsibilities during construction of the project and requires that employees and contractors have fire extinguishers on site in the following locations:

- 4-A:40-B:C, dry chemical fire extinguishers in buildings to meet BC Fire and Building codes.
- One 2-A:10-B-C fire extinguisher in all mobile equipment, including pickup trucks, light plants, rig welders, portable welding rigs, generators, excavators, construction equipment, and fuel trucks.
- One 4-A:40-B:C ABC dry chemical fire extinguisher in each office or lunchroom.
- Additional fire extinguishers for other purposes (e.g., hot work) to meet applicable BC Fire and Building codes.

The Construction Site Safety Advisor will be responsible for verifying that:

- Fire extinguishers are maintained and serviced as needed as well as inspected monthly with a legible inspection tag.
- Designated personnel are trained in the correct use of the fire extinguishers during the onboarding process.

All construction work will be designed, planned, and sequenced to achieve the early installation and operation of fire protection to structures, lighting conductors, fire detection/alarm systems, and fixed firefighting equipment.

## 17.0 Human Health Management

During the construction phase, air emissions and construction noise may increase health risks to construction workers. Health risks to residents in Kitimat and Kitamaat Village during the construction phase are expected to be negligible based on the assessment of human health in the Application. Construction dust, fuel combustion exhaust, and noise from construction vehicles and equipment are not expected to reach levels that could adversely affect the health of residents in Kitamaat Village and Kitimat, which are located approximately 3 and 8 km from the construction site.

For on-site construction workers, health and safety is regulated by WorkSafeBC. WorkSafeBC provides chemical exposure limits for hazardous substances that are commonly encountered in an occupational setting. Occupational health risks from exposure to environmental pollutants are managed through compliance with WorkSafeBC regulations and applying mitigation measures to reduce workplace exposure to hazardous chemicals within the permissible exposure limits. Mitigation measures are designed to limit pollutant emissions or prevent workers from being exposed to pollutants (e.g., using personal protective equipment). Real-time monitoring of pollutant concentrations may apply in specific scenarios (e.g., monitoring of carbon monoxide concentrations within an enclosed space with an active carbon monoxide source). However, no scenarios requiring real-time monitoring of pollutant concentrations to protect worker health and safety have been identified.

Mitigation measures to limit noise emissions during the construction phase are described in Table 12 (Mitigation Measures for Construction Noise). The application of these mitigation measures will reduce noise emissions to the environment, which also has a secondary effect of protecting people from noise-related injuries. Personal protective equipment such as earplugs or other hearing protective devices may be required for some types of construction activities (e.g., blasting) or when work is being performed in proximity to loud machinery.

Mitigation measures to limit air emissions during the construction phase are described in Table 13 (Mitigation Measures for Air Quality). The application of these mitigation measures will reduce pollutant emissions to the environment, which also has a secondary effect of protecting human health. These mitigation measures are expected to reduce air emissions to levels that are below WorkSafeBC chemical exposure limits for dust, gasoline and diesel fuel exhaust, and other fuel combustion products (e.g., benzo[a]pyrene).

Spills of hazardous materials during the construction phase will be addressed through standard spill prevention and spill response measures, as described in Section 6.0. If deemed necessary by a regulator, environmental monitoring of potential contamination related to a spill event will also be evaluated for potential risks to human health. For example, if air, soil, surface water, or groundwater monitoring is required following a spill of hazardous materials, the monitoring data will be evaluated for potential risks to human health by a QP that specializes in human health risk and/or contaminated sites risk assessment.

## 18.0 Environmental Monitoring

### 18.1 General Environmental Monitoring

The Environmental Inspector will monitor construction activities against this CEMP, construction-specific plans, and applicable regulatory requirements and permit conditions. The Environmental Inspector will be responsible for regularly monitoring the Contractor's compliance with the CEMP; however, it is the Contractor's responsibility to complete daily reviews of the site conditions and mitigation measures. If this CEMP is adhered to, the potential for environmental impacts and adverse environmental effects will be reduced.

The on-site Environmental Inspector will attend tailgate meetings, complete machinery inspections, conduct water quality sampling (if applicable), and provide support/advice on environmental protection measures and mitigation as required to advance construction activities. In addition, the Environmental Inspector will confirm with the Contractor(s) that new on-site personnel (including Subcontractor(s)) understand their environmental responsibilities and the requirements of the CEMP.

On-site personnel will be aware of the potential for environmental non-compliance issues and address and communicate concerns or non-compliances to the Environmental Inspector and/or Construction Manager without undue delay. Regular and on-going reviews by the Contractor to visually check on water levels and water quality downstream of the work area and signs of releases of deleterious substances will improve early detection potential of releases, failures, and incidents, if any.

The Environmental Inspector is responsible for keeping daily records of Project activities and monitoring activities. In addition, they will lead preparation of annual environmental monitoring reports and a summary completion report once construction is complete. The annual and project completion reports will be submitted to regulatory agencies where required. These reports will, at a minimum, summarize:

- Construction activities.
- Mitigation measures and activities that have been implemented or recommended.
- Non-compliances, environmental incidents, and remedial action taken or implemented to address the non-compliance.
- Results of water quality testing (if applicable).
- Photographs.
- Overall compliance or non-compliance with the CEMP and/or regulatory permits / authorizations.

### 18.2 Adaptive Management

Non-compliances and environmental incidents (e.g. spills or harm to wildlife) will be reported to Cedar (and regulators where required) as soon as possible and within 24 hours of occurrence. These may include non-compliance with this CEMP, Project-specific mitigation plans, or permits/ authorizations/ legislation. The Environmental Advisor is responsible for reporting any non-compliance matters associated with permits/ authorizations/ legislation to regulators, as required.

The non-compliance and incident reports will include:

- Reporting person's name and telephone number.
- Date and time of the non-compliance or environmental incident, including major steps (such as when the non-compliance or incident occurred, when response occurred and when the event was resolved).
- Location of non-compliance or incident (coordinates if available).
- Description and cause of the non-compliance or incident (if a spill—including type, source, and quantity of material).
- Receiving environment description.
- Names of other persons or government agencies notified (if applicable).
- Description of the response and when it occurred.
- Details of further action required.
- Recommendations for preventative/mitigation measures.

Issues such as non-compliances and incidents will be resolved by the Contractor with input from Cedar's team. When a non-compliance or incident occurs, remedial actions must be taken as soon as possible (i.e., as soon as the Project area is safe). In case of difference of opinion between the Contractor and the Environmental Inspector, the Construction Manager and Senior Environmental Inspector (with input from the Environmental Advisor) will determine the appropriate resolution. If a non-compliance matter pertains to resource management where a QP is designated for that resource (e.g., Wildlife Management), then the designated QP will also be engaged in determining appropriate resolution.

Monitoring, non-compliance and incident reports will be reviewed by Cedar on an annual basis to determine whether the mitigation measures in this CEMP are effective and mitigating effects to the extent contemplated in the Application or whether the effects are different than those predicted in the Application. Where effects are greater than or different from those predicted in the Application, this CEMP will be updated provide additional or revised mitigation measures in accordance with the process set out in Section 1.2 (Updates to the CEMP) and reported in the Annual Report issued to the EAO.

## 18.3 Water Quality Monitoring

The purpose of the water quality monitoring program is to document in-stream water quality during construction activities to verify that mitigation measures have appropriately addressed risks to aquatic life and ecological communities that rely on the potentially affected watercourses. The following section outlines the details of the water quality monitoring program and steps to be taken in case of an exceedance.

A QP will oversee development of the water quality monitoring program, but monitoring itself may be conducted by the QP, Environmental Inspector, or Senior Environmental Inspector. The QP will be responsible for:

- Identification of water quality monitoring stations which will be at least one location upstream of the active work area (background) and at least one downstream of the work area where water quality could be affected by construction activities.

- Selection of sampling frequency, which will consider Table 23 'Minimum Monitoring Frequency'.
- Communicating methods and/or training the water quality monitoring staff (e.g., Environmental Inspector).
- Auditing water quality monitoring procedures.
- Track results of water quality measurements and reviewing reports from the field team.
- Investigating potential releases of sediment-laden water into watercourses.
- Liaising daily with project personnel.
- Coordinate with the Senior Environmental Inspector, and Construction Manager, and Environmental Advisor to communicate results of water quality monitoring with regulators, as required.
- Provide data to the Contractor and/or the Senior Environmental Inspector to support or adjust adaptive management measures, identify turbid water input locations and any possible alterations to any associated mitigation measures or construction methodology (as applicable).
- Provide data to the Senior Environmental Inspector to support stop work authority for use when construction activities, in the QP's professional opinion, have the potential to release deleterious substances into a watercourse or water body or cause harmful alteration, disruption or destruction of fish habitat.

### **18.3.1 Work in or About a Stream or Douglas Channel**

Water quality will be monitored in-situ manually during in-stream works using a turbidity meter for works occurring within 30 m of a flowing watercourse according to the following protocol:

- Sampling locations:
  - For watercourses: Upstream of works by at least 10 m (reference/baseline location) and 25 m downstream of works when a stream is flowing, or as determined by QP.
  - For Douglas Channel: At least 15 m on either side of construction activities below the high tide elevation (for both in-water and in-the-dry work), or as determined by the QP. If monitoring during a high tidal flow, the "downstream" site shall be at least 20 m from the work area, or as determined by QP.
- Sampling frequency: In-situ manual monitoring of turbidity with measurements collected at a frequency determined by the QP, taking into account the duration of the associated activity, will be conducted for the duration of in-stream works using water quality sondes and/or turbidity meters at both upstream and downstream locations (relative to the work area) with data collected daily by on-site personnel (QP, Environmental Inspector, Senior Environmental Inspector). Laboratory samples for TSS may also be collected by on-site personnel to supplement in-situ monitoring as determined and documented by the Senior Environmental Inspector.
- Sampling parameters: temperature, pH, dissolved oxygen and turbidity (NTU) or total suspended solids (TSS).

- Applicable BC WQG-PAL for freshwater environments (BC ENV 2023):
  - Temperature:  $\pm 1$  change from ambient background
  - pH: 6.5 to 9.0
  - dissolved oxygen: 8.0 to 11.0 mg/L
  - Turbidity/TSS: maximum increase of 8 NTU or 25 mg/L from background at any one time for a duration of 24 hours in all waters during clear flows or in clear waters.
  - Turbidity/TSS: maximum increase of 2 NTU or 5 mg/L from background at any one time for a duration of 30 days in all waters during clear flows or in clear waters.
  - Turbidity/TSS: maximum increase of 5 NTU or 10 mg/L at any time when background is between 8-50 NTU or 25-100 mg/L during high flows or in turbid waters.
  - Turbidity/TSS: maximum increase of 10% when background is greater than 50 NTU or 100 mg/L at any time during high flows or in turbid waters.
- Applicable BC WQG-PAL for marine environments (BC ENV 2023):
  - Temperature:  $\pm 1^{\circ}\text{C}$  change from ambient at any time, location, or depth.
  - pH: 7.0 to 8.7
  - Turbidity/TSS: maximum increase of 8 NTU or 25 mg/L from background at any one time for a duration of 24 hours in all waters during clear flows or in clear waters.
  - Turbidity/TSS: maximum increase of 2 NTU or 5 mg/L from background at any one time for a duration of 30 days in all waters during clear flows or in clear waters.
  - Turbidity/TSS: maximum increase of 5 NTU or 10 mg/L at any time when background is between 8--50 NTU or 25-100 mg/L during high flows or in turbid waters.
  - Turbidity/TSS: maximum increase of 10% when background is greater than 50 NTU or 100 mg/L at any time during high flows or in turbid waters.
- Reporting: Immediate communication to the Environmental Inspector of exceedances of BC WQG-PAL for temperature, pH, dissolved oxygen or turbidity. Daily reporting to QP of manual water quality parameter results. Investigation of the source of exceedances supported by in-situ water quality data and information on construction activity provided by the Contractor or Construction Manager.

### 18.3.2 Stormwater Runoff

Water quality and erosion sediment control measures will be monitored for stormwater runoff according to the following protocol:

- Sampling locations: where construction activities occur adjacent to, or stormwater enters, a watercourse or the marine environment sampling will be conducted at both upstream and downstream locations.
- Sampling frequency: At a minimum weekly or daily, as per Table 23, and after heavy precipitation events (whichever is more frequent) or as determined by the QP.

- Sampling parameters: turbidity (NTU) will be utilized for in-situ water quality monitoring and total suspended solids (TSS) for collection of lab samples prior to controlled discharges to aquatic environments.
- Applicable BC WQG-PAL for freshwater environments (BC ENV 2023):
  - Turbidity/TSS: maximum increase of 8 NTU or 25 mg/L from background at any one time for a duration of 24 hours in all waters during clear flows or in clear waters.
  - Turbidity/TSS: maximum increase of 5 NTU or 10 mg/L at any time when background is between 8-50 NTU or 25-100 mg/L during high flows or in turbid waters.
  - Turbidity/TSS: maximum increase of 10% when background is greater than 50 NTU or 100 mg/L at any time during high flows or in turbid waters.
- Applicable BC WQG-PAL for marine environments (BC ENV 2023):
  - Turbidity/TSS: maximum increase of 8 NTU or 25 mg/L from background at any one time for a duration of 24 hours in all waters during clear flows or in clear waters.
  - Turbidity/TSS: maximum increase of 5 NTU or 10 mg/L at any time when background is between 8-50 NTU or 25-100 mg/L during high flows or in turbid waters.
  - Turbidity/TSS: maximum increase of 10% when background is greater than 50 NTU or 100 mg/L at any time during high flows or in turbid waters.
- Reporting: a bi-weekly report to be drafted by the Senior Environmental Inspector that includes a detailed summary of field observations (e.g., erosion control measures conditions, effectiveness), all water quality data, and details on the source of any exceedances. Any adaptive management decisions made in the field, based on water quality data will be documented by the Senior Environmental Inspector and recorded in the Daily Environmental Inspection Report.

### 18.3.3 Concrete Works

Water quality will be monitored during concrete works occurring within or immediately beside a stream or Douglas Channel according to the following protocol:

- Sampling locations: a location immediately downstream of or adjacent to the concrete works, as determined by the QP.
- Sampling frequency: pH monitoring with measurements collected hourly will be conducted for the duration of concrete works using water quality sondes or handheld meters immediately downstream of the work area with data collected daily by on-site personnel (QP, Environmental Inspector, Senior Environmental Inspector).
- Sampling parameters: pH
- Applicable BC WQG-PAL (BC ENV 2023):
  - Freshwater – pH of 6.5 to 9.0
  - Marine – pH of 7.0 to 8.7

- Reporting: Immediate communication of exceedance of the BC WQG-PAL for pH to the Environmental Inspector. Daily reporting/documentation of manual water quality parameter results when concrete work is occurring near an aquatic environment. Concrete works must stop if downstream pH:
  - has changed by more than 1.0 pH unit, measured to an accuracy of +/- 0.2 pH units from the background level; or,
  - where applicable, is recorded to be below 6.0 or above 9.0 pH units and may only resume when pH levels have returned to levels within this range.

## 18.4 Monitoring Schedule

Construction is scheduled to occur between mid-2024 and mid-2028, with commissioning in Q3 and Q4 of 2028. A schedule for construction is provided in Appendix B. Key construction activities by year are summarized in Table 22. Monitoring activities associated with these construction activities, including the location, type of monitoring and minimum frequency is provided in Table 23.

