# Construction Environmental Management Plan

# **Woodfibre LNG Project**

November 19, 2024

Prepared By: Woodfibre LNG General Partner Inc., as General Partner on behalf of the Woodfibre LNG Limited Partnership #900 - 1185 W Georgia Street Vancouver, BC, V6E 4E6

Prepared For:

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# Preamble

The Woodfibre Liquified Natural Gas Project (the Project) is a liquefied natural gas export facility being constructed on the former Woodfibre Pulp and Paper Mill site in Nexwnéwu7ts Átlk'a7tsem (Howe Sound), approximately seven kilometres south of Skwxwú7mesh (Squamish). The Project is on the historical location of a Skwxwú7mesh Úxwumixw (Squamish Nation) village known as Swiýát. Swiýát and Nexwnéwu7ts Átlk'a7tsem (Howe Sound) are tied to the cultural well-being of Skwxwú7mesh Úxwumixw (Squamish Nation) members, their ancestors, and their descendants, and to other Indigenous Groups as defined in the Project's Environmental Assessment Certificates. Woodfibre LNG Limited Partnership recognizes the importance of these areas to the Skwxwú7mesh stélmexw (Squamish People), and other Indigenous Groups. Woodfibre LNG Limited Partnership seeks to construct and operate the Project in a manner that is respectful of Indigenous values. This Construction Environmental Management Plan is primarily written in English with important place names, species, phrases, and passages provided in the Skwxwú7mesh Sníchim (Squamish language).

Temíxwiýikw chet wa naantem chet ti temíxw Swiýát

Chet wa smérhemswit kwis ns7éyxnitas chet ti temíxw

We7ú chet kwis t'íchimwit iy íwas chet ek' I tti.

Our ancient ancestors named this place Swiyat

We, as their descendants safeguard these lands

We will continue to swim and fish in these clear waters.



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# **Document Revision History**

	PREPARED BY	REVIEWED BY	APPROVED BY
Name:	Keith Bell, RPBio, RPF	Ashleigh Crompton	
Position:	Technical Director, Hatch		
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Signature	Keith Bell		

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# **Squamish-English Translation**

Squamish	English	
General Terms		
Shusháw	Bones	
Téľnexw	Discover	
Ch'áatl'am	Hunting	
Temíxw	Land, earth, dirt	
Ínexwantas	Monitoring	
Smánit	Mountain	
Sh <u>k</u> weń	Ocean, saltwater	
S <u>k</u> w <u>x</u> wú7mesh Sníchim	Squamish language	
S <u>k</u> w <u>x</u> wú7mesh Úxwumixw	Squamish Nation	
S <u>k</u> w <u>x</u> wú7mesh stélmexw	Squamish people	
Sta <u>k</u> w	Water, river	
Locations		
Shisháyu7ay	Britannia Beach	
Kwtsá7tsutsin	Darrell Bay	
Swiỷát	Historic S <u>kwx</u> wú7mesh Úxwumixw (Squamish Nation) village located at Woodfibre LNG site	
Nexwnéwu7ts Átl <u>k</u> 'a7tsem	Howe Sound	
Selílwit Sta <u>k</u> w	Indian River	
<u>K'ík</u> 'elxn	Port Mellon	
Skwelwíİem	Skwelwilem Wildlife Management Area	
S <u>k</u> w <u>x</u> wú7mesh	Squamish	
Stá7mes	Stawamus	
<u>K'</u> em <u>k'</u> emeláy	Vancouver	
Marine Mammals		
<u>K</u> we <u>x</u> nís	California sea lion	
Kw'únuť	Dall's porpoise	
<u>K</u> wenís	Grey whale	
Asxw	Harbour seal	
S <u>k</u> wúmechn	Humpback whale	
<u>K</u> wenís	Minke whale	



Squamish	English
Yéwyews	Orca (Southern Resident and Transient) killer whale
Kw'únuť	Pacific white-sided dolphin
Kw'únuť	Harbour porpoise
<u>K</u> we <u>x</u> nís	Steller sea lion
Wildlife	
Sp' <u>ák</u> w'us	Bald eagle
Nse <u>x</u> á7 <u>x</u> em	Band-tailed pigeon
Kw'e <u>k</u> w' <u>ík</u> w'ehatl'	Barn swallow
Lams tl'a kw'e <u>k</u> w' <u>ík</u> w'ehatl'	Barn swallow nest cups
<u>Sk</u> áp′ <u>k</u> ap'tsaylh	Bat
Skeláw	Beaver
Tsíptspí7lhtn	Bird nest
We <u>x</u> és	Frog
Sme <u>k</u> w'á7	Great blue heron
Stl'alhálem	Grizzly bear
Piyís	Marbled murrelet
Se <u>k</u> w'e <u>k</u> w'inexw tl'a shkwen	Marine bird
Ns <u>x</u> ípim	Northern goshawk
Élh <u>k</u> aỷ	Snake
Shá7yu	Western screech-owl
Kw'áxwa7s tl'a Shá7yu	Western screech-owl nest boxes
Se <u>k</u> w'e <u>k</u> w'inexw	Wildlife
Fish	
Sts'ú <u>k</u> wi7	Any fish
Cháyilhen	Any salmon
Kwu7s	Chinook/Spring salmon
Tsáwin	Coho salmon
Tl'ítl'el <u>x</u> iws	Dolly varden
Aý <u>x</u>	Dungeness crab
Slhawť	Herring
Ch'émesh	Herring roe
Lháwichen	Pink salmon
S <u>k</u> iw <u>x</u>	Rainbow trout



Squamish	English
Lhém <u>k</u> w'a	Sole
Plants	
Sá <u>x</u> wi	Grasses/sedges
<u> </u> Kwáýstay	Hemlock tree
Kwlúl7ay	Red alder tree
<u>X</u> ápaỷay	Red cedar tree
Ch'úukw'a	Skunk cabbage
<u>X</u> wáyay	Willow tree
<u>K</u> 'elhmáỷ	Yellow cedar tree



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# Abbreviations

BC	British Columbia
BCER	BC Energy Regulator <sup>1</sup>
BMP	Best Management Practice
CCG	Canadian Coast Guard
CCME	Canadian Council of Ministers of the Environment
CEAA	Canadian Environmental Assessment Act
CEMP	Construction Environmental Management Plan
CO <sub>2</sub>	Carbon dioxide
COC	Certificate of Compliance
CPA	Certified Project Area
CSFP	Critical Stream Flow Periods
DFO	Fisheries and Oceans Canada
DOS	District of Squamish
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
EC	Environment Canada
EEP	Environmental Emergency Program
EERO	Environmental Emergency Response Officer
EM	Environmental Monitor
EMBC	Emergency Management BC
EMP	Environmental Management Plan
EPCM	Engineering, Procurement and Construction Management
EPP	Environmental Protection Plan
ESC	Erosion and sediment control
EWP	Environmental Work Plan
FDS	Federal Decision Statement
FLNR	Ministry of Forest Lands and Natural Resources (now Ministry of Forests)
HSSE	Health, Safety, Security, and Environmental
HWR	Hazardous Waste Regulation
IFR	Instream flow requirement
IL	Industrial Land
IPMP	Invasive Plant Management Plan



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LAA	Local Assessment Area (as defined in the Project environmental assessment)		
LNG	Liquefied Natural Gas		
LNGC	Liquefied Natural Gas Carrier		
MLARD	Metal leaching and acid rock drainage		
MOE	Ministry of Environment and Climate Change Strategy		
МОН	Ministry of Health		
MOF	Ministry of Forests <sup>2</sup>		
MOTI	Ministry of Transportation and Infrastructure		
NTU	Nephelometric Turbidity Units		
OHS	Occupational Health and Safety		
PAG	Potential acid generating		
PAHs	Polycyclic aromatic hydrocarbons		
PPE	Personal protective equipment		
QA/QC	Quality assurance/quality control		
QHSES	Quality, Health, Safety, Environment, and Security		
QP	Qualified Professional		
RAA	Riparian Assessment Area		
RECPs	Rolled erosion control products		
RPD	Relative percent difference		
SNEAA	Squamish Nation Environmental Assessment Agreement		
TC	Transport Canada		
The Project	Woodfibre Liquified Natural Gas Project		
TSS	Total Suspended Solids		
VCH	Vancouver Coastal Health		
Woodfibre LNG	Woodfibre LNG Limited Partnership		
WQGs	Water Quality Guidelines		

<sup>1</sup> The acronym BCER will be used in this document to mean Oil and Gas Commission (former name) or the British Columbia Energy Regulator (current name).<sup>1</sup>

<sup>2</sup> The acronym MOF will be used in this document to mean Ministry of Forests, Lands, Natural Resource Operations and Rural Development (former name) or the Ministry of Forests (current name).