**TABLE 22 CONSTRUCTION ACTIVITIES BY CONSTRUCTION YEAR**

Year	Location	Activity
2024	Marine Terminal	<ul style="list-style-type: none"> <li>● Clearing</li> <li>● Grubbing and grading</li> <li>● In-water works (e.g., access road culverts)</li> <li>● Access roads (construction and upgrading)</li> </ul>
2025	Marine Terminal	<ul style="list-style-type: none"> <li>● Grading</li> <li>● Infrastructure installation</li> <li>● In-water works (e.g., pile installation, culverts)</li> <li>● Access roads (construction and upgrading)</li> </ul>
	Transmission Line	<ul style="list-style-type: none"> <li>● Clearing</li> <li>● In-water works (e.g., access road culverts)</li> <li>● Access roads (construction and upgrading)</li> </ul>
	Distribution Powerline	<ul style="list-style-type: none"> <li>● Clearing</li> <li>● In-water works (e.g., access road culverts)</li> <li>● Access roads (construction and upgrading)</li> </ul>
2026	Marine Terminal	<ul style="list-style-type: none"> <li>● Grading</li> <li>● Infrastructure installation</li> <li>● In-water works (e.g., pile installation, culverts)</li> <li>● Access roads (construction and upgrading)</li> </ul>



Year	Location	Activity
	Transmission Line	<ul style="list-style-type: none"> <li>• Concrete pours</li> <li>• Infrastructure installation</li> <li>• Access roads (construction and upgrading)</li> </ul>
2027	Marine Terminal	<ul style="list-style-type: none"> <li>• Infrastructure installation</li> <li>• Access roads (construction and upgrading)</li> </ul>
	Transmission Line	<ul style="list-style-type: none"> <li>• Infrastructure installation</li> <li>• Clean-up</li> <li>• Access roads (construction and upgrading)</li> </ul>
2028	Marine Terminal	<ul style="list-style-type: none"> <li>• In-water works (FLNG mooring system)</li> <li>• Infrastructure installation</li> <li>• Clean-up</li> <li>• Access roads (construction or upgrading)</li> </ul>

**TABLE 23 MONITORING TYPE AND FREQUENCY BY ACTIVITY AND LOCATION**

Activity	Location	Type of Monitoring and/or Inspection	Minimum Monitoring Frequency
Clearing	<ul style="list-style-type: none"> <li>• Transmission line corridor</li> <li>• Distribution powerline right-of-way</li> <li>• Marine terminal</li> <li>• Access roads</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion and sediment control measures</li> <li>• Water quality</li> <li>• CEMP compliance</li> </ul>	Weekly
Grubbing and Grading	<ul style="list-style-type: none"> <li>• Transmission line corridor</li> <li>• Distribution powerline right-of-way</li> <li>• Marine terminal</li> <li>• Access roads</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion and sediment control measures</li> <li>• Water quality</li> <li>• CEMP compliance</li> </ul>	Daily
In-water work	<ul style="list-style-type: none"> <li>• Transmission line corridor (watercourses)</li> <li>• Distribution powerline right-of-way (watercourses)</li> <li>• Marine terminal (watercourses and Douglas Channel)</li> <li>• Access roads (watercourses)</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion and sediment control measures</li> <li>• Water quality</li> <li>• CEMP compliance</li> </ul>	Daily
Concrete pours	<ul style="list-style-type: none"> <li>• Transmission line corridor</li> </ul>	<ul style="list-style-type: none"> <li>• Water quality</li> </ul>	Daily



Activity	Location	Type of Monitoring and/or Inspection	Minimum Monitoring Frequency
	<ul style="list-style-type: none"> <li>• Distribution powerline right-of-way</li> <li>• Marine terminal</li> </ul>	<ul style="list-style-type: none"> <li>• CEMP compliance</li> </ul>	
Access road use	<ul style="list-style-type: none"> <li>• Transmission line corridor</li> <li>• Distribution powerline right-of-way</li> <li>• Marine terminal</li> </ul>	<ul style="list-style-type: none"> <li>• CEMP compliance</li> </ul>	Weekly
Infrastructure installation	<ul style="list-style-type: none"> <li>• Transmission line corridor</li> <li>• Distribution powerline right-of-way</li> <li>• Marine terminal</li> </ul>	<ul style="list-style-type: none"> <li>• CEMP compliance</li> </ul>	Weekly
Clean-up	<ul style="list-style-type: none"> <li>• Transmission line corridor</li> <li>• Distribution powerline right-of-way</li> <li>• Marine terminal</li> <li>• Access roads</li> </ul>	<ul style="list-style-type: none"> <li>• CEMP compliance</li> </ul>	Weekly
Inactive (between construction seasons or before operation)	<ul style="list-style-type: none"> <li>• Transmission line corridor</li> <li>• Distribution powerline right-of-way</li> <li>• Marine terminal</li> <li>• Access roads</li> </ul>	<ul style="list-style-type: none"> <li>• CEMP compliance</li> </ul>	Monthly

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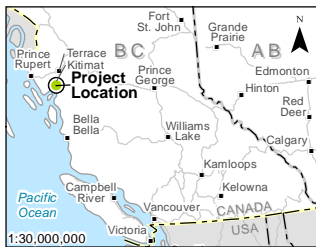
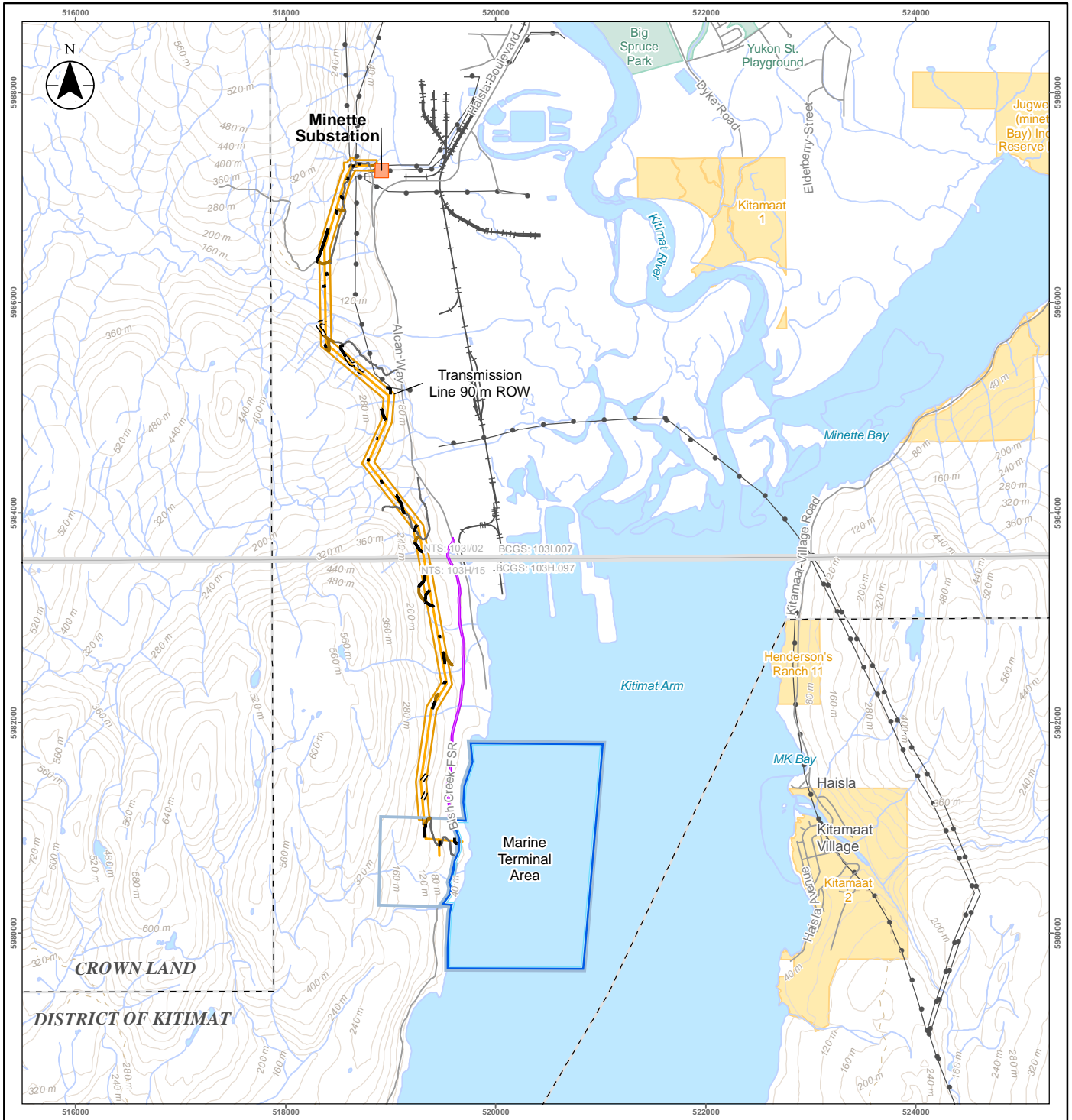
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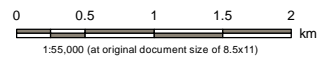
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## 20.0 Figures



**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 9N  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service  
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- Road
- - - Forest Tenure Road
- +— Railway
- Transmission Line
- Topographic Contour (40 m)
- Waterbody
- Reserve Land
- Local Greenspace
- District of Kitimat
- Municipal Boundary
- Minette Substation
- New Road Construction
- == New Tracked Access
- Road Reconstruction
- Pipeline Access Road
- Distribution Powerline Centreline
- Transmission Line Centreline
- Distribution Powerline 15 m ROW
- Transmission Line 90 m ROW
- Facility Area
- Marine Terminal Area

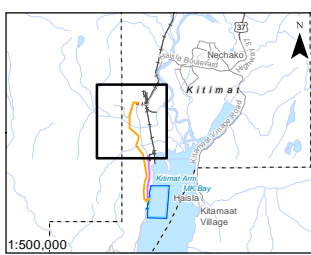
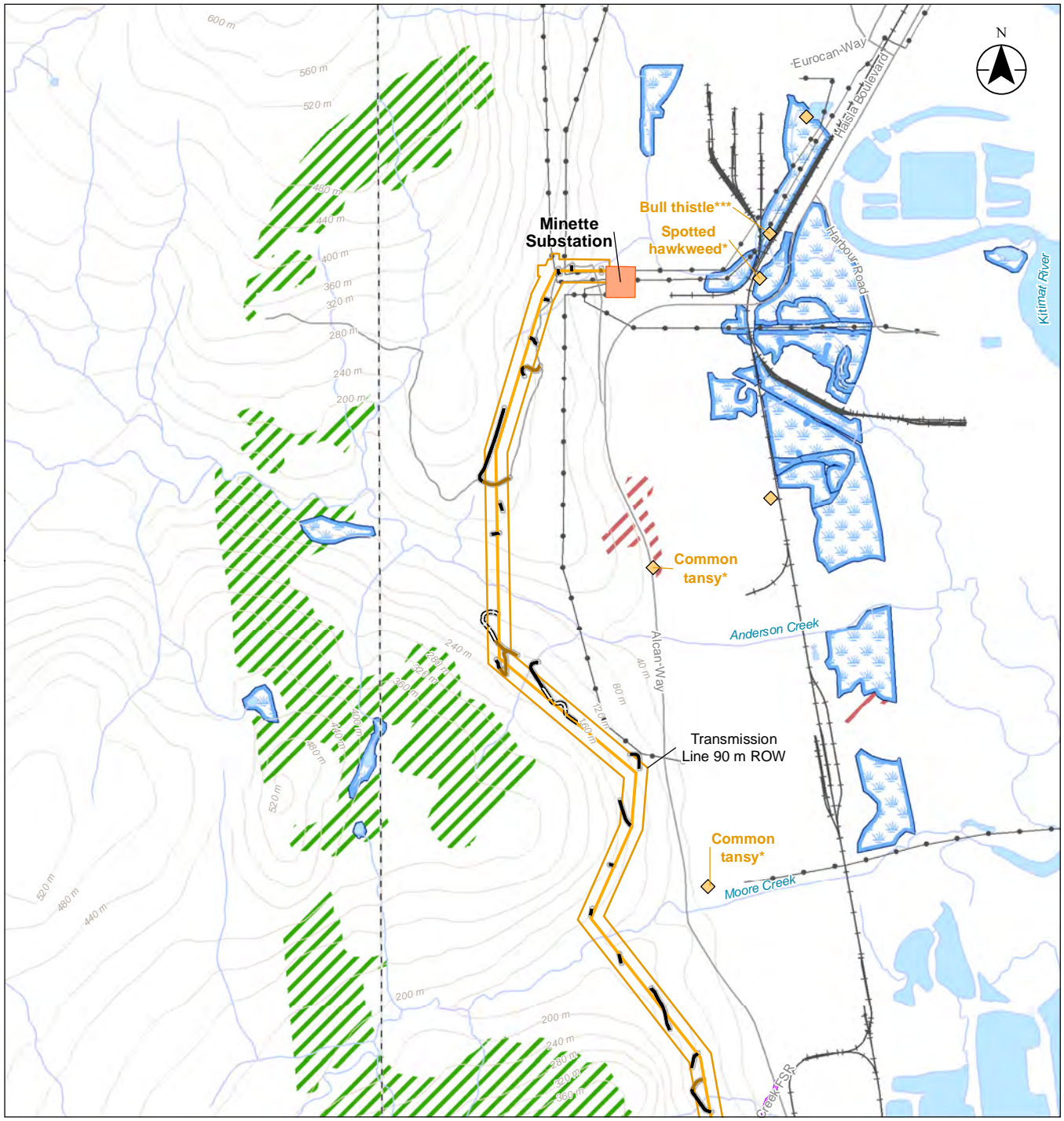


Project Location: Kitimat, British Columbia  
 Project Number 123223008  
 Prepared by TCARDINAL on 20250226  
 Review by WPRYSTAY on 20250520

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

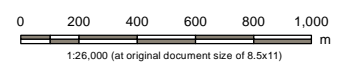
Figure No.  
**1**

Title  
**Project Components Relevant to the Construction Environmental Management Plan**



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

- Road
- Railway
- Transmission Line
- Topographic Contour
- Watercourse
- Waterbody
- District of Kitimat
- Municipal Boundary
- ◆ Invasive Plant Location
- \* IAPP
- \*\* Douglas Channel LNG
- \*\*\* 2019 Survey
- Old Forest
- Red-Listed Ecosystem
- TEM Wetland
- Distribution Powerline Centreline
- Transmission Line Centreline
- New Road Construction
- New Tracked Access
- Road Reconstruction
- Distribution Powerline 15 m ROW
- Transmission Line 90 m ROW
- Approximate Road Extent



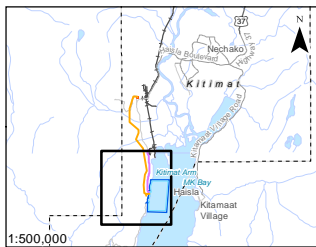
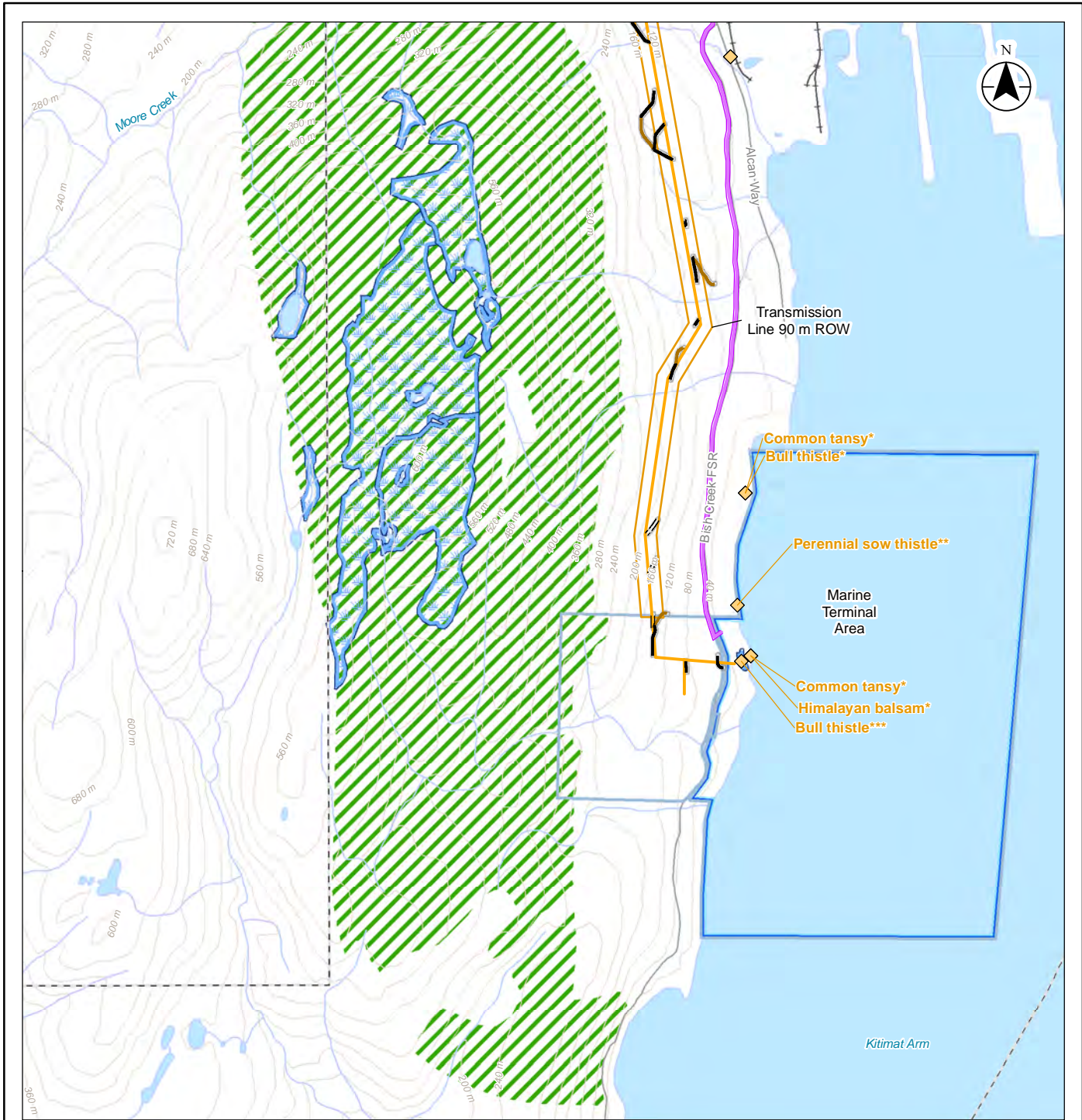
Project Location: Kitimat, British Columbia  
 Project Number: 123223008  
 Prepared by: TCARDINAL on 20250226  
 Review by: MONEILL on 20250220

Client/Project/Report: Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. **2** Sheet 1 of 2

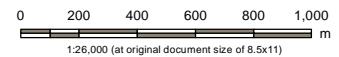
**Key Vegetation Resources and Detections of Species of Conservation Concern**

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

- Road
- Railway
- Topographic Contour (40 m)
- Watercourse
- Waterbody
- District of Kitimat
- Municipal Boundary
- ◆ Invasive Plant Location
- \* IAPP
- \*\* Douglas Channel LNG
- \*\*\* 2019 Survey
- Old Forest
- TEM Wetland
- Distribution Powerline Centreline
- Transmission Line Centreline
- New Road Construction
- New Tracked Access
- Road Reconstruction
- Facility Area
- Marine Terminal Area
- Distribution Powerline 15 m ROW
- Transmission Line 90 m ROW
- Approximate Road Extent



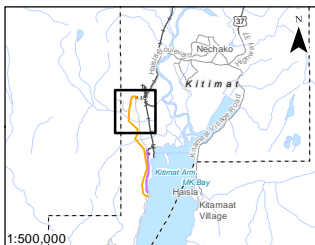
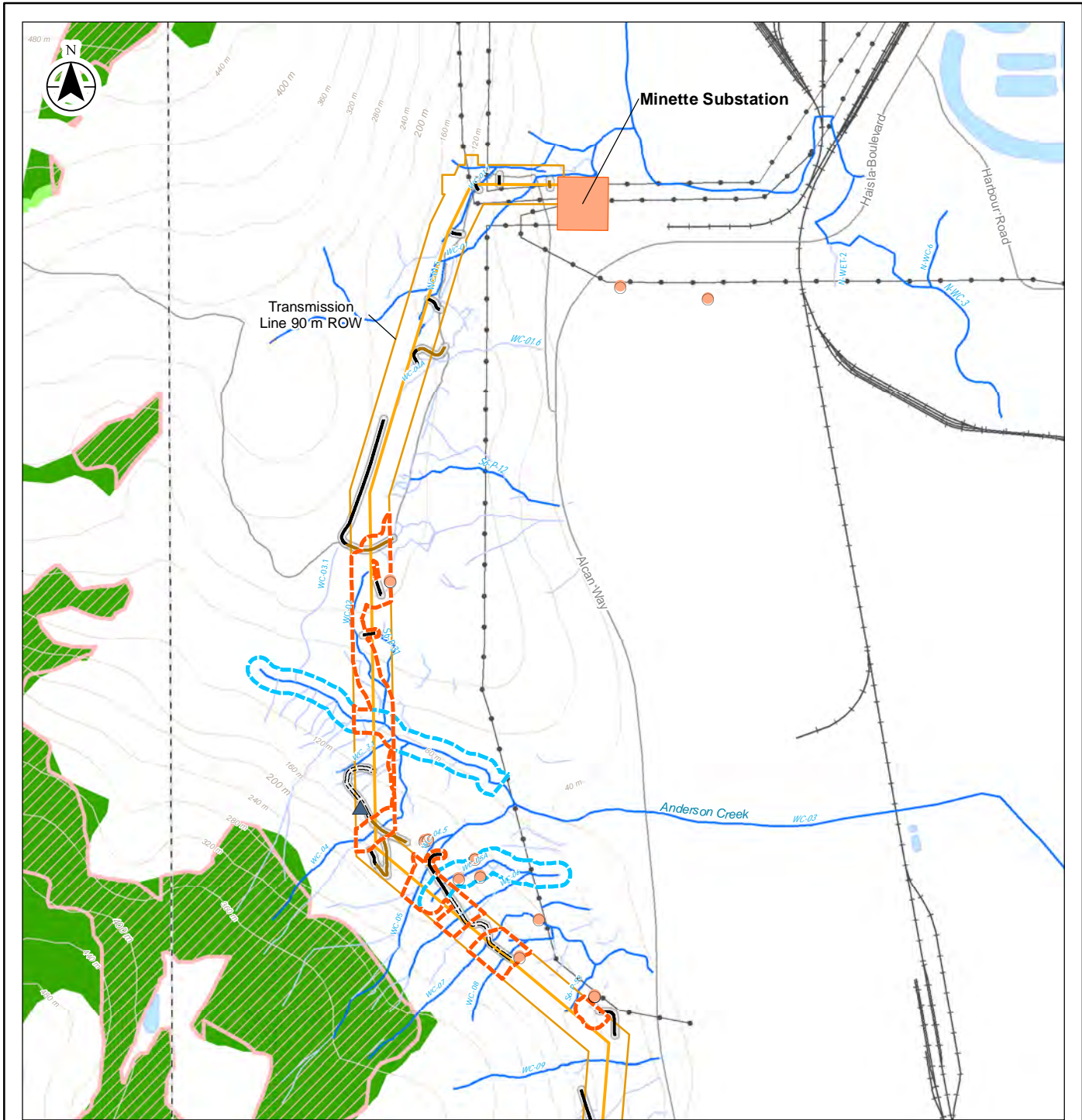
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 Project Number: 123223008  
 Prepared by: TCARDINAL on 20250226  
 Review by: MONEILL on 20250220

Client/Project/Report: Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. **2** Sheet 2 of 2

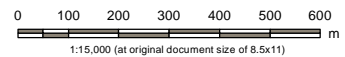
**Key Vegetation Resources and Detections of Species of Conservation Concern**

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

- Road
  - +— Railway
  - Transmission Line
  - Topographic Contour (40 m)
  - Watercourse
  - Waterbody
  - Watercourse
  - NCD, Other
  - District of Kitimat
  - Municipal Boundary
  - ▲ Maternity roost
  - Coastal tailed frog Watercourse 30 m Buffer
  - Western Toad/Ambiphan Breeding and/or Migration Location
  - Western Toad Dispersal Location
  - Marbled Murrelet (MaMu) Polygons
  - Where Critical Habitat May Occur (ECCC)
  - MaMu Habitat Suitability Class
  - High
  - Moderate
- Project Components**
- New Road Construction
  - New Tracked Access
  - Road Reconstruction
  - Transmission Line Centreline
  - Approximate Road Extent
  - Transmission Line 90 m ROW



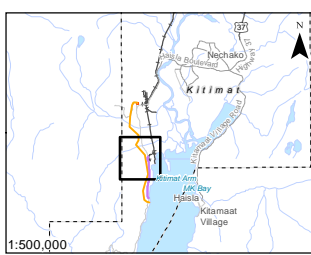
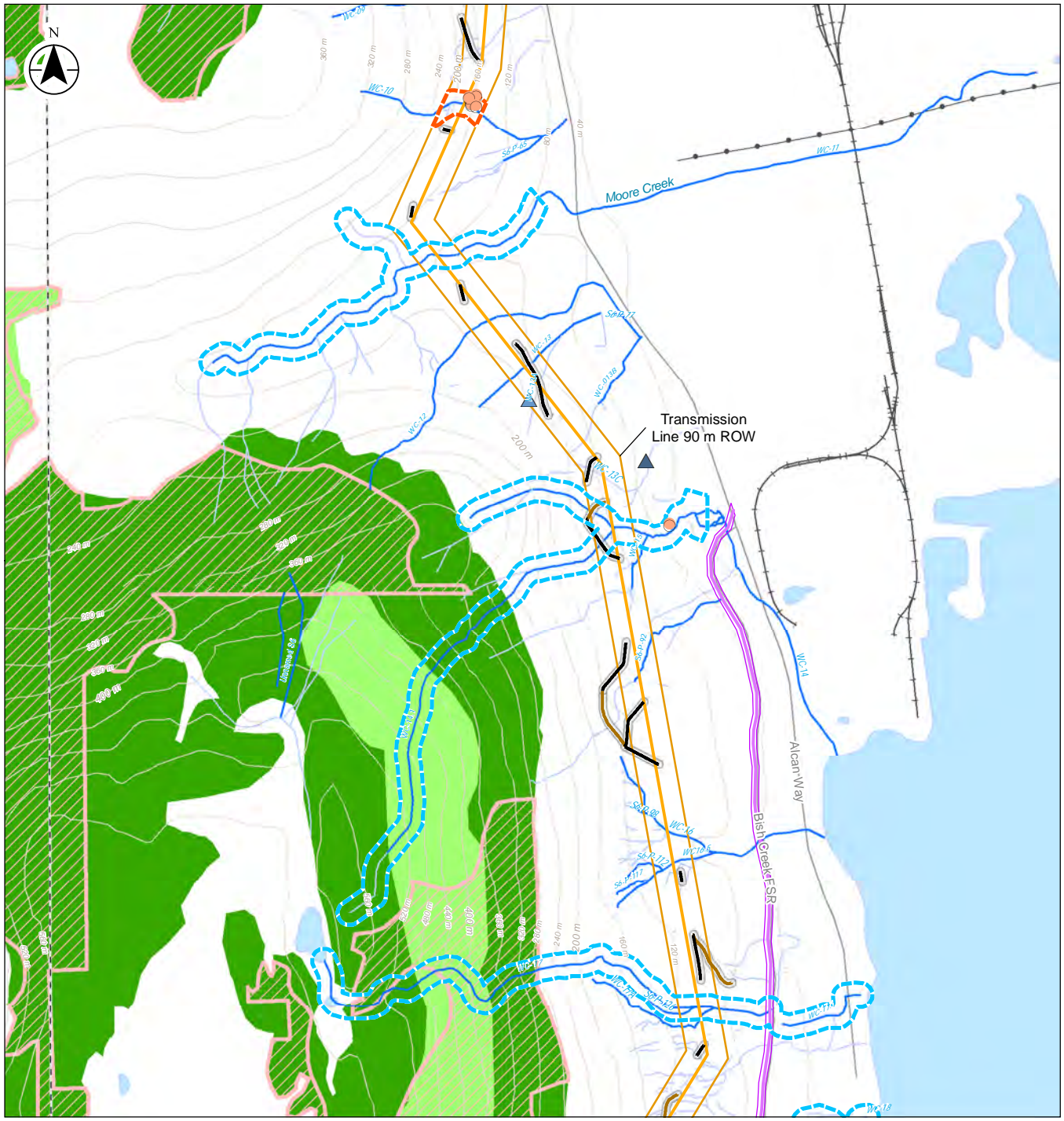
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 Project Number: 123223008  
 Prepared by: TCARDINAL on 20250226  
 Review by: JPRESTON on 20250514

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No.  
**3** Sheet 1 of 3

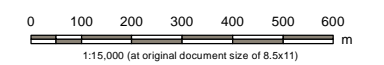
Title  
**Key Wildlife Resources**

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

- Road
  - Railway
  - Transmission Line
  - Topographic Contour (40 m)
  - Watercourse
  - Waterbody
  - Watercourse
  - NCD, Other
  - District of Kitimat
  - Municipal Boundary
  - Hibernaculum/ Maternity roost
  - Maternity roost
  - Coastal tailed frog Watercourse 30 m Buffer
  - Western Toad/Amphibian Breeding and/or Migration Location
  - Western Toad Dispersal Location
  - Marbled Murrelet (MaMu) Polygons
  - Where Critical Habitat May Occur (ECCC)
- MaMu Habitat Suitability Class**
- High
  - Moderate
- Project Components**
- New Road Construction
  - Road Reconstruction
  - Distribution Powerline Centreline
  - Transmission Line Centreline
  - Approximate Road Extent
  - Distribution Powerline 15 m ROW
  - Transmission Line 90 m ROW



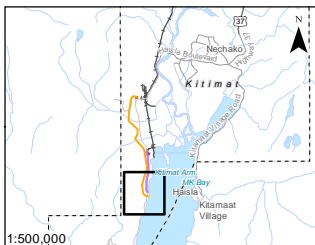
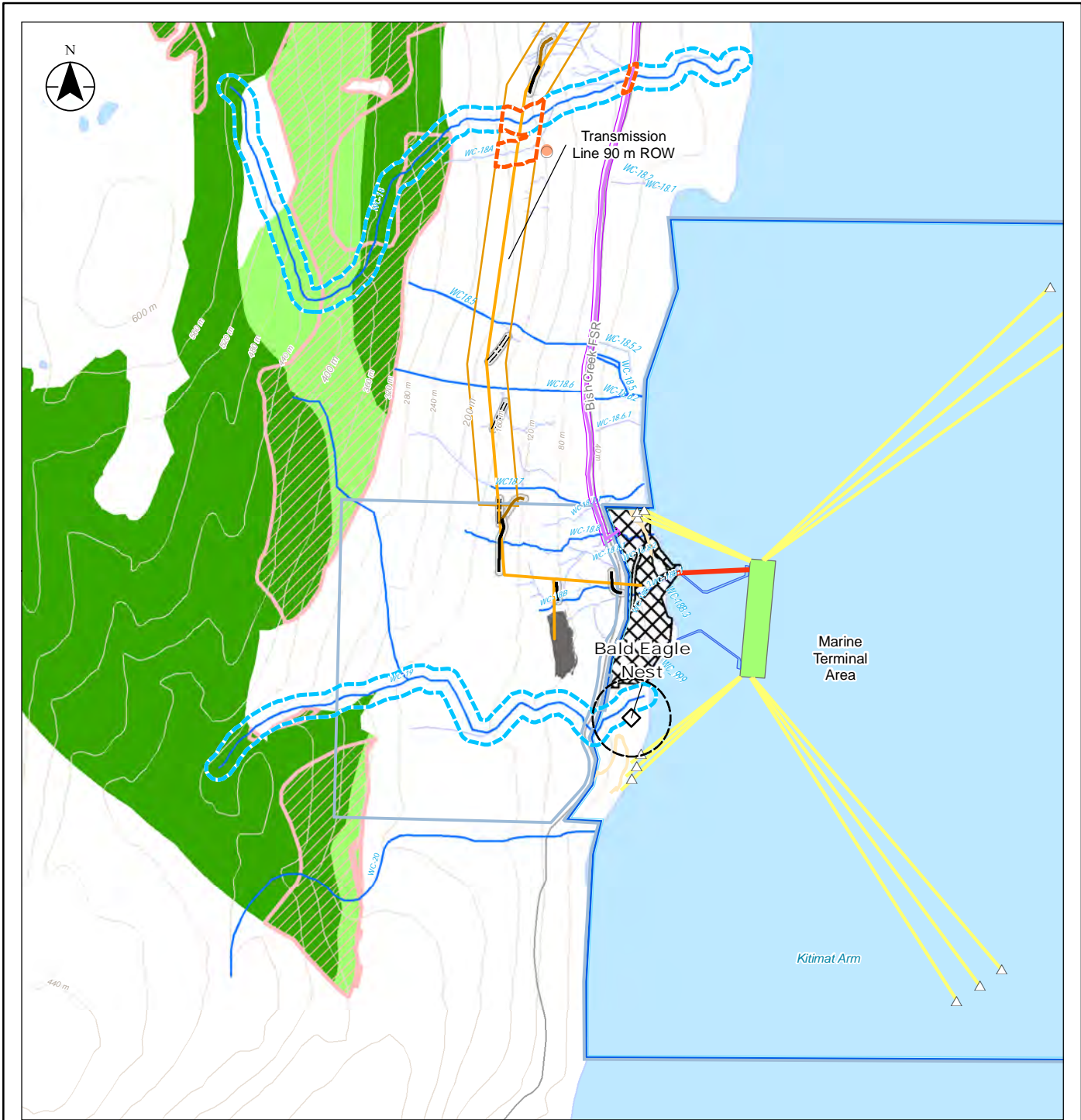
Project Location: Kitimat, British Columbia  
 Project Number: 123223008  
 Prepared by: TCARDINAL on 20250226  
 Review by: JPRESTON on 20250514

Client/Project/Report: Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. **3** Sheet 2 of 3

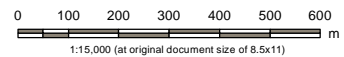
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**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 9N  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>— Road</li> <li>— Topographic Contour (40 m)</li> <li>Watercourse</li> <li>Waterbody</li> <li>Watercourse</li> <li>NCD, Other</li> <li>District of Kitimat</li> <li>Municipal Boundary</li> <li>◇ Bald Eagle Nest</li> <li>◻ Bald Eagle Nest 100 m Buffer</li> <li>◻ Coastal tailed frog Watercourse 30 m Buffer</li> <li>○ Western Toad/Amphibian Breeding and/or Migration Location</li> <li>◻ Western Toad Dispersal Location</li> <li>◻ Marbled Murrelet (MaMu) Polygons</li> <li>◻ Where Critical Habitat May Occur (ECCC)</li> <li>MaMu Habitat Suitability Class</li> <li>High</li> <li>Moderate</li> </ul> | <ul style="list-style-type: none"> <li>Project Components</li> <li>— New Road Construction</li> <li>— New Tracked Access</li> <li>— Road Reconstruction</li> <li>— Distribution Powerline Centreline</li> <li>— Transmission Line Centreline</li> <li>— Approximate Road Extent</li> <li>— Facility Area</li> <li>◻ Facility Clearing Area</li> <li>◻ Distribution Powerline 15 m ROW</li> <li>◻ Transmission Line 90 m ROW</li> <li>◻ Marine Terminal Area</li> <li>◻ Stockpile Footprint (Cleared)</li> <li>◻ Catenary Mooring Anchor</li> <li>◻ Dynamic Riser</li> <li>— Mooring Line</li> <li>— Floating Access</li> <li>— Floating LNG Facility</li> <li>— Access Road</li> </ul> |
|---|--|



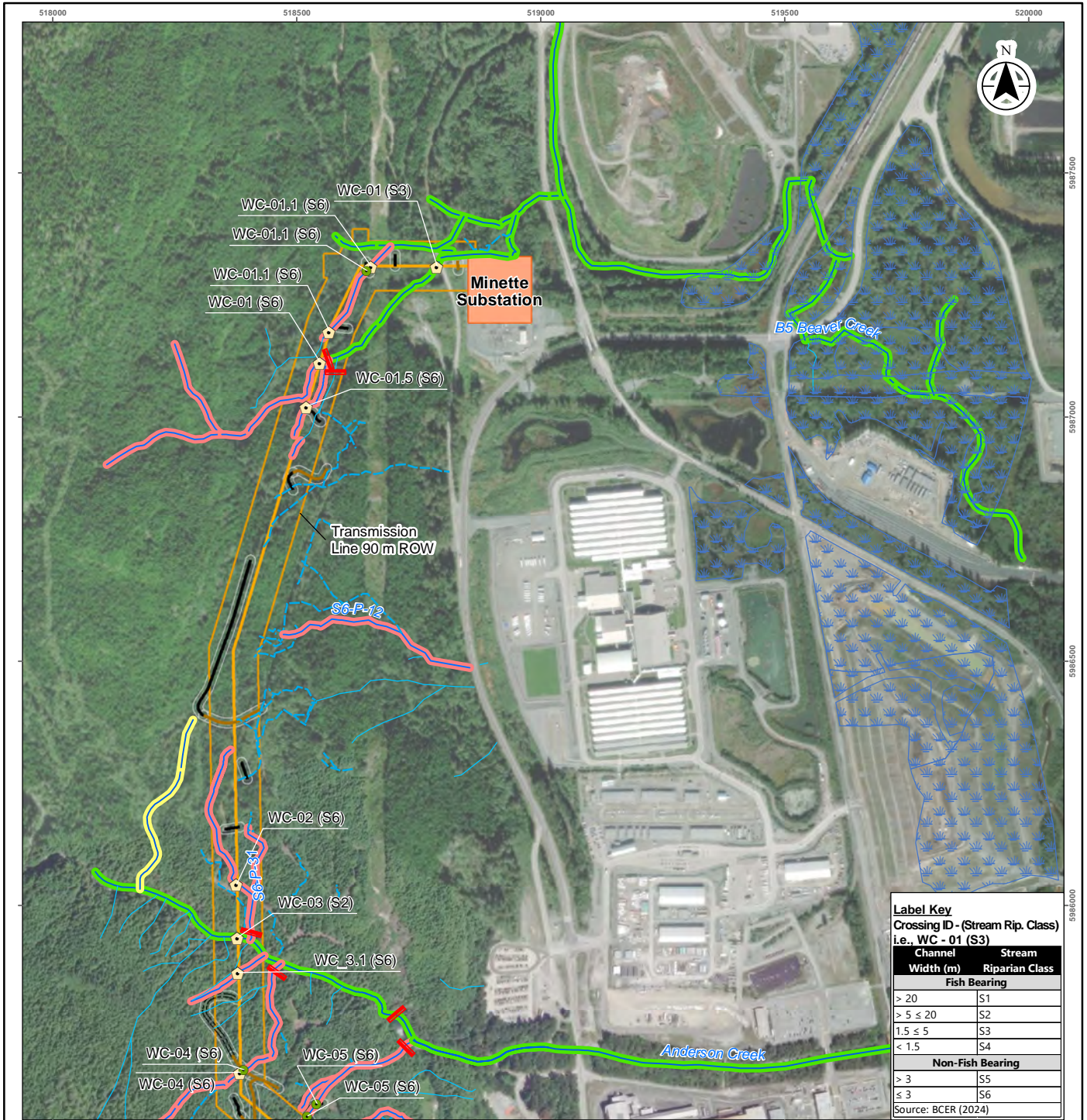
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 Project Number: 123223008  
 Prepared by: TCARDINAL on 20250226  
 Review by: JPRESTON on 20250514

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No.  
**3 Sheet 3 of 3**

Title  
**Key Wildlife Resources**

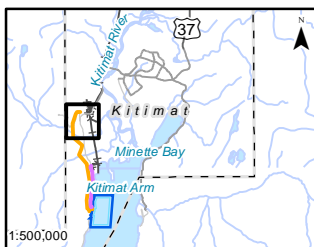
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**Label Key**  
Crossing ID - (Stream Rip. Class)  
i.e., WC - 01 (S3)

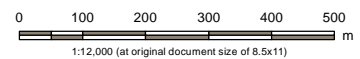
Channel Width (m)	Stream Riparian Class
<b>Fish Bearing</b>	
> 20	S1
> 5 ≤ 20	S2
1.5 ≤ 5	S3
< 1.5	S4
<b>Non-Fish Bearing</b>	
> 3	S5
≤ 3	S6

Source: BCER (2024)



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 9N
  2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service
  3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery
  4. WC-14.1 (S5) is a conservative riparian class. Watercourse has not been assessed in the field.