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# 1.0 INTRODUCTION

Woodfibre LNG General Partner Inc., as General Partner on behalf of the Woodfibre LNG Limited Partnership (Woodfibre LNG) will construct and operate the Woodfibre Liquefied Natural Gas Project (the Project), which is located on the former Woodfibre Pulp Mill site approximately seven kilometres (km) southwest of Skwxwú7mesh (Squamish), British Columbia (BC) (Figure 1-1). The Project will have capacity to liquefy up to 2.1 million tonnes per year of natural gas and a storage capacity of 250,000 cubic metres (m<sup>3</sup>) and will export the liquefied natural gas (LNG) via tankers.

The Project underwent a comprehensive environmental assessment process from 2013 to 2015 and Woodfibre LNG received:

- An Environmental Assessment Certificate (EAC) for the Certified Project Area (CPA) under the BC Environmental Assessment Act (EAC #E15-02) in 2015.
- An environmental assessment approval from Skwxwú7mesh Úxwumixw (Squamish Nation) through the Squamish Nation Environmental Assessment Agreement (SNEAA) in 2015.
- A positive Federal Decision Statement (FDS) under the Canadian Environmental Assessment Act, 2012 (CEAA 2012) in 2016.

Three EAC amendments were granted by the BC Environmental Assessment Office (BC EAO) in 2017, 2019, and 2023 and the FDS was reissued most recently in 2024. Woodfibre LNG also received an extension on EAC#15-02 from the BC EAO in October 2020. The provincial, Skwxwú7mesh Úxwumixw (Squamish Nation), and federal environmental assessment processes have each yielded conditions of approval that Woodfibre LNG must address.

Most of the Project is on fee simple, industrially zoned, brownfield lands with more than 100 years of industrial use. There is no road access to the CPA, and all personnel, equipment, and supplies for the Project will be brought in by vessel via Átl'ka7tsem (Howe Sound). The Project will use electrical power sourced from BC Hydro and gas will be supplied to the facility by Fortis BC.

Key Project components are:

- Land-based natural gas processing and liquefaction facilities.
- A floating storage and offloading unit.
- Construction worker accommodation.
- Supporting infrastructure.

The supporting infrastructure includes buildings (e.g., administration, control rooms, maintenance, dry storage and chemical, fire house, first aid, safety and guardhouse), fencing (temporary and permanent), material storage and laydown areas, utility and loading lines, and boil off gas vapour lines.

This Construction Environmental Management Plan (CEMP) is a management tool to be used and referred to by those planning and undertaking construction activities for the Project. The CEMP is



designed to ensure that potential Project related effects on the community and the environment are effectively and adaptively managed during the construction of the Project.

In accordance with General Condition 2.1 of the Project Decision Statement (issued by the Canadian Environmental Assessment Agency in March 2016); Condition 21 of Schedule B of the Environmental Assessment Certificate E15-02 (issued by the Environmental Assessment Office in October 2015); and Squamish Condition # 6 (4.6 Environmental Management Programs) of the Squamish Nation Environmental Assessment Agreement (issued by Skwxwú7mesh Úxwumixw [Squamish Nation] in October 2015), commitment in this CEMP is made to:

- Ensure actions to meet the conditions set out in the Project approvals:
  - Are considered in a careful and precautionary manner;
  - Promote sustainable development;
  - Are informed by the best available information and knowledge including community and Indigenous traditional knowledge;
  - Are based on validated methods and models and are undertaken by qualified individual; and
  - Have applied the best available economically and technologically feasible mitigation measures.
- Undertaking Environmental Management Practices in accordance with the conditions attached to the FDS, EAC, and the SNEAA.
- Ensure management plans are implemented by a Qualified Professional.
- Support compliance to project-level commitments and ensure the mitigation measures outlined in management plans are accurately translated to activity specific measures.
- Align activity-specific (nexwantas (monitoring) and validation efforts undertaken by qualified individuals with project-level requirements.
- Support effective and efficient implementation of adaptive management and continuous improvement as informed by inexwantas (monitoring) and validation efforts.

## 1.1 PROJECT COMPONENTS OVERVIEW

An overview of key Project Component is provided in Table 1-1.

Details	Description
LNG Reception and Processing	The LNG Facility will take pipeline quality gas, remove impurities and other components (mainly CO <sub>2</sub> , trace sulfur and stakw [water]), and liquefy the natural gas to produce LNG. The liquefier will use equipment such as vessels, pumps, compressors, and heat exchangers to process the natural gas and produce LNG.
LNG Storage and Offloading	Two Floating Storage Tank barges (FSTs) will be permanently moored at the Marine Terminal. The FSTs are each approximately 208m long, 65m wide, and 25m high. The two FSTs are existing LNG carrier vessels which will be modified offsite and converted from carrier vessels to stationary storage barges for LNG. The LNG processed by the onshore facilities will be transferred to the FSTs through jumper

#### **Table 1-1: Proposed Project Components**



Details	Description			
	arms located on transfer module M05. The two FSTs will be permanently moored at Site utilizing jacket and strut structures.			
	LNG will be transferred from the FSTs to the LNG Carriers (LNGCs) through loading arms located on the loading platform on starboard side of FST 2.			
Offloading Infrastructure	A permanent marine offloading platform will be installed off the shoreline on the west side of the facility. A permanent access ramp will be constructed using infill between the shore and platform. Areas surrounding the offloading platform and access ramp will be protected with rip rap armoring, which will be integrated with rip rap associated with the planned shoreline work. The platform will be used for light material loading and offloading from marine vessels during construction and operations. The platform will create a permanent surface impermeable to light.			
Marine Mooring	The Project will use the existing shoreline marine terminal characteristics of the Project site and, where viable, will use existing marine infrastructure. It is anticipated that most of the existing infrastructure will need to be upgraded or replaced to address safety, regulatory compliance, and specific Project requirements. The WLNG Marine Facilities Terminal will be located on the steep coastal slope of Nexwnéwu7ts Átl <u>k</u> 'a7tsem (Howe Sound) on the southeast corner of the LNG Facility. The Marine Facilities will consist of the LNG transfer and access modules (M05, M07, & M14). FST permanent mooring structures, two (2) FSTs, complete with the			
	loading platform on FST2, LNGC berthing structures and mooring points located on the FSTs and associated gangways.			
Cooling System	The primary process cooling will be supplied by air coolers.			
Heating System	The primary process heating will be supplied by a closed loop heating medium system (hot oil) using a furnace to provide heat.			
Safety and Vent Systems	Hydrocarbon safety reliefs will be sent to either a high-pressure or low-pressure elevated flare except the LNG Storage, which will be sent to atmosphere. Hydrocarbon vents will be processed in a thermal oxidizer. Non-hazardous utilities may be vented to the atmosphere.			
Worker Accommodation	Floating construction worker accommodation (floatel) will be temporarily moored offshore of the facility during the construction phase. Floatel will be demobilized from the facility area prior to substantial completion of the overall facility. Floatel will have a minimum clearance of at least 2.0 m above all areas of the seabed at lowest low tides.			
	The flaotel dimensions will be 171m long x 28m wide.			
Ferry Terminal	Access to the site will only be via stakw (water) using private passenger ferry from Skwxwú7mesh (Squamish) to the site. A permanent passenger ferry terminal and ferry berthing facility will be established at the Project site for connection between the site and Skwxwú7mesh (Squamish).			
Supporting Infrastructure	Lunch Tents Offices Concrete Batch Plant Warehouse Fuel Storage Tool Rooms Security Maintenance Shop Discipline specific facilities (paint, insulation, fireproofing, etc.)			