- Minette Substation
- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Transmission Line
- Transmission Line Access Road
- Fish Presence**
- Fish Absent
- Fish Present
- Fish Presence Not Confirmed
- LiDAR Based Stream - Not Confirmed in Field
- Non-Classified Drainage
- Project Components**
- Transmission Line Centreline
- New Road Construction
- New Tracked Access
- Road Reconstruction
- Transmission Line 90 m ROW



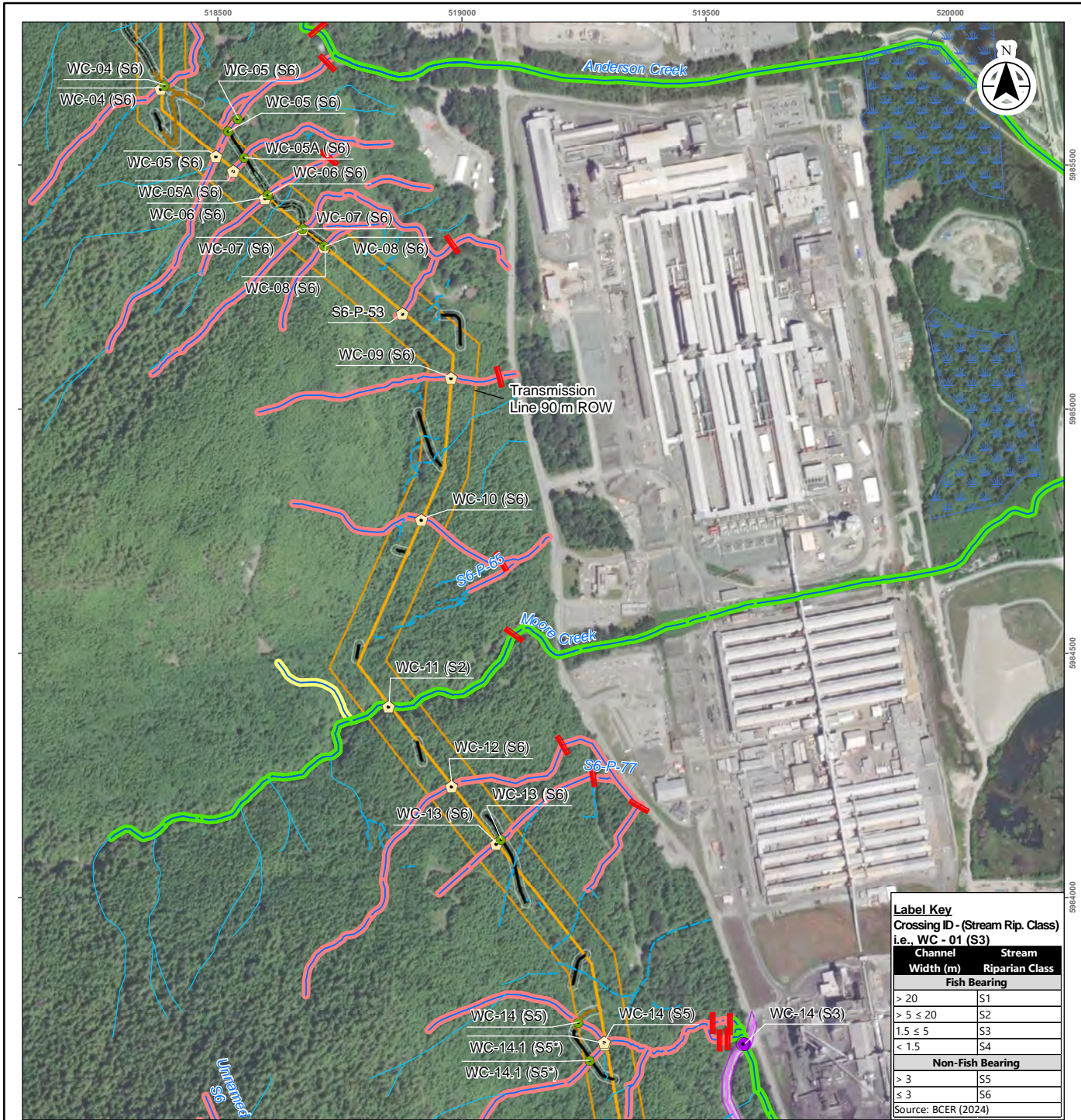
Project Location: Kitimat, British Columbia  
Project Number 12323008  
Prepared by TCARDINAL on 20250226  
Review by MPENNER on 20250515

Client/Project/Report  
Cedar LNG Partners (GP) Ltd  
Cedar LNG Project  
Construction Environmental Management Plan

Figure No.  
**4** Sheet 1 of 4

Title  
**Freshwater Watercourses and Fish-Bearing Status**

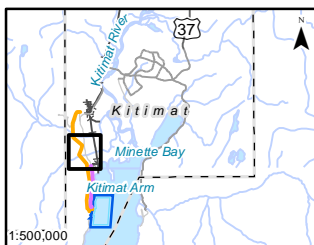
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**Label Key**  
**Crossing ID - (Stream Rip. Class)**  
 i.e., WC - 01 (S3)

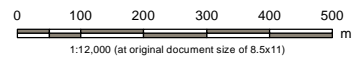
Channel Width (m)	Stream Riparian Class
<b>Fish Bearing</b>	
> 20	S1
> 5 ≤ 20	S2
1.5 ≤ 5	S3
< 1.5	S4
<b>Non-Fish Bearing</b>	
> 3	S5
≤ 3	S6

Source: BCER (2024)



**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 9N  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service  
 3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery  
 4. WC-14.1 (S5\*) is a conservative riparian class. Watercourse has not been assessed in the field.

- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Distribution Line
  - Transmission Line
  - Transmission Line Access Road
- Fish Presence**
- Fish Absent
  - Fish Present
  - Fish Presence Not Confirmed
  - LIDAR Based Stream - Not Confirmed in Field
  - Non-Classified Drainage
- Project Components**
- Distribution Powerline Centreline
  - Transmission Line Centreline
  - New Road Construction
- Legend for Infrastructure:
- New Tracked Access
  - Road Reconstruction
  - Distribution Powerline 15 m ROW
  - Transmission Line 90 m ROW



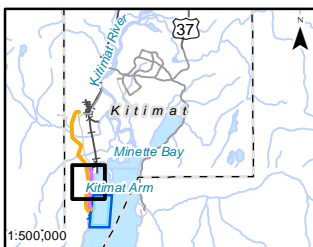
Project Location: Kitimat, British Columbia  
 Project Number 12323008  
 Prepared by TCARDINAL on 20250226  
 Review by MPENNER on 20250515

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. 4  
 Sheet 2 of 4

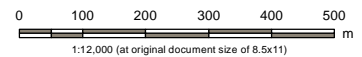
Title  
**Freshwater Watercourses and Fish-Bearing Status**

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**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 9N  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service  
 3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery  
 4. WC-14.1 (S5\*) is a conservative riparian class. Watercourse has not been assessed in the field.

- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Distribution Line
  - Transmission Line
  - Transmission Line Access Road
- Fish Presence**
- Fish Absent
  - Fish Present
  - LIDAR Based Stream - Not Confirmed in Field
  - Non-Classified Drainage
  - No Visible Channel
- Project Components**
- Distribution Powerline Centreline
  - Transmission Line Centreline
  - New Road Construction



Project Location: Kitimat, British Columbia  
 Project Number 12323008  
 Prepared by TCARDINAL on 20250226  
 Review by MPENNER on 20250515

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. 4  
 Sheet 3 of 4

Title  
**Freshwater Watercourses and Fish-Bearing Status**

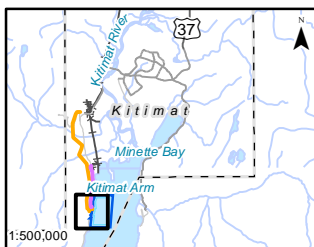
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**Label Key**  
**Crossing ID - (Stream Rip. Class)**  
 i.e., WC - 01 (S3)

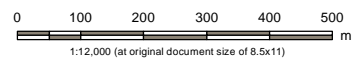
Channel Width (m)	Stream Riparian Class
<b>Fish Bearing</b>	
> 20	S1
> 5 ≤ 20	S2
1.5 ≤ 5	S3
< 1.5	S4
<b>Non-Fish Bearing</b>	
> 3	S5
≤ 3	S6

Source: BCER (2024)



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 9N
  2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service
  3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery
  4. WC-14.1 (S5) is a conservative riparian class. Watercourse has not been assessed in the field.

- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Distribution Line
  - Transmission Line
  - Transmission Line Access Road
- Fish Presence**
- Fish Absent
  - LIDAR Based Stream - Not Confirmed in Field
  - Non-Classified Drainage
- Project Components**
- Distribution Powerline Centreline
  - Transmission Line Centreline
  - New Road Construction
  - New Tracked Access
  - Road Reconstruction
- Facility Area**
- Marine Terminal Area
  - Distribution Powerline 15 m ROW
  - Transmission Line 90 m ROW



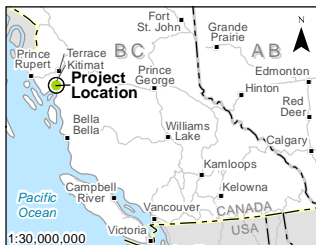
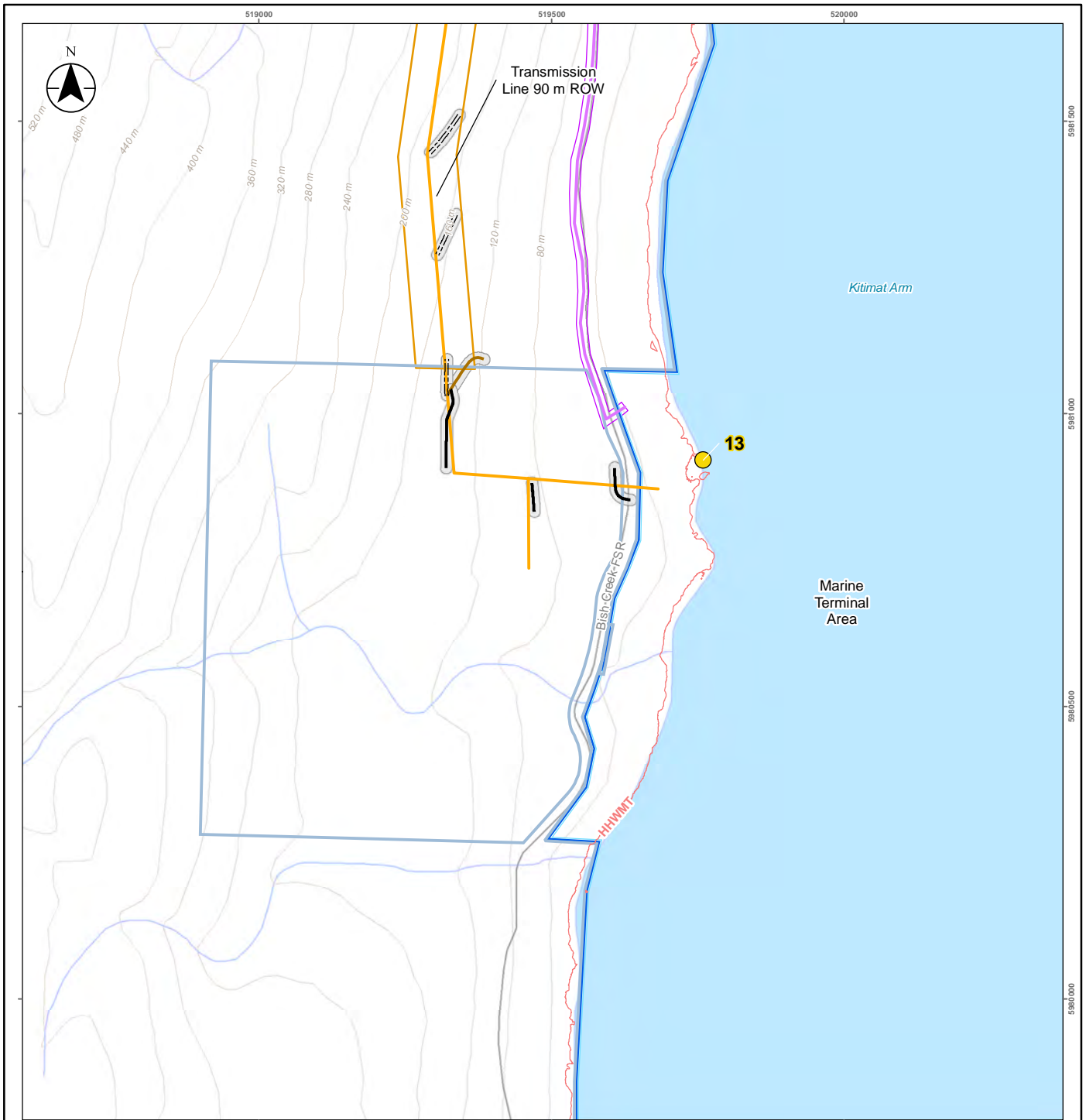
Project Location: Kitimat, British Columbia  
 Project Number 12323008  
 Prepared by TCARDINAL on 20250226  
 Review by MPENNER on 20250515

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. **4** Sheet 4 of 4

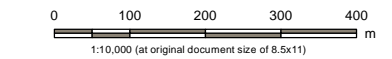
Title  
**Freshwater Watercourses and Fish-Bearing Status**

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

- Road
- Topographic Contour (40 m)
- Higher High Water Mean Tide (6.5 m MSL)
- Waterbody
- District of Kitimat
- Municipal Boundary
- Soil Sampling Location with Cadmium Contamination Detected
- New Road Construction
- New Tracked Access
- Road Reconstruction
- Distribution Powerline Centreline
- Transmission Line Centreline
- Distribution Powerline (15 m ROW)
- Transmission Line 90 m ROW
- Marine Terminal Area
- Facility Area
- Approximate Road Extent