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# 1.2 PROJECT LOCATION & SITE DESCRIPTION

The Project area (the site) is located approximately seven kilometres (km) southwest of Skwxwú7mesh (Squamish), British Columbia (BC) on the northwestern shoreline of Nexwnéwu7ts Átlk'a7tsem (Howe Sound). The site is within the Traditional Territory of the Skwxwú7mesh Úxwumixw (Squamish Nation) at the historical site of Swiyat, a Skwxwú7mesh Úxwumixw (Squamish Nation) village. Tsleil-Waututh Nation- Woodfibre LNG understands that it is operating within the traditional, ancestral, and unceded territory of the selilwətał (Tsleil-Waututh) Nation.

The site area comprises 86 hectares (ha) of privately owned, formerly developed brownfield industrial Temíxw (land), along with existing stakw (water) lots adjacent to the site (Figure 1-1) The site previously operated as a paper and pulp mill facility from 1912 until 2006.

The Project area is surrounded by steep, mountainous terrain with no Temíxw (land) or road access to the site. Current access to the site is via stakw (water) using a private passenger ferry from the Skwxwú7mesh (Squamish) Government Docks. Additional marine access considerations are under review and will be updated as Project decisions are progressed.





# 

File: WLNGH-369497-100-0100-CEMP-001

#### 1.3 **PROPOSED ACTIVITIES**

A description of key construction phases, activities, and their respective timing are provided in Table 1-2 and shown in Figure 1-2. Construction activities are expected to commence in September 2023, with completion in July 2026.

Phase	Activity	Description	Timing <sup>1</sup>		
	Drainage Control systems	A west and east sedimentation pond will be established and managed by the culvert outfalls described below. Prior to commencing site clearance activities for either the preferred or alternative configuration, a temporary drainage system will be established to collect and control storm stakw (water) flows across the site throughout the construction period. Temporary drainage systems will be installed as required and may include perimeter ditches, internal ditches, and cut-off swales.	Sept 2023 – July 2024		
	Site and vegetation clearance	Site preparation will begin with clearing approximately 9.5 ha of vegetation across the Project footprint as required. This will include the exclusion zones, perimeter fencing, drainage, and preparation for foundations for equipment. Site to be cleared and grubbed for new construction. Fuel break for perimeter fencing.	Sept 2023 – Oct 2023		
Site	Sanitary sewage system	Sanitary sewage system Treatment skid to be installed at site for treatment of sewage to permitted quality and quantity. Discharge at existing outfall.			
and Civil	Waste material landfill	Solid waste to be collected and transported to offsite processing facility.	September 2023		
	Site access and storage	Construction roads to be established throughout site based on access needs. Designated site laydown areas to be used for storage.	Oct 2023 – Sept 2026		
	Civil works / foundation works	Permitted civil works include clearing grub, excavation, demolition of existing structures, solid rock removal, soil improvement, concrete foundations, backfill. <sup>2</sup>	September 2023		
1	Raw Sta <u>k</u> w (Water) Water Intake	A temporary raw stakw (water) intake will be installed in Woodfibre Creek for the extraction of stakw (water) during construction phase of the Project at a maximum volume per day of 3,600m <sup>3</sup> . The temporary raw stakw (water) intake system is expected to consist of a raw stakw (water) intake structure and sts'úkwi7 (fish) screen, pump skid(s), suction and discharge lines, and a holding tank. After completion of construction, the temporary components of the raw stakw (water) intake will be removed.	September 2023		

#### **Table 1-2: Proposed Activities**

Woodfibre Pulp Mill are not defined as construction activities under Schedule B of the EAC E15-02.



<sup>&</sup>lt;sup>1</sup> Indicative timing is provided to describe the approximate sequence of activities, actual timing is subject to change.
<sup>2</sup> The demolition and removal or onsite remediation of existing terrestrial structures and facilities associated with the former

Phase	Activity	Description	Timing <sup>1</sup>
	Laydown and stockpile areas	Laydown and stockpile areas will be established for material storage and access (e.g., structural steel, piping, concrete materials, construction supplies, dimensional lumber, diesel fuel).	Oct 2023 – Jan 2026
		Existing shoreline presently devoid of riparian vegetation will be enhanced by the placement of riprap into the intertidal and marine areas.	
	Shoreline Works	The shoreline work and installation will include modification of two existing barge landing areas along the shoreline. An additional barge landing / construction ramp will be constructed and integrated into the shoreline enhancement on the east side of the facility. The enhancement work will incorporate protection and reuse of existing riprap with algae or kelp materials.	Sept 2023 – Jan 2026
		All work is intended to be performed from onshore using a long arm excavator to limit in-stakw (water) works. Barge landings will be constructed / improved by removing existing rock and soil material from upslope portions using excavators to form and smooth the ramps and landing areas. Gravel will be laid and compacted in areas of material removal for stabilization of the working surface.	
	East Creek Sheet Pile Wall	A sheet pile wall will be installed near the eastern end of the shoreline in an area above the High-Stakw (Water) Mark (HWM). The areas upslope of the sheet pile wall will be backfilled, and downslope will be protected with riprap armoring, which will be integrated with the planned shoreline work riprap.	TBD
	Bridges Over Mill Creek	Permanent road and pipe bridges will be installed across Mill Creek for access between the East and West areas of Project site. The bridges will be installed as modular structures with support by piles on piers located outside of the top of bank of Mill Creek within existing cleared areas of the site.	
		Helical or driven steel pipe piles will be used to support both bridges. The bridges will be directly connected by welding or bolting to the piles or pile cap plates. Both bridges will be assembled into modular structures which will be lifted and set in place on the foundations using a crane.	Jan 2024 – Jan 2026
		A cast-in-place concrete abutment will be installed upslope of the piles on each end of the road bridge. After placement of the bridge, fill soil will be placed and compacted behind the abutments to support the roadway approach slabs.	
	Culvert Outfalls Installation	Seven drainage culvert outfalls will be installed at the shoreline for controlled drainage of treated and non-contact stakw (water) from the site for discharge into Nexwnéwu7ts Átlk'a7tsem (Howe Sound). Three are new outfalls and four are replacements of existing culverts. Outfalls from the west and east sedimentation ponds will include precast outfall structures with manually operable frame gates and weirs. Drainage pipes on the upstream and downstream sides of the outfall control structures will be elevated above the high-stakw (water) mark such that	Sept 2023 – Jan 2026



Phase	Activity	Description	Timing <sup>1</sup>
	they are inaccessible to sts'úkwi7 (fish) from Nexwnéwu7ts Átlk'a7tsem (Howe Sound).		
		The outfall for East Creek will include two parallel culverts penetrating through the sheet pile wall.	
		Outfall culverts and precast control structures will be set in their location on the shoreline by an onshore crane or lifter. All outfall discharge areas will be protected with riprap and incorporated into the shoreline works.	
	Temporary	The floatel will be temporarily moored offshore of the facility during the construction phase. The floatel is 171m x 28m. The capacity of the floatel is 651 plus crew. The number of beds occupied will vary depending on the phase of the project however at peak workforce it is anticipated that all beds will be occupied.	
	construction worker accommodations (Floatel)	Fixed walkways between the floatel and shoreline will allow personnel access to the construction site. The fixed walkways and moving gangways will support electrical conduit for power supply and steel piping for potable stakw (water) to the floatel.	Jun 2024 – Sept 2027
Offshore Structures		The floatel will be brought to the facility using tugs and temporarily moored using berthing and mooring dolphins. The floatel will be demobilized from the facility area after completion of construction using the same method.	
	Floatel Berthing Dolphins & Gangways Installations	A total of 9 steel pipe piles (1828mm diameter or smaller) will be installed into the seabed to support berthing / mooring dolphins for the floatel. A metal mooring dolphin and berthing fender will be installed by a marine vessel atop 5 of the piles for berthing. A metal mooring dolphin will be installed by a marine vessel atop the remaining 4 piles for berthing.	
		An additional 42 steel pipe piles (610mm diameter or smaller) will be installed into the seabed to support fixed walkways and moving gangways between the floatel and shoreline. The fixed walkways and moving gangways will be constructed of metal beam framing with metal grating and handrails.	Sept 2023 – Jan
		Piles will be driven into the seabed from a converted marine piling barge using vibratory pile driving methods, and impact pile driving to seat piles to tip elevation if required. If the piles are rock socketed, then sediment and rock materials will be removed from inside the pile and isolated from the marine environment.	2024
		The support frames will be installed on supporting piles using an onshore crane, with support from marine vessel as required for alignment and connections. Upon demobilization of the floatel from the facility, the walkways, gangways, conduit, utility piping, and support frames will be removed from the facility using the same methods. All piles will remain in place.	
	RORO Ramp Dock and	An existing roll-on roll-off (RORO) ramp dock at the south end of the facility will be repaired for continued use as a	Aug 2024 – Mar 2025



Phase	Activity	Description	Timing <sup>1</sup>
	Dolphin Refurbishment	road dock for the facility. The repairs will be contained within the existing marine footprint of the RORO.	
		Refurbishment and repair works are expected to consist of localized repair of steel sheet piles and replacement of existing timber piles. Pile replacement will be completed from a marine piling barge and steel sheet pile repairs or recoating will be completed onshore.	
		Damaged existing creosote piles will be pulled using vibration and replaced with painted timber piles. If existing damaged timber piles cannot be pulled or are broken, piles will be cut at the mudline.	
	Offloading Platform	A permanent marine offloading platform will be installed off the shoreline on the west side of the facility. A permanent access ramp will be constructed using infill between the shore and platform. Areas surrounding the offloading platform and access ramp will be protected with rip rap armoring. The platform will primarily be composed of an infilled circular, cellular sheet pile structure (19.1m diameter) placed into the marine seabed. Sheet piles will be driven into the seabed from a marine piling barge using vibratory pile driving methods, and impact pile driving to seat piles to finish elevation if required. After all sheet piles are installed, the enclosed area will be infilled from onshore with graded base material using onshore excavators and/or cranes. Graded base material will be compacted to support the platform. The access ramp will be constructed from onshore to the platform. The access ramp will be constructed from onshore to the platform. The top surfaces of the access ramp and offloading platform will be finished with high fines surfacing aggregate	Nov 2023 – Jan 2025
	Material Offloading Facility (MOF)	A MOF will be installed on the shoreline on the east side of the facility. The platform will be used for material transfer onsite from barges during the construction phase. The MOF will be a concrete deck wharf structure extending approximately 40m over the stakw (water). The MOF will be supported by 175 or fewer steel pipe piles (1000mm diameter or smaller). Two mooring dolphin structures supported by piles will be installed on each side of the MOF. Four mooring buoys will be installed on each side of the MOF. The buoys will be connected by mooring chains or wire rope to dead-man anchors which will be placed on the seabed. The steel pipe piles will be installed by rotary drill method, which will apply little to no vibration into the soil and will not displace soil during installation. Piles will be installed by onshore pilling rig or a marine piling barge depending on location. A prefabricated steel tubular cap will be bolted or	Sep 2023 – Jan 2025



Phase	Activity	Description	Timing <sup>1</sup>
		welded onto the top of each pile and fastened to steel beams to form a grid. Precast concrete deck panels will be placed on top of the steel framing via onshore crane. All gaps between the	
		precast panels and perimeter formwork will be sealed. A reinforced concrete topping slab will be poured atop the panels using onshore concrete pump trucks.	
		and mooring buoys will remain in place.	
		The Marine Facility Terminal consists of the following components <sup>3</sup> :	
		One Transfer Platform (Module 05) with two supporting substructures. The two substructures will consist of structural steel which is preassembled offsite. The substructures will be set in place by a marine vessel on top of the substructure installation support piles. The permanent piles will be installed through the vertical tubular members (legs) of the substructures and grouted or welded to the substructure and bedrock.	
Marine Facility	Marine Facility Terminal	The Module M05 Topsides will be set in place and welded to the two substructures by a heavy lift marine vessel with a crane and welding equipment onboard. Subsequently a portion of the deck will have cast-in-place concrete installed within solid, sealed formwork via onshore concrete pump trucks.	
		Three permanent mooring system support substructures. Permanent steel pipe piles will be installed into the bedrock through the substructure's legs by a marine vessel with a crane as described above. The deck will consist of a steel plate top and steel grating which is preassembled offsite.	Sept 2024 – Jan
		The Permanent Mooring Topsides framework will be set in place and welded to the substructure by a marine vessel with a crane and welding equipment onboard.	2026
		Three permanent mooring system tie-back structures with cast-in-place concrete installed within solid, sealed formwork.	
		One permanent mooring anchor structure embedded in a rock face. The existing onshore rock outcrop will require blasting and removal of rock. Steel rock anchors will be installed into the rockface to support the installation of concrete foundation. After the rock anchors are installed, the concrete abutment will be set in place. The two strut arms will be connected to the topsides dampening system at a later stage once the FSTs are on site.	
		One piping trestle and one roadway trestle will be installed to connect the transfer platform (M05) to the onshore facilities.	
		Two permanently moored FSTs for stationary storage of LNG. To moor the FSTs, each of the strut arms (2 each per permanent mooring structure) will be set in position and	

<sup>&</sup>lt;sup>3</sup> The components associated with the Marine FST Terminal are subject to change in the final design arrangement.



Phase	Activity	Description	Timing <sup>1</sup>
		secured between the permanent mooring structures and the FSTs using a crane barge.	





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## 1.4 CEMP CONTEXT

This CEMP has been prepared to outline the compliance requirements to be achieved during construction and facilitate implementation of mitigation measures to satisfy conditions of approval in accordance with Condition 21 (Environmental Management Plans) of the Project Environmental Assessment Certificate (EAC) #E15-02<sup>4</sup>. A summary of the Project environmental approvals on which this CEMP is based is provided in Table 1-3. Under Schedule B of the EAC E15-02, construction is defined as:

- The phase of the Project during which physical activities in connection with site preparation, building, or installation of any component of the Project occurs. For purposes of Schedule B, Construction does not include the following:
  - 1. Any activities conducted solely for investigative purposes under a valid permit or authorization;
  - 2. The demolition and removal or onsite remediation of existing terrestrial structures and facilities associated with the former Woodfibre Pulp Mill;
  - 3. The closure of the existing pulp mill landfill; and
  - 4. Ongoing maintenance or upgrades to the existing work or infrastructure to address safety, environment, or regulatory compliance.

No.	lssuing Authority	Approval	Date	Context
1.0		(Federal) Decision Statement	March 2016	Issued under Section 54 of the Canadian Environmental Assessment Act, 2012
1.1	Impact Assessment Agency of Canada (the	(Federal) Decision Statement – REISSUED	March 2018	Following amendment to the Project design, modification was made to the following conditions 3.3.3, 3.3.4, 3.7, 4.3, and 9.3
1.2	Agency) `	(Federal) Decision Statement – REISSUED	July 2024	Following amendment to the Project design, modification was made to the following conditions 2.10, 2,11, 3.8, and 6.4
2.0	2.0 Environmental Assessment Office (EAO) 2.1	Environmental Assessment Certificate (EAC) # E15-02	October 2015	On November 27, 2013, a Project Lead of the EAO issued an Order under Section 10(1)I of the Act stating that an EAC was required for the Project and that the Proponent could not proceed with the Project in the absence of an assessment.
		Environmental Assessment		Amendment to the EAC (# E15-02) was granted under Section 19(3) of the BC Environmental Assessment Act to support the following update to the Project Description:
2.1		Certificate (EAC) # July 2017 E15-02 Amendment # 1	July 2017	cooling to air cooling;
			Use the existing Mill Creek intake, including screenhouse, flume, and penstock, as an alternative to constructing a new intake for stakw (water) withdrawals; and	

#### Table 1-3: Environmental Approval Register

<sup>&</sup>lt;sup>4</sup> Under Condition 21 of the EAC, all requirements pertaining to the certificate of compliance or onsite landfill in section 13.2 of the EAC Application are excluded from this CEMP.