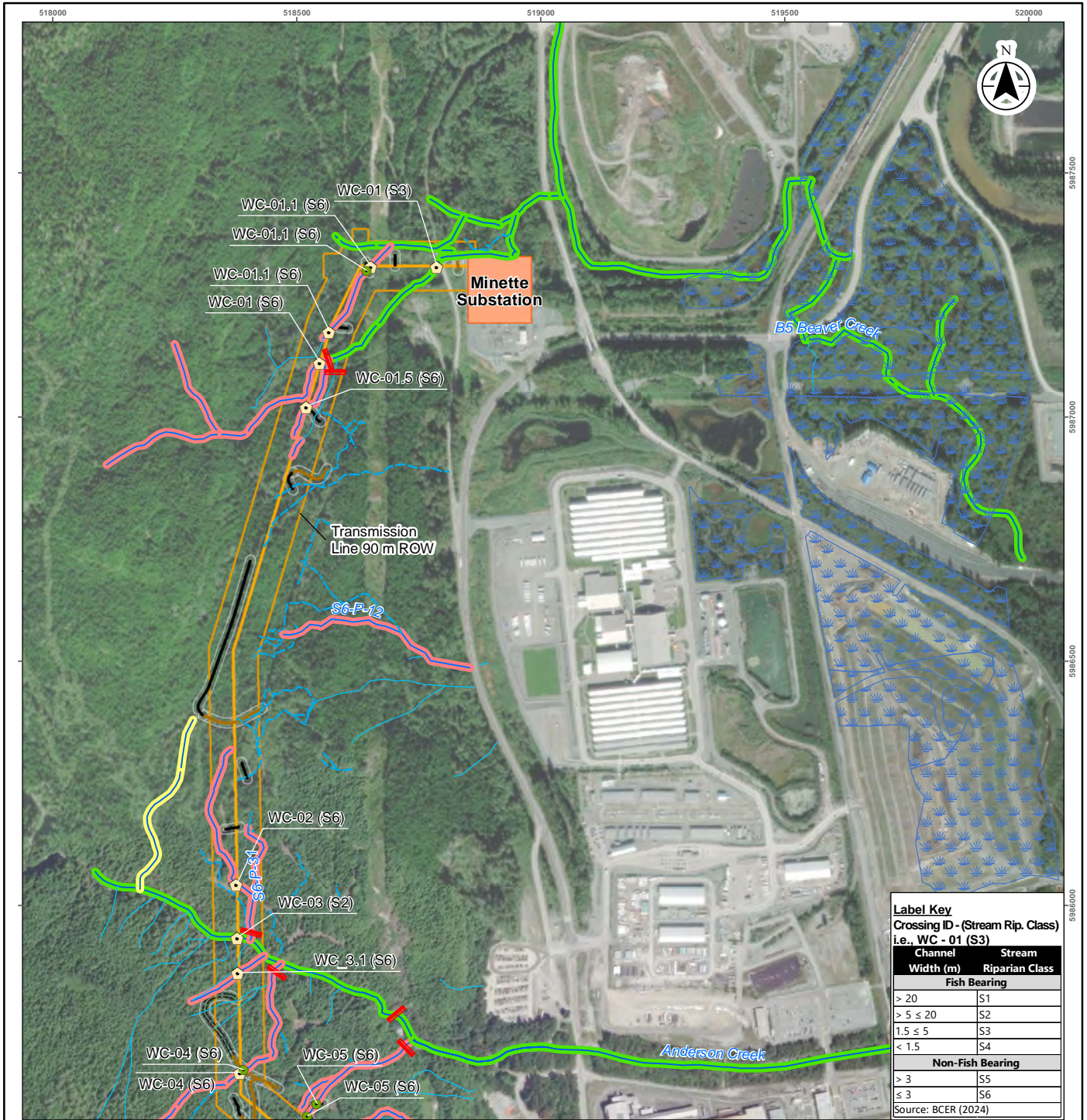
Project Location: Kitimat, British Columbia  
 Project Number 12323008  
 Prepared by TCARDINAL on 20250226  
 Review by MDEANE on 20250429

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No.  
**5**

Title  
**Soil Sampling Site #13**

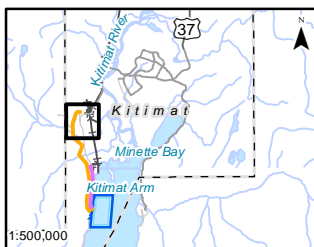
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**Label Key**  
Crossing ID - (Stream Rip. Class)  
i.e., WC - 01 (S3)

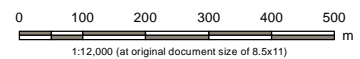
Channel Width (m)	Stream Riparian Class
<b>Fish Bearing</b>	
> 20	S1
> 5 ≤ 20	S2
1.5 ≤ 5	S3
< 1.5	S4
<b>Non-Fish Bearing</b>	
> 3	S5
≤ 3	S6

Source: BCER (2024)



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 9N
  2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service
  3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery
  4. WC-14.1 (S5) is a conservative riparian class. Watercourse has not been assessed in the field.

- Minette Substation
- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Transmission Line
- Transmission Line Access Road
- Fish Presence**
- Fish Absent
- Fish Present
- Fish Presence Not Confirmed
- LiDAR Based Stream - Not Confirmed in Field
- Non-Classified Drainage
- Project Components**
- Transmission Line Centreline
- New Road Construction
- New Tracked Access
- Road Reconstruction
- Transmission Line 90 m ROW



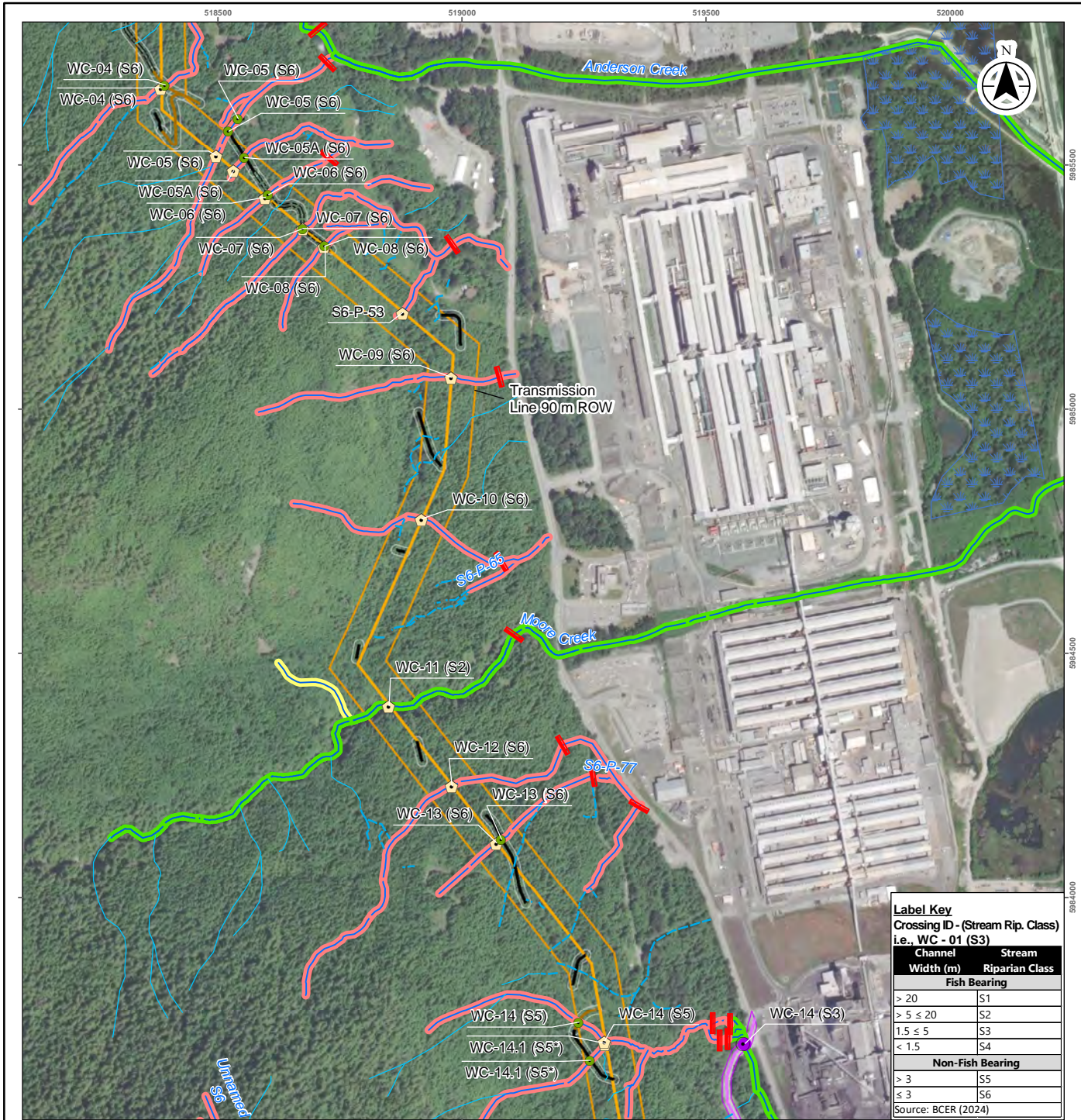
Project Location: Kitimat, British Columbia  
Project Number 12323008  
Prepared by TCARDINAL on 20250226  
Review by MPENNER on 20250515

Client/Project/Report  
Cedar LNG Partners (GP) Ltd  
Cedar LNG Project  
Construction Environmental Management Plan

Figure No.  
**4** Sheet 1 of 4

Title  
**Freshwater Watercourses and Fish-Bearing Status**

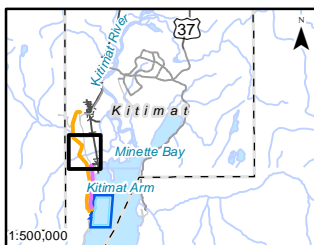
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**Label Key**  
**Crossing ID - (Stream Rip. Class)**  
 i.e., WC - 01 (S3)

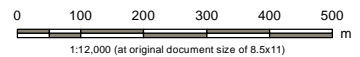
Channel Width (m)	Stream Riparian Class
<b>Fish Bearing</b>	
> 20	S1
> 5 ≤ 20	S2
1.5 ≤ 5	S3
< 1.5	S4
<b>Non-Fish Bearing</b>	
> 3	S5
≤ 3	S6

Source: BCER (2024)



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 9N
  2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service
  3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery
  4. WC-14.1 (S5\*) is a conservative riparian class. Watercourse has not been assessed in the field.

- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Distribution Line
  - Transmission Line
  - Transmission Line Access Road
- Fish Presence**
- Fish Absent
  - Fish Present
  - Fish Presence Not Confirmed
  - LIDAR Based Stream - Not Confirmed in Field
  - Non-Classified Drainage
- Project Components**
- Distribution Powerline Centreline
  - Transmission Line Centreline
  - New Road Construction
- Legend for Infrastructure:
- New Tracked Access
  - Road Reconstruction
  - Distribution Powerline 15 m ROW
  - Transmission Line 90 m ROW



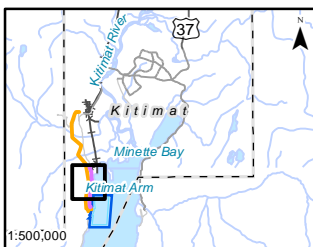
Project Location: Kitimat, British Columbia  
 Project Number 12323008  
 Prepared by TCARDINAL on 20250226  
 Review by MPENNER on 20250515

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. 4  
 Sheet 2 of 4

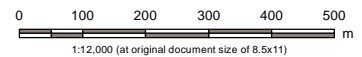
Title  
**Freshwater Watercourses and Fish-Bearing Status**

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



**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 9N  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service  
 3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery  
 4. WC-14.1 (S5\*) is a conservative riparian class. Watercourse has not been assessed in the field.

- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Distribution Line
  - Transmission Line
  - Transmission Line Access Road
- Fish Presence**
- Fish Absent
  - Fish Present
  - LIDAR Based Stream - Not Confirmed in Field
  - Non-Classified Drainage
  - No Visible Channel
- Project Components**
- Distribution Powerline Centreline
  - Transmission Line Centreline
  - New Road Construction



Project Location: Kitimat, British Columbia  
 Project Number 12323008  
 Prepared by TCARDINAL on 20250226  
 Review by MPENNER on 20250515

Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No. 4  
 Sheet 3 of 4

Title  
**Freshwater Watercourses and Fish-Bearing Status**

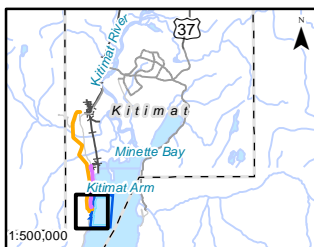
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**Label Key**  
**Crossing ID - (Stream Rip. Class)**  
 i.e., WC - 01 (S3)

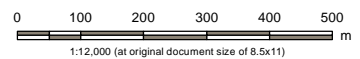
Channel Width (m)	Stream Riparian Class
<b>Fish Bearing</b>	
> 20	S1
> 5 ≤ 20	S2
1.5 ≤ 5	S3
< 1.5	S4
<b>Non-Fish Bearing</b>	
> 3	S5
≤ 3	S6

Source: BCER (2024)



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 9N
  2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada; Canadian Hydrographic Service
  3. Imagery: ESRI World Imagery; PTE 10cm 2017 Orthoimagery
  4. WC-14.1 (S5) is a conservative riparian class. Watercourse has not been assessed in the field.

- Fisheries Data**
- Observed Barrier (i.e., waterfall, cascade, gradient, culvert)
- Watercourse Crossing**
- Distribution Line
  - Transmission Line
  - Transmission Line Access Road
- Fish Presence**
- Fish Absent
  - LIDAR Based Stream - Not Confirmed in Field
  - Non-Classified Drainage
- Project Components**
- Distribution Powerline Centreline
  - Transmission Line Centreline
  - New Road Construction
  - New Tracked Access
  - Road Reconstruction
- Facility Area**
- Marine Terminal Area
  - Distribution Powerline 15 m ROW
  - Transmission Line 90 m ROW



Project Location: Kitimat, British Columbia  
 Project Number 12323008  
 Prepared by TCARDINAL on 20250226  
 Review by MPENNER on 20250515

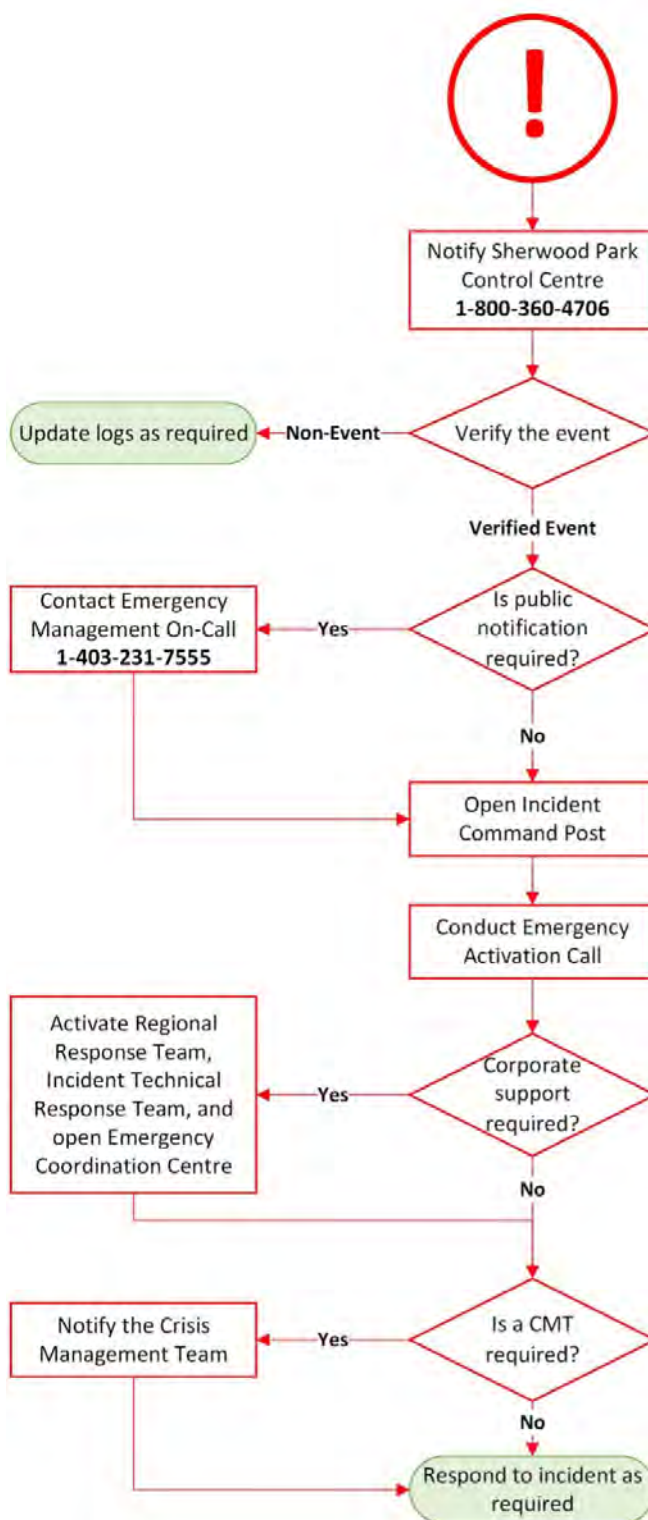
Client/Project/Report  
 Cedar LNG Partners (GP) Ltd  
 Cedar LNG Project  
 Construction Environmental Management Plan

Figure No.  
**4** Sheet 4 of 4

Title  
**Freshwater Watercourses and Fish-Bearing Status**

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**FIGURE 7 PROCESS FOR ACTIVATING CEDAR'S INCIDENT MANAGEMENT TEAM**