No.	lssuing Authority	Approval	Date	Context
				Withdraw sta <u>k</u> w (water) from Woodfibre Creek for short-term needs during construction.
				Amendment to Schedule B of the EAC (# E15-02) was granted to update:
22		Environmental Assessment	luly 2010	Amendment to the definition of 'Construction' (described above)
2.2	2 Certificate (EAC) # E15-02 Amendment # 2	July 2019	Condition 21 Environmental Management Plans to exclude requirements regarding the certificate of compliance or onsite landfill in section 13.2 of the Application from the CEMP.	
2.3		Environmental Assessment Certificate (EAC) # E15-02 Amendment # 3	November 1, 2023	Application for a floatel for worker accommodation
3.0	Skwxwú7mesh Úxwumixw (Squamish Nation)	Squamish Nation Environmental Certificate #2015- 001	October 2015	Environmental Assessment approval from Skwxwú7mesh Úxwumixw (Squamish Nation) through the Squamish Nation Environmental Assessment Agreement (SNEAA)



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# 1.5 CEMP OBJECTIVES

The objectives of the CEMP are summarized in Table 1-4 below.

#### Table 1-4: CEMP Objectives

Objective	Commitment
Demonstrate commitment to all Project environmental approvals and associated environmental management requirements.	Section 2.0
Define roles and responsibilities of all personnel involved in the delivery of the works.	Section 3.1.2
Identify environmental training and competency requirements for all personnel involved in the delivery of works.	Section 3.3
Document commitment to environmental performance ínexwantas (monitoring) and reporting.	Section 7.0
Ensure environmental risk is understood for the proposed scope of work, and appropriate management control measures have been identified for key environmental aspects.	Section 3.1
Provide clear and effective description of environmental management controls required.	Section 3.1
Define ínexwantas (monitoring) procedures for environmental performance/compliance for key environmental aspects.	Section 3.1
Define procedures for environmental incidents, non- conformances, and emergency response.	Section 7.3
Identify procedures for evaluation of environmental compliance.	Section 7.2 Section 7.3



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# 2.0 REGULATORY CONTEXT

# 2.1 OVERVIEW OF REGULATORY CONSIDERATIONS

## 2.1.1 Regulatory Framework

The federal, provincial and municipal legislation applicable to the Project is detailed in Table 2-1, Table 2-2 and Table 2-3 below.

Name	Agency	Relevance to Project
Canadian Environmental Assessment Act, 2012 (S.C. 2012 c. 19) (CEAA 2012)	Canadian Environmental Assessment Agency (the Agency)	The Project was assessed under CEAA 2012, which sets the responsibilities and procedures for environmental assessments of projects which involve federal government decision making.
		Statement (FDS) as part of a substituted process in March 2016, which was reissued in March 2018.
		On February 19, 2014, the Minister of the Environment, under the authority of section 32 of the Canadian Environmental Assessment Act, 2012, granted the substitution of the environmental assessment process set out in British Columbia's Environmental Assessment Act for the Canadian Environmental Assessment Act, 2012 process.
Canadian Navigable Waters Act (RSC 1985 c. N-22)	Transport Canada	An Act protecting stakw (waters) on which the public has the right to travel (navigable stakw [waters]).
Fisheries Act (RSC 1985, c. F-14)	Fisheries and Oceans Canada	Safeguards sts'úkwi7 (fish) and sts'úkwi7 (fish) habitat. It is also an offence for anyone to deposit or permit the deposit of deleterious substance in stakw (water) frequented by sts'úkwi7 (fish) without a permit or under a regulation.
Canadian Environmental Protection Act, 1999 (S.C. 1999)	Department of Environment and Climate Change	An Act aiming to prevent pollution and protect the environment and human health in order to contribute to sustainable development.
Canada Explosives Act (RSC 1985 c. E-17)	Department of Natural Resources	Pertinent to the storage and transportation of explosives used during drilling and blasting. These are implemented through the Explosives Regulation.

#### Table 2-1: Federal Legislation



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Name	Agency	Relevance to Project
Migratory Birds Convention Act (S.C. 1994 c. 22)	Environment and Climate Change Canada	Prohibits the unauthorized taking or killing of migratory birds, their nests and eggs, and the deposition of harmful substances in areas frequented by migratory birds.
Hazardous Products Act (RSC 1985 c. H-3)	Health Canada	Requires suppliers of hazardous products to communicate the hazards associated with their products using product labels and Safety Data Sheets as a condition of sale and importation for workplace use.
Species at Risk Act (S.C. 2002 c. 29)	Environment and Climate Change Canada or Fisheries and Oceans Canada	Provides for legal protection of sekw'ekw'inexw (wildlife) species and the conservation of their biological diversity. The Act outlines the commitment to prevent sekw'ekw'inexw (wildlife) species from becoming extinct and securing the necessary actions for their recovery.
Transportation of Dangerous Goods Act (S.C. 1994 c. 34)	Transport Canada	Regulates the movement of dangerous goods on roads, rail, air, and ship in Canada.
Canada Shipping Act (S.C. 2001 c. 26)	Transport Canada	Governs safety of marine transportation and recreational boating, as well as protection of the marine environment.

# Table 2-2: Provincial Legislation and Skwxwú7mesh Úxwumixw (Squamish Nation) Environmental Assessment

Name	Agency	Relevance to Project
Environmental Assessment Act, 2002 (British Columbia)	BC Ministry of Environment and Climate Change Strategy Environmental Assessment Office (EAO) (issuing authority)	The Project was assessed under the Environmental Assessment Act 2002, which provides a mechanism for assessing major projects for potentially adverse environmental, economic, social, heritage, and health effects. The process also ensures the concerns of the public, Indigenous, communities, and government agencies are appropriately considered. The EAO is responsible for the assessment of all major projects in BC under the Environmental Assessment Act 2002. The EAO conducted an environmental assessment of the Designated Project in accordance with the substitution conditions set out in subsection 34(1) of the Canadian Environmental Assessment Act 2012, including those additional conditions set by the Minister of the Environment, and in consideration of the Memorandum of Understanding on Substitution of Environmental Assessments (2013) entered into by the Agency and the EAO.



Name	Agency	Relevance to Project
		An EAC was issued by the EAO in October 2015 (# EAC E15-02)
Environmental Management Act, 2003 (British Columbia)	BC Ministry of Environment and Climate Change Strategy	The Environmental Management Act 2003 regulates the introduction of waste into the environment, including industrial and municipal waste discharge, pollution, hazardous waste, and contaminated site remediation.
Squamish Nation Environmental Assessment Agreement (SNEAA)	Skwxwú7mesh Úxwumixw (Squamish Nation)	The Skwxwú7mesh Úxwumixw (Squamish Nation) conducted an independent review of the EAC application and issued an Environmental Certificate for the Project (2015-001).
Drinking Water Protection Act	Ministry of Health	Potable and non-potable water supply and treatment systems, reporting of spills that may result in a threat to drinking water
Public Health Act	Ministry of Health	Sewage holding tanks, industrial camp (floatel)
Forest Act	BC Ministry of Forests BC Energy Regulator (BCER) (issuing authority)	Law responsible for managing forestry resources and timber sales throughout the province. For tree clearing on Crown land, the BCER will issue a cutting permit under the Forest Act. For tree clearing on private temíxw (land), a Timber Mark will be issued by the Ministry of Forests under the Forest Act.
Riparian Areas Protection Act	BC Ministry of Forests BCER (issuing authority)	Calls on local governments to protect riparian areas during residential, commercial, and industrial development by establishing that Qualified Professionals provide assessments of proposed activities.
Heritage Conservation Act	BC Ministry of Forests BC Energy Regulator (BCER) (issuing authority)	Encourages and facilitates the protection and conservation of archaeological findings and heritage property in British Columbia.
Oil and Gas Activities Act	BC Ministry of Energy, Mines and Low Carbon Innovation BCER (issuing authority)	Regulates oil and gas related activities in British Columbia through permits, authorizations, orders, and regulations.
Water Sustainability Act	BC Ministry of Forests BCER (issuing authority)	Principal law for managing the diversion and use of sta <u>k</u> w (water) resources.
Weed Control Act	BC Ministry of Forests BCER (issuing authority)	Requires that the occupier of temíxw (land) must control noxious weeds on their property. It is an offense to knowingly contravene this Act or to refuse to comply with an order to control noxious weeds.
Wildlife Act	BC Ministry of Forests BCER (issuing authority)	Protects sekw'ekw'inexw (wildlife) , endangered species, and sekw'ekw'inexw (wildlife) habitat.
Wildfire Act	BC Ministry of Forests BCER (issuing authority)	Legislation for the responsibility, compliance, and enforcement of fire management are provided in the Wildfire Act and Wildfire Regulation.



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#### Table 2-3: Municipal Legislation

Name	Agency	Relevance to Project
District of Squamish Official Community Plan Bylaw 2500, 2017 "Schedule A"	District of Skwxwú7mesh (Squamish)	This is the District of Skwxwú7mesh (Squamish's) Official Community Plan, which sets out the requirements for development permits in development permit areas. Development permit areas relevant to the Project include Development Permit Area 1 and Development Permit Area 10.
District of Squamish Blasting By-Law No. 188, 1965	District of Skwxwú7mesh (Squamish)	Requires a blasting permit for use of any explosive substance within the Municipality.
District of Squamish Noise Regulation Bylaw No. 2312, 2014	District of Skwxwú7mesh (Squamish)	<ul> <li>Permits Construction Noise:</li> <li>7:00 am to 8:00 pm on any day other than Saturday, Sunday or a statutory holiday</li> <li>8:00 am to 7:00 pm on Saturdays</li> <li>10:00 am to 4:00 pm on Sunday or statutory holidays</li> <li>A Temporary Noise Exemption Permit may be obtained. Note that construction work which does not generate noise is allowed outside of these hours.</li> </ul>
District of Squamish Solid Waste Utility and Regulation Bylaw No. 2870, 2021	District of Skwxwú7mesh (Squamish)	Construction and demolition waste is subject to this bylaw, which requires recyclables and organic waste to be separated from landfill waste (e.g., separating wood waste, metal, cardboard, plastic, etc.).
District of Squamish Demolition Waste Diversion Bylaw No. 2813, 2021	District of Skwxwú7mesh (Squamish)	Applies to the diversion and disposal of waste generated by demolition activities (demolition, deconstruction or systematic disassembly of an existing building, structure or improvement regulated by the Building Bylaw).
District of Squamish Wildlife Attractant Bylaw No. 2781, 2020	District of Skwxwú7mesh (Squamish)	This bylaw is intended to avoid human-sekw'ekw'inexw (wildlife) conflicts. It outlines the following waste management requirements: have bear resistant bins for all food waste; keep barbeques on-site clean; store grease, antifreeze, paint or petroleum products so they are inaccessible to sekw'ekw'inexw (wildlife); and, keep food waste out of construction waste bins.
District of Squamish Soils Management Bylaw No. 2641, 2018	District of Skwxwú7mesh (Squamish)	This bylaw regulates the deposit and removal of soil, requiring a Soil Management Permit. Note: no permit is required for deposit of soil or other materials undertaken per the Environmental Management Act regarding remediation of contaminated temíxw (land); if deposit or removal is directed by the District of Skwxwú7mesh (Squamish) ; if deposit or removal is for a Habitat Restoration project, etc.
District of Squamish Tree Management Bylaw No. 2640, 2018	District of Skwxwú7mesh (Squamish)	This bylaw regulates the removal of trees and outlines the requirements for a Tree Permit.



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Name	Agency	Relevance to Project
District of Squamish Invasive Species Management Bylaw No. 2786, 2020	District of Skwxwú7mesh (Squamish)	This bylaw prohibits the accumulation of invasive species.
Unsightly Premises and Objectionable Situations Bylaw No. 1868, 2005	District of Skwxwú7mesh (Squamish)	This bylaw requires that noxious weeds, unsanitary conditions and garbage do not accumulate and are removed from the property, among other conditions.

Numerous permits, licenses, and authorizations are required by the regulations listed above. All relevant permits, licenses and authorizations must be obtained from the appropriate authority prior to conducting the associated works.

In addition, construction activities will follow all established and applicable BMPs. The Contractor ((inclusive of all contractors (and their subcontractors) under Woodfibre LNG)) Environmental Protection Plans (EPPs) will provide details on which BMPs, specifically which components of the BMPs, apply to construction activities and Contractor Environmental Work Plans (EWPs) will provide details on how the BMPs will be implemented and operationalized.



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# 3.0 ENVIRONMENTAL MANAGEMENT

## 3.1 ENVIRONMENTAL MANAGEMENT FRAMEWORK

### 3.1.1 Documentation Structure

The Project Environmental Management Framework is illustrated in Figure 3-1:



Figure 3-1: Environmental Management Framework

The Project Environmental Governance documents (this CEMP and supporting Component Environmental Management Plans) provide the overarching approach to environmental management on the Project. The Governance documents compile the Project's environmental requirements and describe the process by which environmental management will be carried out. The CEMP also acts as a central repository to detail relevant environmental assessment conditions and commitments, legislative requirements, and relevant permits; management roles and responsibilities, engagement, and reporting requirements; and environmental and Project Ínexwantas (monitoring) and inspection requirements.

Environmental management requirements made in the Project Environmental Governance documents are translated into activity and site-specific actions in the Contractor Implementation Tools (the EPPs, Environmental Monitoring Plan, and EWPs). The EPPs will build on the EA level project-wide requirements described within the Management Plans, providing detail on an activity specific level what mitigation measures will be implemented. EPPs will also describe which BMP mitigation measures will be implemented for environmental (nexwantas (monitoring) requirements identified in the Component Environmental Management Plans or EPPs will be included in the Project Environmental



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Monitoring Plan. For works identified as high-risk in the EPPs, including works in or near environmental sensitive areas, Environmental Works Plan (EWPs) will be developed. EWPs describe the environmental aspects of defined work activities within those locations and outline the mitigation measures which will be implemented to protect the environment while completing the work activities. EWPs provide a granular level of detail and are designed to be used by construction crews working in specific sensitive locations. Minimum requirements for Project documents are provided in Table 3-1.

As design and construction progress various EPPs and EWPs will be created to address activity/area specific scopes of work. The Contractor will produce EPPs that outline activity/area specific scopes of work that identify mitigation measures that may be used during the construction. The Owner's Environmental Manager will review and approve the Contractors EPPs. Prior to the start of a new construction activity, the sub-contractor will produce activity specific EWPs that outline the specific mitigation measures that will be installed for each phased of a specific activity. The Contractors Environmental Manager will approve the sub-contractors EWPs.