# Appendix A

## Table of Concordance

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
Appendix A	-	Manage vehicle and equipment emissions by conducting regular maintenance.	Section 10.0 Air Quality
Appendix A	-	Control fugitive dust emissions from the movement of construction equipment.	Section 10.0 Air Quality
Appendix A	-	Diesel fired equipment used during construction (vehicles and equipment) and during operation (emergency power generators) will be powered by low sulphur fuel	Section 10.0 Air Quality
Appendix A	-	Nearby residents (i.e., within 3 km of activities) will be notified in advance of planned high disturbance noise-causing activities at the Project Area (i.e., pile driving).	Section 9.0 Noise Management
Appendix A	-	Fit gas or diesel engine exhausts with noise mufflers, where available. Turn off equipment when not in use to minimize idling (where appropriate).	Section 9.0 Noise Management
Appendix A	-	Where possible quieter equipment will be prioritized over louder equipment (e.g., vibratory or drill piling over impact piling and rubber-wheeled equipment over steel- tracked equipment or electrified over gas/diesel powered)	Section 9.0 Noise Management
Appendix A	-	Regular maintenance of machinery and equipment so that noise emissions are within range set by manufacturer when available	Section 9.0 Noise Management
Appendix A	-	Carry out noisy fabrication work at another site (e.g., within enclosed factory premises) and then transport products to the project site (as appropriate).	Section 9.0 Noise Management
Appendix A	-	Noise ratings of construction and operation equipment are based on acoustic specifications of equipment (e.g., refrigerant compressor, process cooler) and will be considered in the procurement process.	Section 9.0 Noise Management
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation where appropriate.	Section 13.0 Vegetation Management
Appendix A	-	Standard best management practices to prevent and control the spread of invasive plants will be incorporated into the Project's CEMP. Where invasive species have been discovered onsite, action will be implemented for controlling them.	Section 13.0 Vegetation Management
Appendix A	-	Any temporary workspace on Crown land will be subject to natural revegetation or active reclamation, as per measures stated in the CEMP. Reclamation on private property will follow requirements of the lease agreements with the owner(s).	Section 13.0 Vegetation Management
Appendix A	-	If requested by Haisla Nation, traditional use plants will be incorporated into reclamation planning for temporary construction areas on Crown land (if required).	Section 13.0 Vegetation Management
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation, where appropriate.	Section 13.0 Vegetation Management
Appendix A	-	Cedar will incorporate erosion and sediment control best practices into the CEMP to manage surface water and avoid sedimentation in sensitive vegetation communities.	Section 5.0 Erosion and Sediment Control
Appendix A	-	Standard best practices to prevent and control the spread of invasive plants will be incorporated into the Project's CEMP. Where invasive species have been discovered onsite, action will be implemented for controlling them.	Section 13.0 Vegetation Management
Appendix A	-	Any temporary workspace on Crown land will be subject to natural revegetation or active reclamation, as per measures stated in the CEMP. Reclamation on private property will follow requirements of the lease agreements with the owner(s).	Section 13.0 Vegetation Management
Appendix A	-	Cedar will implement windthrow management strategies such as edge stabilization techniques in areas of old growth forest on Crown land.	Section 13.0 Vegetation Management
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation where appropriate.	Section 13.0 Vegetation Management
Appendix A	-	Cedar will incorporate erosion and sediment control best practices into the CEMP to manage surface water and avoid sedimentation in sensitive vegetation communities.	Section 5.0 Erosion and Sediment Control
Appendix A	-	Standard best practices to prevent and control the spread of invasive plants will be incorporated into the Project's CEMP. Where invasive species have been discovered onsite, action will be implemented to control them.	Section 13.0 Vegetation Management
Appendix A	-	Any temporary workspace on Crown land will be subject to natural revegetation or active reclamation, as per measures stated in the CEMP. Reclamation on private property will follow requirements of the lease agreements with the owner(s).	Section 13.0 Vegetation Management
Appendix A	-	During detailed design, Cedar will work with the engineering team to reduce impacts to wetlands.	Section 13.0 Vegetation Management
Appendix A	-	Manage vehicle and equipment emissions by conducting regular maintenance.	Section 10.0 Air Quality
Appendix A	-	Diesel fired equipment used during construction (vehicles and equipment) and during operation (emergency power generators) will be powered by low sulphur fuel.	Section 10.0 Air Quality
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation, where appropriate.	Section 13.0 Vegetation Management
Appendix A	-	Grubbing and grading should be limited within 30 m of watercourses known to be occupied by coastal tailed frog at all times of the year. If grubbing or grading cannot be avoided within 30 m of a watercourse known to be occupied by coastal tailed frog, additional measures may be specified by an environmental monitor in the CEMP (e.g., additional sediment control measures, use of clear-span bridges to cross the watercourse).	Section 14.0 Wildlife Management
Appendix A	-	Prior to clearing and/or construction, and as temporally applicable, a buffer zone around identified wildlife habitat features will be clearly delineated and marked in the field by an environmental monitor.	Section 14.0 Wildlife Management

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
Appendix A	-	Wildlife habitat features (e.g., dens, raptor nests, mineral licks) discovered during construction will be reported to Cedar's environmental manager and feature-specific mitigation will be developed by an environmental monitor.	Section 14.0 Wildlife Management
Appendix A	-	Project personnel will avoid work within identified wildlife habitat feature buffers during sensitive timing windows. For any work within the buffer zone during a sensitive timing window, Cedar will consult with an environmental monitor to determine whether additional feature-specific mitigation is required.	Section 14.0 Wildlife Management
Appendix A	-	A wildlife management plan will be incorporated into the CEMP and will include wildlife-related mitigation measures, monitoring plans, and reporting requirements.	Section 14.0 Wildlife Management
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation where appropriate.	Section 13.0 Vegetation Management
Appendix A	-	A wildlife management plan will be incorporated into the CEMP and will include wildlife-related mitigation measures, monitoring plans, and reporting requirements.	Section 14.0 Wildlife Management
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation where appropriate.	Section 13.0 Vegetation Management
Appendix A	-	Prior to clearing and/or construction, and as temporally applicable, a buffer zone around identified wildlife habitat features will be clearly delineated and marked in the field by an environmental monitor.	Section 14.0 Wildlife Management
Appendix A	-	Wildlife habitat features (e.g., dens, raptor nests, mineral licks) discovered during construction will be reported to Cedar's environmental manager and feature-specific mitigation will be developed by an environmental monitor.	Section 14.0 Wildlife Management
Appendix A	-	Project personnel will reduce work within identified wildlife habitat feature buffers during sensitive timing windows. For any work within the buffer zone during a sensitive timing window, Cedar will consult with an environmental monitor to determine whether feature-specific mitigation is required.	Section 14.0 Wildlife Management
Appendix A	-	Vegetation clearing and grubbing should occur outside of the primary nesting period for migratory birds (April 11 to August 8 in Nest Zone A2 [ECCC 2021a]). Where clearing and grubbing cannot be avoided during these periods, Cedar will incorporate mitigation measures (e.g., pre-clearing bird nest surveys, establishment of setbacks around protected nests) to protect birds and their eggs.	Section 14.0 Wildlife Management
Appendix A	-	Year-round protection is required for specific nests protected under the <i>Wildlife Act</i> (e.g., eagle, osprey, heron). If a nest protected under the <i>Wildlife Act</i> is identified, setbacks and restricted activity periods will be specified by an environmental monitor according to provincial guidance (i.e., MOE 2013; MOE 2014d).	Section 14.0 Wildlife Management
Appendix A	-	Grubbing and grading should be avoided within 30 m of amphibian breeding sites during the breeding and post-breeding dispersal periods for amphibians (beginning in April, with post-breeding dispersal extending through to October [FLNRO 2016]). If grubbing and grading activities cannot be avoided during this period, an amphibian salvage and relocation program will be implemented and additional measures may be specified by an environmental monitor (e.g., installation of silt fencing to direct dispersal away from work areas).	Section 14.0 Wildlife Management
Appendix A	-	Grubbing and grading should be limited within 30 m of watercourses known to be occupied by coastal tailed frog at all times of the year. If grubbing or grading cannot be avoided within 30 m of a watercourse known to be occupied by coastal tailed frog, additional measures may be specified by an environmental monitor in the CEMP (e.g., additional sediment control measures, use of clear-span bridges to cross the watercourse).	Section 14.0 Wildlife Management
Appendix A	-	Fences will be installed around the marine terminal area to exclude wildlife and reduce potential for onsite human-wildlife interactions during construction.	Section 14.0 Wildlife Management
Appendix A	-	Waste management practices to reduce the potential to attract wildlife to the facility will be incorporated into the CEMP.	Section 14.0 Wildlife Management
Appendix A	-	Project-related wildlife deaths and conflict animals will be reported as required to appropriate authorities. Reporting requirements and contact information will be provided in the CEMP.	Section 14.0 Wildlife Management
Appendix A	-	A wildlife management plan will be incorporated into the CEMP and will include wildlife-related mitigation measures, monitoring plans, and reporting requirements.	Section 14.0 Wildlife Management
Appendix A	-	Clearing of riparian areas will be limited to the extent necessary to meet the Project's design and safety requirements, as determined by a qualified professional.	Section 13.0 Vegetation Management
Appendix A	-	Cedar will incorporate erosion and sediment control best practices into the CEMP to manage surface water runoff and erosion and minimize the introduction of sediment to streams.	Section 5.0 Erosion and Sediment Control
Appendix A	-	Cedar will establish designated equipment refueling areas and develop a spill response plan. These measures will be incorporated into the CEMP.	Section 7.0 Waste Management
Appendix A	-	Measures related to protection of freshwater fish and fish habitat, including protection of water quality, will be incorporated into the construction CEMP and will include best management practises for sediment and erosion control, spill prevention, and water quality monitoring.	Section 5.0 Erosion and Sediment Control
Appendix A	-	Clearing of riparian areas will be limited to the extent necessary to meet the Project's design and safety requirements, as determined by a Qualified Professional.	Section 13.0 Vegetation Management
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be done with physical flagging or electronic delineation, where appropriate.	Section 13.0 Vegetation Management
Appendix A	-	Cedar will incorporate erosion and sediment control best practices into the CEMP to reduce sedimentation of streams.	Section 5.0 Erosion and Sediment Control
Appendix A	-	Watercourse crossing structures will follow DFO's Interim Code of Practice: Temporary Steam Crossings (DFO 2020a) and include mitigation measures in the Fish- stream Crossing Guidebook (FLNRO, ENV, and DFO 2012)	Section 11.0 Freshwater Watercourses and Fish

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
Appendix A	-	Cedar will obtain all necessary approvals for works affecting freshwater environments. This will include: <ul style="list-style-type: none"> <li>Submitting a request for review to DFO for any works that will affect fish-bearing watercourses to obtain a determination if an authorization is needed</li> <li>Obtaining a use approval under section 10 or a licence under section 9 of the Water Sustainability Act for any temporary or permanent water withdrawals, respectively</li> <li>Obtaining an approval under section 11 of the Water Sustainability Act for changes in and about a stream</li> </ul>	Not applicable
Appendix A	-	Measures related to protection of freshwater fish and fish habitat, including protection of water quality, will be incorporated into the construction CEMP and will include best management practices and development of monitoring plans and reporting requirements to verify mitigation measures are implemented.	Section 5.0 Erosion and Sediment Control Section 11.0 Freshwater Watercourses and Fish
Appendix A	-	Cedar will incorporate erosion and sediment control best practices into the CEMP to manage surface water and avoid sedimentation of nearshore marine areas.	Section 5.0 Erosion and Sediment Control
Appendix A	-	Cedar will establish designated equipment refueling areas and develop a spill response plan for construction. This will be incorporated into the CEMP. Maintain a designated area for refuelling to reduce the likelihood and spatial extent of potential fuel spills to the marine environment	Section 6.0 Fueling and Spill Response
Appendix A	-	Pile installation in the intertidal zone for the FLNG facility strut mooring system will occur at lower tides to avoid in-water pile installation. Alternatively, Cedar may construct a cofferdam that allows the piles to be installed in the dry.	Section 12.0 Marine Resources
Appendix A	-	If the small craft jetty is required, an underwater noise monitoring plan (as part of the CEMP will be developed prior to construction to specify mitigation and monitoring measures for protection of marine mammals and fish during in-water pile driving. Pile driving for the small craft jetty will use vibratory methods to the extent possible. Where in- water impact pile driving is necessary, Cedar will use bubble curtains to mitigate underwater noise levels.	Section 12.0 Marine Resources
Appendix A	-	Lighting for the Project will be designed in a manner that is consistent with the OGC's Light Control Best Practices Guideline and will consider the following measures: <ul style="list-style-type: none"> <li>Directional or shielded lighting to reduce the vertical or horizontal distribution of light</li> <li>Adaptive controls and variable lighting regimes (e.g., timers, dimmers, motion sensors)</li> </ul>	Section 4.0 Light Management
Appendix A	-	Erosion protection and installation of the marine terminal piles within the intertidal zone will occur at lower tides to avoid in-water work. Alternatively, Cedar may construct a cofferdam that allows the work to be completed in isolation of fish- bearing waters.	Section 6.0 Fueling and Spill Response, Section 12.0 Marine Resources
Appendix A	-	If the small craft jetty is required, Cedar proposes to use a project- specific least risk work window of September 1 to February 15 for in- water work.	Section 12.0 Marine Resources
Appendix A	-	If the small craft jetty is required, an underwater noise monitoring plan will be developed to specify mitigation and monitoring measures for protection of marine mammals and fish during pile driving. Pile driving will use vibratory methods to the extent possible. Where impact pile driving is necessary, Cedar will use bubble curtains to mitigate underwater noise levels. Impact pile driving will occur only during daylight hours.	Section 12.0 Marine Resources
Appendix A	-	Cedar will adhere to cutting permits or authorization agreements/conditions for clearing activities. Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation where appropriate. Any temporary workspace on Crown land will be subject to natural revegetation or active reclamation. Reclamation on private property will follow requirements of the lease agreements with the owner(s).	Section 13.0 Vegetation Management, Section 18.0 Environmental Monitoring
Appendix A	-	High disturbance project-related construction activities will be limited to daytime hours only. If nighttime construction is required, Cedar will seek the necessary permits to undertake this work. Implement standard measures to reduce dust and noise levels.	Section 9.0 Noise Management, Section 10.0 Air Quality
Appendix A	-	Clearing will be kept to the minimum required and buffer will be maintained around the site and along transmission line right-of-way.	Section 13.0 Vegetation Management
Appendix A	-	Clearing boundaries will be delineated prior to site preparation to keep clearing activities within the designated project footprint. This may be via physical flagging or electronic delineation where appropriate. Cedar will adhere to cutting permits or authorization agreements/conditions for clearing activities.	Section 13.0 Vegetation Management
Appendix A	-	High disturbance project-related construction activities will be limited to daytime hours only. If nighttime construction is required, Cedar will seek the necessary permits to undertake this work.	Section 9.0 Noise Management
Appendix A	-	Clearing will be kept to the minimum required and buffer will be maintained around the site and along transmission line right-of-way.	Section 13.0 Vegetation Management
Appendix A	General	A waste management plan will be developed and implemented as part of the CEMP. To the extent that use of local landfills is part of that plan, Cedar will engage with the Regional District of Kitimat-Stikine during development of the plan. Non-hazardous solid wastes will be recycled, reused, or collected in a central secure area onsite and then disposed of in a licensed waste receiver facility. Hazardous liquid and solid waste will be collected in a secure, enclosed location and transported offsite to a licensed hazardous waste facility.	Section 7.0 Waste Management

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
EAC Conditions	General	The Holder must retain one or more Qualified Professionals to develop a Construction Environmental Management Plan (CEMP). The plan must be developed in consultation with Indigenous Nations, the British Columbia Oil and Gas Commission (OGC), Environment and Climate Change Canada (ECCC), Northern Health, the Canadian Coast Guard (CCG), Transport Canada, the Ministry of Environment and Climate Change Strategy, and the Ministry of Land, Water and Resource Stewardship (LWRS). The Holder must provide no less than 30 days for parties to provide views on the plan, as per clause 4.1(a)iii.A) of this Certificate.	All sections
EAC Conditions	9.2a	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>How the mitigation measures defined as part of the CEMP in 'Appendix A – Summary of Mitigation Measures' of the Application will be implemented;</li> </ul>	All sections
EAC Conditions	9.2b	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Erosion and sediment control;</li> </ul>	Section 5.0 Erosion and Sediment Control
EAC Conditions	9.2c	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Site restoration;</li> </ul>	Section 13.0 Vegetation Management
EAC Conditions	9.2d	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Waste management;</li> </ul>	Section 6.0 Fueling and Spill Response
EAC Conditions	9.2e	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Spill prevention and response related to hydrocarbon storage and leaks or other accidental emissions from machinery or equipment;</li> </ul>	Section 6.0 Fueling and Spill Response
EAC Conditions	9.2f	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Human health effects;</li> </ul>	Section 9.0 Noise Management Section 10.0 Air Quality Section 17.0 Human Health Management
EAC Conditions	9.2g	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Surface water quality management;</li> </ul>	Section 5.0 Erosion and Sediment Control Section 11.0 Freshwater Watercourses and Fish
EAC Conditions	9.2h	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Access management;</li> </ul>	Section 3.0 Access and Traffic Management
EAC Conditions	9.2i	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Traffic management;</li> </ul>	Section 3.0 Access and Traffic Management
EAC Conditions	9.2j	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Noise management;</li> </ul>	Section 9.0 Noise Management
EAC Conditions	9.2k	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Light management;</li> </ul>	Section 4.0 Light Management
EAC Conditions	9.2l	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Emergency response;</li> </ul>	Section 16.0 Emergency Management
EAC Conditions	9.2m	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Fire suppression;</li> </ul>	Section 16.0 Emergency Management
EAC Conditions	9.2n	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Hazardous waste management;</li> </ul>	Section 7.0 Waste Management
EAC Conditions	9.2o	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Air quality management;</li> </ul>	Section 10.0 Air Quality
EAC Conditions	9.2p	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Chance find protocols (including both archaeological finds and potential paleontological finds); and</li> </ul>	Section 15.0 Heritage Resources Appendix D Archaeological Chance Find Protocol Appendix E Fossil Chance Find Protocol
EAC Conditions	9.2q	The CEMP must include, at a minimum, the means by which the following will be addressed: <ul style="list-style-type: none"> <li>Roles and responsibilities of environmental personnel.</li> </ul>	Section 1.4 Roles and Responsibilities

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
EAC Conditions	9.3a	The CEMP must include measures for wildlife monitoring, reporting and mitigation including but not limited to the following: <ul style="list-style-type: none"> <li>Measures to avoid or reduce Project-related loss or alteration of wildlife habitat features, impediments to wildlife movement, and injury or mortality of wildlife;</li> </ul>	Section 14.0 Wildlife Management
EAC Conditions	9.3b	The CEMP must include measures for wildlife monitoring, reporting and mitigation including but not limited to the following: <ul style="list-style-type: none"> <li>A plan to manage human-wildlife contact to avoid or reduce direct wildlife mortality;</li> </ul>	Section 14.0 Wildlife Management
EAC Conditions	9.3c	The CEMP must include measures for wildlife monitoring, reporting and mitigation including but not limited to the following: <ul style="list-style-type: none"> <li>Project-related wildlife deaths, injuries and conflict animals;</li> </ul>	Section 14.0 Wildlife Management
EAC Conditions	9.3d	The CEMP must include measures for wildlife monitoring, reporting and mitigation including but not limited to the following: <ul style="list-style-type: none"> <li>Grizzly bear mitigations and reporting;</li> </ul>	Section 14.0 Wildlife Management
EAC Conditions	9.3e	The CEMP must include measures for wildlife monitoring, reporting and mitigation including but not limited to the following: <ul style="list-style-type: none"> <li>Pre-clearing surveys for bat habitat features (such as roosts, hibernacula, and maternity roosts) if clearing is required during sensitive timing windows;</li> </ul>	Section 14.0 Wildlife Management
EAC Conditions	9.3f	The CEMP must include measures for wildlife monitoring, reporting and mitigation including but not limited to the following: <ul style="list-style-type: none"> <li>Where work is required to be completed during sensitive timing windows (such as due to safety considerations), and if that will affect a candidate bat roost, hibernacula, or maternity roost site, as identified in pre-clearing surveys in paragraph 9.3(f), a Qualified Professional will determine appropriate feature-specific mitigations for effects; and</li> </ul>	Section 14.0 Wildlife Management
EAC Conditions	9.3g	The CEMP must include measures for wildlife monitoring, reporting and mitigation including but not limited to the following: <ul style="list-style-type: none"> <li>A bird and wildlife incident monitoring plan, including carcass surveys.</li> </ul>	Section 14.0 Wildlife Management
EAC Conditions	9.4a	If a small craft jetty is built, the CEMP must include an Underwater Noise Monitoring and Management Plan including: <ul style="list-style-type: none"> <li>Mitigation and monitoring measures for protection of marine mammals and fish during in-water pile driving;</li> </ul>	Section 12.0 Marine Resources
EAC Conditions	9.4b	If a small craft jetty is built, the CEMP must include an Underwater Noise Monitoring and Management Plan including: <ul style="list-style-type: none"> <li>Use of vibratory methods when pile driving, to the extent possible, as determined by a Qualified Professional; and</li> </ul>	Section 12.0 Marine Resources
EAC Conditions	9.4c	If a small craft jetty is built, the CEMP must include an Underwater Noise Monitoring and Management Plan including: <ul style="list-style-type: none"> <li>Use of bubble curtains if impact pile driving is required.</li> </ul>	Section 12.0 Marine Resources
EAC Conditions	9.5a	The CEMP must include measures for mitigating effects on vegetation and wetlands including but not limited to the following: <ul style="list-style-type: none"> <li>Invasive species management;</li> </ul>	Section 13.0 Vegetation Management
EAC Conditions	9.5b	The CEMP must include measures for mitigating effects on vegetation and wetlands including but not limited to the following: <ul style="list-style-type: none"> <li>Natural revegetation or active reclamation on Crown land where these areas are not required for Operations;</li> </ul>	Section 13.0 Vegetation Management
EAC Conditions	9.5c	The CEMP must include measures for mitigating effects on vegetation and wetlands including but not limited to the following: <ul style="list-style-type: none"> <li>Implementation of windthrow management strategies, such as edge stabilization techniques, in areas of old growth forest on Crown land;</li> </ul>	Section 13.0 Vegetation Management
EAC Conditions	9.5d	The CEMP must include measures for mitigating effects on vegetation and wetlands including but not limited to the following: <ul style="list-style-type: none"> <li>Design and construction measures to reduce effects on wetlands.</li> </ul>	Section 13.0 Vegetation Management
IAAC Condition	3.10	The Proponent shall develop and implement erosion and sedimentation control measures during construction and decommissioning to prevent the release of sediments into the receiving environment. In doing so, the Proponent shall: <p>3.1.1. provide a description of all erosion and sedimentation control measures to the Agency prior to the start of the phase to which they pertain, including how the Proponent will take into account future climate change scenarios (including periods of high water and wind, elevated snow packs and heavy rainfalls and snowfalls) when implementing the measures; and</p> <p>3.1.2. maintain and regularly inspect all erosion and sediment control devices during the phase to which they pertain, including during and following rainfall events, and document and repair any defective or damaged device as soon as feasible</p>	Section 5.0 Erosion and Sediment Control Section 18.0 Environmental Monitoring
IAAC Condition	3.20	The Proponent shall have a Qualified Professional design all crossings of fish-bearing watercourses required for the Designated Project in a manner that takes into account British Columbia's and Oceans Canada's Fish-Stream Crossing Guidebook and Fisheries and Ocean Canada's Interim Code of Practice: Temporary Stream Crossings. The Proponent shall implement the watercourse crossings as designed. <p>3.2.1. If Fisheries and Oceans Canada's Interim Code of Practice: Temporary Stream Crossings does not apply to any given watercourse crossing, the Proponent shall have the Qualified Professional design that watercourse crossing in compliance with the Fisheries Act.</p>	Section 11.0 Freshwater Watercourses and Fish

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
IAAC Condition	3.30	The Proponent shall manage, during all phases of the Designated Project, stormwater runoff from the Designated Project so that discharges meet total suspended solids levels included in Fisheries and Oceans Canada's Land Development Guidelines for the Protection of Aquatic Habitat, and do not cause the receiving environment to exceed British Columbia's Water Quality Guidelines for the Protection of Aquatic Life for turbidity and total suspended solids levels for both short-term and long-term exposures.	Section 5.0 Erosion and Sediment Control Section 18.0 Environmental Monitoring
IAAC Condition	3.40	The Proponent shall install any pile required in the intertidal zone for the floating LNG facility strut mooring system in a manner such that installation occurs in dry working conditions at all times.	Section 12.0 Marine Resources
IAAC Condition	3.5.1	If the Proponent opts to build a small craft jetty as part of the Designated Project, the Proponent shall manage underwater noise from the building of the jetty in a manner that avoids injury to or mortality of fish and marine mammals. In doing so, the Proponent shall: 3.5.1. conduct any in-water work only between September 1 to February 15 of any year during which in-water work required for the building of the jetty shall occur;	Section 12.0 Marine Resources
IAAC Condition	3.5.2	If the Proponent opts to build a small craft jetty as part of the Designated Project, the Proponent shall manage underwater noise from the building of the jetty in a manner that avoids injury to or mortality of fish and marine mammals. In doing so, the Proponent shall: 3.5.2 use vibratory pile driving to install the piles required for the jetty, unless not technically feasible, as determined by a Qualified Professional;	Section 12.0 Marine Resources
IAAC Condition	3.5.3	If the Proponent opts to build a small craft jetty as part of the Designated Project, the Proponent shall manage underwater noise from the building of the jetty in a manner that avoids injury to or mortality of fish and marine mammals. In doing so, the Proponent shall: 3.5.3. when conducting vibratory pile driving, maintain underwater peak sound pressure levels below 207 decibels at a reference pressure of one micropascal within 10 metres of the pile at all times. The Proponent shall immediately halt vibratory pile driving if hydroacoustic monitoring conducted under the direction of a Qualified Professional indicates that noise levels exceed the threshold, and not resume without implementing sound attenuation measure(s) to reduce noise levels below the threshold;	Section 12.0 Marine Resources
IAAC Condition	3.5.4	If the Proponent opts to build a small craft jetty as part of the Designated Project, the Proponent shall manage underwater noise from the building of the jetty in a manner that avoids injury to or mortality of fish and marine mammals. In doing so, the Proponent shall: 3.5.4. if impact pile driving is required: 3.5.4.1. install sound attenuation measure(s), that shall be operational prior to and at all times during impact pile driving, to maintain underwater peak sound pressure levels below 207 decibels at a reference pressure of one micropascal within 10 metres of the pile. The Proponent shall immediately halt impact pile driving if hydroacoustic monitoring conducted under the direction of a Qualified Professional indicates that noise levels exceed the threshold, and not resume without implementing additional sound attenuation measure(s) to reduce noise levels below the threshold; 3.5.4.2. regularly inspect any sound attenuation measure installed in accordance with condition 3.5.4.1; 3.5.4.3. establish, prior to impact pile driving, an underwater noise exclusion zone for pinnipeds with a radius of at least 75 metres from the pile. The Proponent shall immediately halt impact pile driving if hydroacoustic monitoring conducted under the direction of a Qualified Professional indicates that the 190-decibel injury threshold for pinnipeds is exceeded at the 75-metre exclusion zone boundary, and not resume until the radius of the exclusion zone is increased to a new outer limit where hydroacoustic monitoring demonstrates that the injury threshold is not exceeded; 3.5.4.4. establish, prior to impact pile driving, an underwater noise exclusion zone for cetaceans with a radius of at least 1000 metres from the pile. The Proponent shall immediately halt impact pile driving if hydroacoustic monitoring conducted under the direction of a Qualified Professional indicates that a threshold of 160 decibels (root mean square) at a reference pressure of one micropascal is exceeded at the 1000-metre exclusion zone boundary, and not resume until the radius of the exclusion zone is increased to a new outer limit where hydroacoustic monitoring demonstrates that the 160-decibel threshold is not exceeded; 3.5.4.5. carry out impact pile driving only when environmental conditions enable effective visual monitoring of the marine mammal exclusion zones referred to in conditions 3.5.4.3 and 3.5.4.4; 3.5.4.6. employ marine mammal observers, who are Qualified Individuals with expertise pertaining to marine mammal observation, to monitor, starting at least 30 minutes prior to and during impact pile driving, for marine mammal(s) within their respective exclusion zone referred to in conditions 3.5.4.3 and 3.5.4.4. If marine mammal(s) are observed within their respective exclusion zone, the Proponent shall immediately halt impact pile driving until the individual(s) have left the exclusion zone, or have not been sighted for at least 30 minutes; 3.5.4.7. employ soft-start procedures, where impact energy is gradually increased, anytime impact pile driving is suspended for 30 minutes or more. The Proponent shall immediately halt the soft-start procedures if hydroacoustic monitoring conducted under the direction of a Qualified Professional	Section 12.0 Marine Resources
IAAC Condition	3.5.5	If the Proponent opts to build a small craft jetty as part of the Designated Project, the Proponent shall manage underwater noise from the building of the jetty in a manner that avoids injury to or mortality of fish and marine mammals. In doing so, the Proponent shall: 3.5.5. report any exceedance of the underwater noise thresholds referred to in conditions 3.5.3 and 3.5.4.1 to Fisheries and Oceans Canada within 24 hours of the exceedance being recorded by the Proponent.	Section 12.0 Marine Resources
IAAC Condition	4.10	The Proponent shall carry out the Designated Project in a manner that protects migratory birds and avoids injuring, killing or harassing migratory birds or destroying, taking or disturbing their eggs, or damaging, destroying, removing or disturbing their nests. In this regard, the Proponent shall take into account Environment and Climate Change Canada's Guidelines to avoid harm to migratory birds.	Section 14.0 Wildlife Management

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
IAAC Condition	4.20	If the Proponent identifies nest(s) protected under the Migratory Birds Convention Act, 1994 and its regulations and/or the Species at Risk Act that may be adversely affected by any Designated Project activity, the Proponent shall delineate, as determined by and under the direction of a Qualified Professional and in a manner described in condition 4.1, spatial restriction(s) around the nest(s) within which that activity shall not happen. The Proponent shall implement the spatial restriction(s) before and during the activity occurring.	Section 14.0 Wildlife Management
IAAC Condition	4.30	The Proponent shall schedule vegetation clearing required for the Designated Project outside of the applicable regional nesting periods for the Designated Project. Where vegetation clearing is planned during the nesting periods, the Proponent shall use non-intrusive survey methods, prior to starting vegetation clearing and under the direction of a Qualified Professional and in a manner described in condition 4.1, to determine whether migratory birds are breeding in any of the areas to be cleared. 4.3.1. For any vegetation clearing planned during the nesting periods, the Proponent shall prohibit working within the spatial restriction(s) established around active migratory birds nest(s), unless the Proponent develop additional feature-specific mitigation measures (as determined by and under the direction of a Qualified Professional and in a manner described in condition 4.1) and implement them before and during vegetation clearing. The Proponent shall provide any such measure to the Agency prior to implementing them.	Section 14.0 Wildlife Management
IAAC Condition	4.40	The Proponent shall not undertake any vegetation clearing required for the Designated Project in any of the areas identified on Figure 13 of Appendix 7.5A of the Application as having moderate and high habitat suitability for marbled murrelet ( <i>Brachyramphus marmoratus</i> ) during the nesting period of any year during which vegetation clearing shall occur (April 1 to September 14). Where vegetation clearing is required in any of these areas during the nesting period, the Proponent shall: 4.4.1. undertake a ground-based survey, directed by a Qualified Professional, prior to undertaking vegetation clearing to verify if biophysical attributes that represent nesting critical habitat for marbled murrelet ( <i>Brachyramphus marmoratus</i> ) according to Environment and Climate Change Canada's Recovery Strategy for the Marbled Murrelet ( <i>Brachyramphus marmoratus</i> ) in Canada [Proposed], are present in any of the areas to be cleared; and 4.4.2. if the survey referred to in condition 4.5.1 indicates that biophysical attributes that represent nesting critical habitat for marbled murrelet ( <i>Brachyramphus marmoratus</i> ) are present in a given area, undertake vegetation clearing in that area outside of the nesting period only.	Section 14.0 Wildlife Management
IAAC Condition	5.50	The Proponent shall implement, during all phases of the Designated Project, a regular inspection and maintenance program for all mobile vehicles and equipment required for the Designated Project to ensure the vehicles and equipment are maintained in a state of good repair and in accordance with the manufacturers' specifications, and document the results of any inspection and/or maintenance activity conducted.	Section 10.0 Air Quality
IAAC Condition	5.5.1	The Proponent shall not remove emission control technologies from mobile vehicles and equipment, unless removal is required for repair or maintenance activities, in which case the Proponent shall reinstall or replace the technologies before the Proponent returns the mobile vehicles and equipment to service.	Section 10.0 Air Quality
IAAC Condition	6.10	The Proponent shall develop, prior to construction and in consultation with Haisla Nation, a Chance Find Procedure to implement in the event that suspected physical and cultural heritage resources (including culturally modified trees and physical evidence of human habitation or use) and structures, sites or things of historical, archaeological, paleontological or architectural significance are discovered by the Proponent, or brought to the attention of the Proponent by another party, within the local assessment area for heritage resources shown on Figure 7.13.1 of the Application during construction. As part of the procedure, the Proponent shall develop and implement procedures respecting the handling, recording, transferring and safekeeping of any discovery, including procedures to prevent unauthorized access to any such discovery.	Section 15.0 Heritage Resources Appendix D Archaeological Chance Find Protocol Appendix E Fossil Chance Find Protocol
IAAC Condition	6.1.1	The Proponent shall inform the Agency and Haisla Nation within 24 hours of any discovery subject to the requirements of the Chance Find Procedure referred to in condition 6.1.	Section 15.0 Heritage Resources Appendix D Archaeological Chance Find Protocol Appendix E Fossil Chance Find Protocol
IAAC Condition	8.10	The Proponent shall develop, prior to construction, and implement, during construction, a procedure for notifying occupants of residential dwellings located within the local assessment area for acoustics shown on Figure 7.3.1 of the Application of planned high-disturbance noise causing activities required for the Designated Project (including blasting, helicopter work and pile driving). The Proponent shall provide the following information to the Agency prior to construction: 8.1.1. the locations of all residential dwellings subject to the procedure; 8.1.2. a planned schedule of the noise-causing activities subject to the procedure; and 8.1.3. the methods (including the means of communication and the timing) to be used to notify occupants that the noise-causing activities subject to the procedure will occur.	Section 9.0 Noise Management
IAAC Condition	10.10	The Proponent shall delineate, prior to construction, areas within which the Proponent shall not undertake any construction activity, including vegetation clearing, unless required to meet the safety and design requirements of the Designated Project, as determined by a Qualified Professional.	Section 13.0 Vegetation Management
IAAC Condition	10.20	The Proponent shall develop, prior to construction and in consultation with Haisla Nation and relevant authorities, and implement, during all phases of the Designated Project, measures to limit the establishment and spread of invasive plant species (including their seed, plant parts or propagules) within the local assessment area for vegetation (marine terminal) shown on Figure 7.4.1 of the Application and to and from this area. The Proponent shall provide these measures to the Agency prior to implementing them.	Section 13.0 Vegetation Management
IAAC Condition	10.30	The Proponent shall conduct progressive reclamation of areas on Crown land temporarily disturbed by the Designated Project once they are no longer required for the Designated Project. In doing so, the Proponent shall identify, in consultation with Haisla Nation, plant species of interest to Indigenous peoples for use in establishing self-sustaining vegetation communities where active reclamation is to occur on Crown land.	Section 13.0 Vegetation Management