The CEMP outlines EA level commitments and general BMP mitigation measure that are expected by Woodfibre LNG to be a part of the Contractor EPPs and EWPs. The EPPs and EWPs will provide the details related to how the EA level commitments and general BMPs mitigation measures will be implemented and operationalized. Woodfibre LNG has an approval role for the Contractor EPPs and has the opportunity to review the EWPs and will work to ensure that relevant BMPs that meet the expectations of the rigorous environmental and regulatory landscape of British Columbia, and the expectations of Skwxwú7mesh Úxwumixw (Squamish Nation) as an environmental regulator of the Project are reflected. A current list of EPPs that are in development for the early part of the Project scope are listed in Section 3.1.2. Quarterly updates of the EPPs that are being developed will be provided to key stakeholders of this CEMP.

Document	Minimum Requirements
Component Environmental Management Plan	<ul> <li>Environmental assessment conditions and commitments.</li> <li>Legislative requirements and permits.</li> <li>Roles and Responsibilities of Project personnel.</li> <li>Environmental setting and potential risks.</li> <li>Best Management Practices considered.</li> <li>Mitigation measures to be implemented.</li> <li>Working windows.</li> <li>Training and orientation requirements.</li> <li>Ínexwantas (Monitoring), reporting, and record keeping requirements.</li> </ul>
Environmental Protection Plan	<ul> <li>A description of which elements of relevant Best Management Practices will be utilized.</li> <li>Roles and responsibilities.</li> </ul>
	<ul> <li>Detailed description of reporting processes including sharing of inexwantas (monitoring) results.</li> </ul>

#### Table 3-1 : Project Environmental Management Documentation Requirements



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Document	Minimum Requirements
	Activities and locations covered by the EPP;
	Reference to applicable Compliance requirements;
	Reference to applicable EMP requirement;
	<ul> <li>Workplace and activity specific mitigation measures to prevent environmental damage from the activities covered by the EPP;</li> </ul>
	<ul> <li>Details regarding the construction techniques that will be used to ensure the Work being conducted is consistent with EMPs and all applicable Compliance Requirements; and</li> </ul>
	• Drawings showing the locations covered by the EPP and the mitigation measures to be implemented.
Environmental Work	Roles and responsibilities.
Plan	<ul> <li>Summary of Works to be conducted and a detailed description of the proposed activities intended to be addressed in the EWP.</li> </ul>
	Equipment and materials that will be used.
	<ul> <li>Schedule of works including duration and reference to environmental timing constraints, where relevant.</li> </ul>
	• Detailed Environmental Maps (as described in Section 5.6) including work locations, environmental sensitivities, and mitigation measures to be implemented.
	• List of applicable Compliance Requirements including the start date and expiry date for any applicable Permits and approvals and key terms and conditions. As appropriate the relevant Compliance Requirements shall be included as an attachment to the EWP.
	Reference to applicable CEMP, EMPs, and EPP.
	<ul> <li>Mitigation measures and best management practices to be implemented including a detailed description of how, when, and by who the measures and practices will be implemented.</li> </ul>
	Relevant spill prevention and emergency response procedures applicable to the Work being conducted as an attachment the EWP, including contact information (i.e., office number, cell phone number and email).

## 3.1.2 Environmental Protection Plans

EPPs will be developed to support various activities during construction. The initial phase of the Project will require the following EPPs that will be shared with Indigenous Groups for the activities listed below:

- Clearing and Grubbing Including soil and vegetation removal, stockpile management, noncontaminated and contaminated sites management.
- Shoreline Works –Including marine excavated material, placement of rip-rap, demolition of rip-rap, marine and intertidal soil management, and seawater management.
- Marine Construction Including marine traffic, separate biosecurity EPP related to overseas cargos, marine ínexwantas (monitoring) protocols, hydroacoustic ínexwantas (monitoring), marine mammal ínexwantas (monitoring), piling and near shore blasting.
- Waste Management Including site wide waste management requirements for the project, regular domestic waste and hazardous waste management.



• Spill Response and Material Management – Including spill response, material management and reporting procedures that will be followed by all Project personnel.

As the construction schedule progresses, EPPs to support construction activities will be developed prior to the works commencing. To reduce the risk of duplicating plan names all Woodfibre LNG Plans will be titled as Environmental Management Plans, all Contractor plans will be Environmental Protection Plans or Environmental Work Plans.

## 3.2 ROLES AND RESPONSIBILITIES

## 3.2.1 Woodfibre LNG

Woodfibre LNG is responsible for ensuring development of the Project Environmental Governance documentation is in accordance with the Project's environmental requirements and obtaining approval of these documents from all relevant regulators and authorities. Woodfibre LNG is ultimately accountable for implementation of the CEMP. Woodfibre LNG is also responsible for approval of the Contractor Implementation Tools, ensuring they effectively establish the means and methods to achieve the project-wide environmental requirements agreed within the approved Governance documents.

In addition, Woodfibre LNG will provide continual oversight of the implementation of environmental management practices across the entire Management Framework to ensure environmental requirements are consistently met. Woodfibre LNG will report on compliance with the Project environmental requirements and the effectiveness of environmental management at the project-level (see Section 4.0). Where environmental requirements are not met, Woodfibre LNG is responsible for implementing adaptive management processes to improve management measures and processes to ensure environmental requirements are met.

#### 3.2.1.1 Woodfibre LNG Environmental Monitor

A Qualified Environmental Professional will be retained by Woodfibre LNG as the Environmental Monitor throughout the duration of the Construction phase of the Project to satisfy Condition 1 of Schedule B of the EAC. Woodfibre LNG's Environmental Monitor will be responsible for overseeing the Contractor's Environmental Monitor to determine compliance with Project environmental approval conditions and implementation tools. The Woodfibre Environmental Monitor will be provided the Contractor Implementation Tools (EPPs and EWPs) to support compliance (nexwantas (monitoring) and surveillance audits. The Environmental Monitor has the authority to stop Project work if they determine that environmental approval conditions are not met or if necessary to prevent or reduce significant environmental harm.

## 3.2.2 Contractor

The Contractor(s) is responsible for the implementation of the CEMP as well as the development of Contractor Implementation Tools (EPPs and EWPs), which must outline the management measures


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included in this CEMP. Ínexwantas (Monitoring) results must be reported by the Contractor to Woodfibre LNG. The Contractor will actively participate in adaptive management processes where required, including review and update of the Implementation Tools. An ínexwantas (monitoring) plan will be developed, and will be approved by the Project Owner, outlining the specific activities that will be monitored for, frequency of, methodologies used, and identifying key personnel.

Specific Contractor Roles and Responsibilities are detailed below.

### 3.2.2.1 Contractor Project Director

The Contractor Project Director is ultimately accountable for implementation of the EPPs and EWPs. The Construction Director will ensure:

- The EPPs and EWPs are developed in accordance with the Project's environmental requirements and approved Project Environmental Governance Documents.
- The Project complies with the requirements of the EPPs and EWPs.
- Personnel, facilities, and other resources necessary to effectively implement the environmental requirements of the Project are provided.

### 3.2.2.2 Contractor Construction Director / Site Manager

The Contractor Construction Director / Site Manager is responsible for ensuring the implementation of the EPPs and EWPs. The Contractor Construction Director / Site Manager will:

- Report to the Contractor Project Director on the implementation of the EPPs, identifying additional requirements for personnel, facilities, and other resources required to meet Project environmental requirements.
- Provide leadership and motivation to the Contractor Team.
- Actively develop and maintain a culture in line with the Contractors Health, Safety, Security, and Environmental (HSSE) policies and procedures.
- Ensure that the EPPs and EWPs are adhered to.
- Actively participate in HSSE compliance audits, inspections, reviews, and programs.
- Close out corrective actions and programs within specified deadlines as informed by the Contractor HSSE Manager or Contractor Environmental Manager.

### 3.2.2.3 Contractor Construction Supervisor

The Contractor Supervisor includes area construction managers, superintendents, and other supervision roles under the Contractor Organizational Chart. The Contractor Construction Supervision is responsible for the field implementation of the EPPs including:

- Ensuring all personnel adhere to the requirements of the EPPs and EWPs.
- Implementing a culture in line with the Contractors HSSE policies and procedures.



- Implementing environmental management measurers under advice of the Contractor Environmental Manager.
- Leading and supporting investigations and ensuring the implementation of corrective actions.

### 3.2.2.4 Contractor HSSE Manager

The Contractor HSSE Manager is responsible for ensuring construction activities are performed in compliance with the requirements outlined in the EPPs and EWPs, Company Environmental Management Plan(s), applicable approvals, permits, licensed and federal/provincial/local regulations, in addition to Contractor Quality, Health, Safety, Environment, and Security (QHSES) Management System. Contractor HSSE Manager is accountable for the planning and effective implementation of the Site HSSE program. To deliver these plans the Contractor HSSE Manager has explicit responsibility for the following tasks:

- Consult on HSSE matters, including environmental aspects related to the EPPs and EWPs or Project compliance as required.
- Lead the development, implementation, and inexwantas (monitoring) of the Project HSSE Management System and ensuring alignment of the EPPs with the System.
- Leads and participates in investigations of environmental incidents or regulatory non-compliance events, compliance audits, and site inspections as required.
- Support the Contractor Environmental Manager in the implementation and compliance of the Project Environmental Management Process.

### 3.2.2.5 Contractor Environmental Manager

The Contractor Environmental Manager is responsible for the planning and effective implementation of environmental management measures during activities related to the Contractor scope of work. Reporting to the Contractor HSSE Manager, the Contractor Environmental Manager will:

- Ensure environmental management measures are completed in accordance with the Project environmental requirements, Environmental Governance Documents, and the Contractor Implementation Tools.
- Serve as the principal point of contact for Woodfibre LNG environmental representatives.
- Develop and approve Contractor Implementation Tools including the EPPs and EWPs and any other plan and / or procedures required throughout the duration of Contractor scope of work. The Contractor Environmental Manager will submit Implementation Tools to Woodfibre LNG environmental representatives for approval.
- Approve any Subcontractor EWPs, method statements, risk assessments, or any additional procedures or documents required throughout the duration of Subcontractors scope of work.
- Lead and approve environmental reporting deliverables in alignment with Project environmental requirements.



- Provide guidance to the Contractor Supervisors and field personnel on how to meet Project environmental requirements.
- Make sure adequate resources (e.g., equipment, materials, training, personnel, etc.) necessary to meet environmental requirements are available.
- Ensure the Contractor site orientation incorporates applicable environmental requirements, as well as applicable additional training is identified and available for site personnel.
- Supervise and coordinate environmental compliance and inexwantas (monitoring) activities under the Contractor scope of work.
- Support and guide construction activities for compliance with the overall Project environmental requirements.
- Coordinate environmental risk assessments and associated work planning process.
- Ensure adequate inexwantas (monitoring), auditing, reporting, and documentation are captured and actioned according to the Project requirements.
- Ensure compliance of environmental protection plan(s), HSSE plan(s) and procedure(s), and general documents with contract, Project specifications and overall requirements.
- Ensure environmental incidents are investigated and reported within the specified timeline.
- Lead and participate in investigations of environmental incidents or regulatory non-compliance events, compliance audits, and site inspection as required.
- Ensure environmental lessons learned, corrective, and preventive actions are captured and implemented.
- Liaise with the Contractor Construction Management Team and other Project stakeholders to review environmental compliance on the jobsite, evaluate the success and effectiveness of the environmental program, and seek opportunities for continuous improvement.
- Support the Contractor HSSE Manager in the implementation and compliance of the Project HSSE Program including Best Management Practices.

### 3.2.2.6 Contractor Environmental Monitor

The Contractor Environmental Monitors will be responsible for inexwantas (monitoring) construction activities to determine compliance with Project environmental conditions of approval and implementation tools. All Contractor Environmental Monitors will be supervised by a QEP, as defined by the *Professional Governance Act* and applicable regulatory bodies (e.g. College of Applied Biology). At a minimum, a QEP will be available by phone to provide guidance and consult on issues that may arise on site. Key responsibilities include:

 Conducting field inexwantas (monitoring) as required (e.g., stakw [water] quality inexwantas [monitoring], air quality inexwantas [monitoring], identifying invasive plants, and sts'ukwi7 [fish] observations).



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- Monitor construction activities to determine whether the works are resulting in any adverse effects on the environment (e.g., potential impacts from underwater noise on sekw'ekw'inexw [wildlife]) and advise on corrective mitigation measures, if necessary.
- Prepare reporting documentation including but not limited to inexwantas (monitoring) activities, effective implementation of mitigation measures, and performance against quality indicators.
- Evaluate the performance of mitigation measures and when not performing, provide recommendations, and evaluate the effectiveness of, on modifying or improving mitigation measures.
- Ensure that any non-conformances and incidents are appropriately reported, addressed, and that corrective and preventative actions are effective.
- Review the Contractor EPPs and EWPs for consistency with the CEMP and Component Environmental Management Plans.
- Implementation of the Environmental Ínexwantas (Monitoring) Plan.
- Submit reports to Woodfibre LNG on the above tasks.

## 3.3 ENVIRONMENTAL TRAINING & COMPETENCIES

All Project personnel must receive a Project-specific orientation and training to achieve a level of environmental awareness and competence necessary for performance of the proposed activities.

A qualified professional will oversee the development of the environmental portion of the Project orientation. The Environmental content of the Project orientation will be reviewed by Woodfibre LNG. The Contractor Environmental Manager, or delegate, is responsible for delivering the environmental portion of the Project orientation to all Project personnel.

The Project orientation shall be completed prior to the commencement of works, and to personnel joining the Project at their commencement.

Records of attendance (e.g., for orientation, training, toolbox talks) shall be maintained including:

- The person inducted/trained, their position/role, and signature (which could be in the form of record of completion of an online training session).
- When the person was inducted/trained.
- The name of the inductor/trainer.
- Description of the orientation/training content.

Records of attendance shall be kept electronically for the duration of the Project.

Details of environmental training requirements are provided in Table 3-2.



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#### Table 3-2: Environmental Training

Training	Requirements		
	<ul> <li>An overview of the CEMP and associated environmental approval documentation including purpose, key objectives, accessibility and relevant conditions of permits and approvals.</li> </ul>		
	• An overview of Project-specific environmentally sensitive areas and aspects.		
	<ul> <li>An overview of site-specific environmental risks and hazards and control measures as identified in the CEMP and supporting documentation.</li> </ul>		
	<ul> <li>Locations of sensitive receptors and appropriate work practices to minimize impacts.</li> </ul>		
Project Orientation	• Heritage items and legislative considerations of working on/near heritage items.		
	High-risk Project activities with respect to environmental risk.		
	• Roles and responsibilities related to environmental management for the Project. Location and contact information of key environmental personnel.		
	• An overview of environmental and safety protocols and emergency and incident response procedures.		
	• Cultural heritage awareness (including chance find procedures), responsibilities, management procedures.		
	<ul> <li>An overview of archaeology, its importance in cultural resource management, and its relevance to the LNG facility construction.</li> </ul>		
	• A review of relevant federal, provincial, and regional legislation and regulations governing archaeological resources and their protection.		
	<ul> <li>Understanding the importance of engaging with First Nations communities, respecting their knowledge, cultural heritage, and traditional territories.</li> </ul>		
Archaeological training	<ul> <li>Techniques for recognizing and evaluating potential archaeological sites during ground disturbances.</li> </ul>		
Archaeological training	<ul> <li>Guidelines for proper recording, reporting, and documenting archaeological findings and their associated artifacts.</li> </ul>		
	The training will be conducted in-person and will take one-hour to complete. This training may be complemented by additional online materials. An assessment of participants' understanding, and application of the training materials will also be undertaken, following which certification will be issued upon successful completion.		
	Activities and potential risks.		
Toolbox / pre-start	Issues and incidents.		
meetings	Changes to procedures and standards.		
	New environmental risks.		
Specialist Environmental Training	<ul> <li>Requirements for Specialist Environmental Training will be detailed in relevant