Source	Condition Number	Mitigation/Mitigation Mechanism	Section of CEMP
IAAC Condition	10.40	The Proponent shall have a Qualified Professional determine if measures are required to reduce windthrow (including tree uprooting and stem breakage) along forest edges within old forest communities located in the local assessment area for vegetation (marine terminal) shown on Figure 7.4.1 of the Application. If the Qualified Professional determines that any such measure is required, the Proponent shall implement the measure(s) and provide the measure(s) to the Agency prior to their implementation.	Section 13.0 Vegetation Management
IAAC Condition	10.50	Prior to undertaking any activity required for the Designated Project (including vegetation clearing, grubbing and grading) that may adversely affect western toad ( <i>Anaxyrus boreas</i> ) during the breeding and post-breeding dispersal periods for the species, the Proponent shall undertake surveys, under the direction of a Qualified Professional, to identify the location of breeding site(s) for western toad ( <i>Anaxyrus boreas</i> ) within the local assessment area for wildlife (marine terminal) shown on Figure 7.5.1 of the Application.	Section 14.0 Wildlife Management
IAAC Condition	10.60	If any breeding site for western toad ( <i>Anaxyrus boreas</i> ) is identified during the surveys undertaken in accordance with condition 10.5, the Proponent shall give preference to not undertaking any activity required for the Designated Project that may adversely affect such site and that is planned within 30 metres of each site during the breeding and post-breeding dispersal periods for the species.	Section 14.0 Wildlife Management
IAAC Condition	10.6.1	Where the Proponent must undertake any activity required for the Designated Project that may adversely affect western toad ( <i>Anaxyrus boreas</i> ) within the spatial and temporal restrictions referred to in condition 10.6, the Proponent shall have a Qualified Professional develop additional species-specific measures to mitigate adverse effects on western toad ( <i>Anaxyrus boreas</i> ), including a salvage program that considers the recommendations for salvage operations set out in British Columbia's Best Management Practices for Amphibian and Reptile Salvages in British Columbia. The Proponent shall implement any such measure before and during the activity and provide the measure(s) to the Agency prior to their implementation.	Section 14.0 Wildlife Management
IAAC Condition	10.80	If any watercourse occupied by coastal tailed frog ( <i>Ascaphus truei</i> ) at all times of the year is identified during the surveys undertaken in accordance with condition 10.7, the Proponent shall give preference to not undertaking any activity required for the Designated Project that may adversely affect such watercourse within a minimum of 30 metres of that watercourse. The Proponent shall have a Qualified Professional determine the width of the restricted area for each watercourse.	Section 14.0 Wildlife Management
IAAC Condition	10.8.1	Where the Proponent must undertake any activity required for the Designated Project that may adversely affect watercourse(s) occupied by coastal tailed frog ( <i>Ascaphus truei</i> ) at all times of the year within a minimum of 30 metres of that watercourse, the Proponent shall have a Qualified Professional develop additional species-specific mitigation measures, including a salvage program that considers the recommendations for salvage operations set out in British Columbia's Best Management Practices for Amphibian and Reptile Salvages in British Columbia. The Proponent shall implement any such measure before and during the activity and provide the measure(s) to the Agency prior to their implementation.	Section 14.0 Wildlife Management
IAAC Condition	10.10	The Proponent shall give preference to avoiding vegetation clearing required for the Designated Project during risk timing windows for little brown myotis ( <i>Myotis lucifugus</i> ) set out in British Columbia's Compendium of Wildlife Guidelines for Industrial Development Projects in the North Area, British Columbia. Where the Proponent plans to undertake vegetation clearing during these periods, the Proponent shall conduct pre-vegetation clearing surveys, under the direction of a Qualified Professional, to identify if any roost, hibernacula or maternity roost site is present in any of the areas to be cleared.	Section 14.0 Wildlife Management
IAAC Condition	10.10.1	If any roost, hibernacula or maternity roost site is identified in any of the areas to be cleared during the surveys undertaken in accordance with condition 10.10, the Proponent shall have a Qualified Professional determine if additional or modified species-specific mitigation measures are required to protect little brown myotis ( <i>Myotis lucifugus</i> ). The Proponent shall implement any such measure before and during vegetation clearing occurring in that area and provide the measure(s) to the Agency prior to their implementation.	Section 14.0 Wildlife Management
IAAC Condition	12.10	The Proponent shall take all reasonable measures to prevent accidents and malfunctions that may result in adverse federal effects, and shall mitigate adverse federal effects from accidents and malfunctions that do occur. As part of these measures, the Proponent shall: 12.1.2. refuel vehicles and equipment required for the Designated Project only within designated refueling areas to reduce potential fuel spills into the marine environment, and conduct any refueling activity under constant supervision and in a manner to prevent drippings onto the ground; and	Section 6.0 Fueling and Spill Response

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# Appendix B

## Construction Schedule



# Appendix C

## Wildlife Reporting Form



## Cedar LNG – Wildlife Reporting Form

Name of Observer(s)	Date and Time
Weather	
Location ( <i>e.g., name of building; use coordinates, if possible</i> )	Species ( <i>if unknown or describe size, colour, features, etc.</i> )
Behaviour of Animal ( <i>e.g., distressed, injured</i> )	Description of Observation or Incident
Action Taken ( <i>by Observer</i> )	Follow-up ( <i>Environmental Inspector to complete</i> )
<p>Photos (<i>include photos of the animal(s) for species identification and photos of site / circumstance of the incident, if relevant</i>).</p> <p>Email to: <a href="mailto:kmerrifield@pembina.com">kmerrifield@pembina.com</a> or <a href="mailto:dcampbell@pembina.com">dcampbell@pembina.com</a></p>	

**Cedar LNG Environmental Inspector Sign-off:**

Name:	Signature:
Date added to database:	Report ID:

# Appendix D

## Archaeological Chance Find Protocol



**Chance Find Protocol for  
Archaeological Sites**

Cedar LNG Project—Liquefaction and  
Export Terminal

November 27, 2025

Prepared for:

Cedar LNG



Prepared by:

Stantec Consulting Ltd.  
500-4730 Kingsway, Burnaby  
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Project Number: 123222394

Revision: 4.0

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**CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES  
CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL**

**Abbreviations**

BCER	British Columbia Energy Regulator
Cedar	Cedar LNG Partners LP
CMT	culturally modified tree
HCA	<i>Heritage Conservation Act</i>



# CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL

Introduction  
November 27, 2025

## 1.0 INTRODUCTION

This Chance Find Protocol is intended to provide those involved in vegetation clearing and ground disturbing activities with a framework for identifying archaeological sites and information for how to appropriately manage unforeseen impacts to archaeological sites. The current inventory of recorded archaeological sites within 200 m of planned project components consist of seven culturally modified tree (CMT) sites. Additional as-yet unrecorded archaeological sites and materials may be encountered during vegetation clearing or ground disturbance construction activities. The proponent, Cedar LNG Partners LP (Cedar), will provide this Chance Find Protocol to all the pertinent project personnel to ensure they have access to the required communication protocols to follow in case of an archaeological chance find.

This Protocol provides basic descriptions of archaeological materials commonly found in the region and site types most likely to be encountered during vegetation clearing, ground disturbance and other project related activities. All people involved in these project construction activities should be familiar with the typical types of archaeological sites present in the region. In the event that a potential archaeological site is encountered, you are advised to stop all work in the vicinity of the find and contact a Stantec Consulting Ltd. (Stantec) on-call archaeologist so that the nature and integrity of the find can be assessed. Contact information is provided at the end of this Chance Find Protocol.

In British Columbia, archaeological sites are legally protected by provincial legislation called the *Heritage Conservation Act* (HCA). The provisions of the HCA apply to archaeological sites located on both public and private land. The HCA automatically protects archaeological sites if they meet any of the following criteria:

1. Pre-date 1846
2. Are of unknown age but may pre-date 1846 (including CMTs)
3. Contain human remains or aboriginal rock art of historical or archaeological value (regardless of age)
4. Consist of shipwrecks or airplane wrecks more than two years in age

In accordance with the HCA (section 13[2]), it is unlawful to destroy, excavate or alter an archaeological site without a permit issued by the Minister or designate.



# CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL

What is an Archaeological Site?

November 27, 2025

## 2.0 WHAT IS AN ARCHAEOLOGICAL SITE?

An archaeological site is a location where there is physical evidence of past human activity. Archaeological sites can include things such as stone tools, remains of ancient houses and campsites, shell middens, ancestral (human burials), standing or fallen modified trees and wet sites. The type and nature of archaeological sites vary widely across British Columbia. The following section provides examples of the types of sites most likely to be encountered in the project area.



# CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL

Types of Archaeological Sites Potentially Present in the Project Area  
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## 3.0 TYPES OF ARCHAEOLOGICAL SITES POTENTIALLY PRESENT IN THE PROJECT AREA

### 3.1 CULTURALLY MODIFIED TREES

A CMT is a tree that has been intentionally modified by Indigenous people as part of their traditional forest utilization practices. Types of CMTs found in the region include: taper and rectangular bark-stripped trees (Figure 1 and Figure 2), hand-logged stumps and felled logs, trees tested for soundness, pitch-collection trees, canoe blanks, trees with plank and bark-board removal scars, delimbed trees and kindling collection trees. In the project area, the most common tree species displaying evidence of cultural modification are western redcedar although modification scars may also be observed on yellow cedar, Sitka spruce, Douglas-fir or western hemlock.

**Figure 1**      **Rectangular Bark-Stripped CMT  
with Chisel Marks**



**Figure 2**      **Rectangular Bark-Stripped  
CMT**



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## 3.2 SHELL MIDDENS

Shell middens are characterized by the presence of shellfish (clam, mussel, etc.) remains discarded after consumption, but they also commonly contain charcoal, ash and burnt sediments, fire-broken rocks, stone, bone and antler artifacts, and ancestral (human) remains (Figure 3). Shell midden deposits vary from small pockets to very large sites many hundreds of metres long. They are typically, though not always, found along or near modern or past shorelines. As a result of changing relative sea levels in the project area, shell midden sites associated with former shorelines could potentially be encountered at 35 m, 120 m and 200 m above the current sea level, although none are currently recorded within the project area. Shell midden sites often represent villages or seasonal encampments where shellfish were consumed in quantity. Shell middens are unique because the shells neutralize soil acidity, which can promote preservation of archaeological materials, such as bone and antler, that usually degrade quickly.

**Figure 3** Profile View of Shell Midden Exposure



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### 3.3 ANCESTRAL (HUMAN) REMAINS AND BURIAL FEATURES

Ancestral (human) remains can be represented by as little as a single tooth to a complete skeleton and can be from individuals of any age (i.e., infants, juveniles, adults). All bones and teeth that are reasonably similar to those of a human should be considered to be human remains until confirmed otherwise by a qualified specialist. Respect is paramount when dealing with human remains. It must be always be remembered that human remains deserve to be shown the proper respect and dignity due any human being, living or deceased. Burial features represent places where people were deliberately laid to rest and can be identified by a number of different practices some of which include barrows/mounds, burial cairns (Figure 4), or interment within shell middens or in a cave or rock shelter.

**Figure 4** Burial Cairn



### 3.4 LITHIC (STONE) SCATTERS

Lithic scatters are sites comprised of stone tools, stone tool fragments, and debitage—the flakes of stone that are produced when stone tools are manufactured. These stone artifacts may be found scattered across the ground surface or buried in their original context. These sites may vary from a single, isolated artifact—a stone arrowhead, knife, adze(chisel), or hand maul(hammer), for example—to extensive scatters of hundreds of tools, tool fragments and pieces of debitage (Figure 5 to Figure 8).



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**Figure 5 Lithic Surface Scatter**



**Figure 6 Lithic Debitage (Flakes)**



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**Figure 7 Projectile Points (Arrowheads/Spear Points)**



**Figure 8 Adzes (Chisels)**



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**3.5 WET SITES**

Wet sites are archaeological sites with exceptional preservation due to special conditions found in waterlogged settings such as sloughs, riverbanks, and estuaries. In these settings, rare organic artifacts such as basketry, cordage, and wooden stakes representing the remains of fish weirs can be preserved in the unique anaerobic (oxygen-less) environments (Figure 9 to Figure 11).

**Figure 9 Basketry**



**Figure 10 Cordage (Rope)**



**Figure 11 Wood Artifacts**



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## 3.6 FAUNAL REMAINS

Faunal or animal remains may be found in association with other archaeological sites. These sites typically reflect food preparation and/or resource processing. Deer and moose are common animals which may have found in archaeological contexts, along with salmon, halibut, eulachon and shellfish (see shell midden sites). These remains may show evidence of being ground to make tools or broken to recover bone marrow (Figure 12).

Since deer and moose and other large animals are consumed today, there may be modern faunal remains found. These remains will have straight, clean cuts from band-saws or other modern tools (Figure 13). These remains are not archaeological, however, it can be difficult to distinguish between modern and archaeological faunal remains.

**Figure 12** Types of Modified Tooth, Bone and Antler Tools



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**Figure 13      Animal Remains Reflecting Modern Butchery (Not Archaeological)**



## CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL

If You Encounter Archaeological Resources  
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### 4.0 IF YOU ENCOUNTER ARCHAEOLOGICAL RESOURCES

If suspected archaeological resources are encountered during vegetation clearing, ground disturbance or other Project activities for the Cedar LNG Project, the following steps should be followed:

**Step 1:** All workers should **STOP WORK** within the immediate vicinity of the archaeological chance find (30 metres) and contact site/task Supervisor.

**Step 2:** The Supervisor should contact the Cedar LNG Environmental Inspector and archaeologist on-call for further guidance (See Section 6.0 for contact information).

**Step 3:** The worker who observed the possible chance find or their Supervisor should note the type of suspected archaeological materials encountered, and the find's location, including, if possible:

- Date and time of chance find
- Name and affiliation of observer
- Find location and access
- Type of find (e.g., felled/standing CMT, stone artifact, shell midden, animal bone, suspected ancestral (human) remains)
- Depth below surface of the find if exposed by ground disturbance

Do not move or otherwise disturb the deposits or materials unless they are in imminent threat of being damaged. If the suspected archaeological resources have already been displaced (e.g., materials found in stockpiled backdirt or the CMT has been felled), cease further movement of the material except as necessary for protection (see Step 4).

If the chance find is **not bone** take as-found and close-up photos with something in the photo for scale if possible (a person, yellow field binder, tape measure, or pen can be used for scale). If a suspected CMT is observed, take photographs of the suspected cultural modification scar close-up and from 10–15 m away.

In the event bone is found and the nature (animal or human remains) cannot be determined on site, immediately contact the on-call Archaeologist and the Cedar LNG Environmental Inspector for guidance. If the bone is determined to be human remains by the on-call Archaeologist, proceed with the steps in **Section 5.0**. If the bone is determined to be animal, photographs may be taken to determine the species and nature of any modifications (archaeological or modern).

**Step 4:** If it is safe to leave the area as-is, mark 30 m around the find location as a No Work Zone with flagging, pylon (or similar method), leave all suspected archaeological materials in place and do not undertake further work that could disturb the find, including moving any soil or vegetation from the vicinity of the find or adjacent spoil material. Any exposed or stockpiled soils should be protected from erosion and vandalism as best possible (e.g., covering with a tarp or other material, do not bury with soil). Any suspected CMTs should have survey flagging wrapped around them to prevent removal or impacts until an archaeologist can inspect the tree.



## CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL

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If it is not safe to leave the area as-is (e.g., an open trench that must be backfilled), contact an on-call Archaeologist for further direction (e.g., information to collect) then take the necessary steps to make the area safe (e.g., back fill the trench) and mark the area as a No Work Zone with flagging, pylon (or similar method). If the suspected archaeological materials need to be moved, then place them in a resealable plastic bag (Ziplock or similar) and secure them on-site; secured under equipment and marked out with flagging or a pylon.

**Step 5:** Depending on the nature of the chance find recovered during ground disturbance an archaeologist may need to be called to do an onsite inspection of materials. Any suspected archaeological materials should remain on site until an archaeologist can visit or can otherwise confirm if the materials are archaeological or not. Once the on-call Archaeologist confirms with the Supervisor that there are no further concerns work can proceed.



## CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL

If You Encounter Suspected Human Remains  
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### 5.0 IF YOU ENCOUNTER SUSPECTED HUMAN REMAINS

**Step 1:** In the event bone is found and the nature (animal or human remains) cannot be determined onsite, immediately contact the on-call Archaeologist and the Cedar LNG Environmental Inspector for guidance. Cease ground disturbance activities within 30 metres of the chance find and do not move the bone if possible. Human remains suspected or confirmed must be accorded full dignity and respect by limiting disturbance, handling and photography.

**Step 2:** If the Archaeologist determines the bone is suspected human remains, the Archaeologist will notify Cedar who will contact the local RCMP.

**Step 3:** The RCMP will then contact the Coroner to arrange a site visit/inspection. The Coroner will determine if the remains are human and of either forensic or archaeological origin.

- If the remains are confirmed to be forensic, the RCMP will communicate next steps to Cedar and the Site Supervisor. The RCMP will direct next steps at the find location as a potential crime scene.
- If the remains are confirmed to be archaeological, the RCMP will communicate that result to Cedar who will contact the on-call Archaeologist. Follow **Section 4.0 – Step 4** for securing the site. If the remains are determined to be ancestral (human) and archaeological, the on-call Archaeologist will contact the Haisla Nation, the BC Energy Regulator (BCER) and the Archaeology Branch for direction. In the event that an established ancestral (human) remains protocol has not yet been developed, mitigation of burial features will not proceed until the designated individuals from the Haisla Nation have been informed and a decision on how to proceed has been reached. All remains will be protected onsite during the notification process.



## CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES CEDAR LNG PROJECT—LIQUEFACTION AND EXPORT TERMINAL

Communication Protocol  
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### 6.0 COMMUNICATION PROTOCOL

See Figure 14 for details regarding communication protocol roles and responsibilities in case of an archaeological chance find or the identification of suspected human remains. If a chance find is found during the hours of 9 pm–4 am, it may be necessary to secure the archaeological materials overnight while arrangements are made to have an archaeologist visit.

For chance finds identified during geotechnical testing, vegetation clearing or other construction activities, please use this call down list:

On-call Archaeologist (Qualified Professional) call down list:

- Sarah Smith, Discipline Lead – Archaeology, Stantec: 604 360-3487 (Cell)
- Sean McKnight, Senior Archaeologist, Stantec: 604 760-6131 (Cell)

Notify the following Cedar LNG and Haisla representatives of the suspected or confirmed chance find with details about the location, individuals notified and when/how, and what measures were taken to secure the site (as needed) by email within four hours of the end of the shift:

Cedar LNG Project Representative:

- Lara Taylor – lara.taylor@cedarlng.com; cell 778-772-6942

Haisla Nation:

- Candice Wilson – CaWilson@haisla.ca; 1-888-842-4752

The Environmental Inspector in coordination with the On-Call Archaeologist will contact the appropriate regulator via email to notify of the chance find within 24 hours of the find.

BCER: [ArchaeologyDL@bc-er.ca](mailto:ArchaeologyDL@bc-er.ca); during business hours 250-794-5319 or after-hours 1-800-663-3456

Archaeology Branch: Chandra Young-Boyle – chandra.youngboyle@gov.bc.ca

In case suspected human remains encountered notify local law-enforcement:

RCMP – Kitimat:

- Phone: 250-632-7111

\*Note that work in the vicinity of the possible archaeological site cannot continue until an archaeologist has confirmed that all appropriate measures have been undertaken and it is appropriate to do so. There may be requirements for HCA permits before work can restart.



**Figure 14 Communication Protocol in Case of Chance Find on the Cedar LNG Project**

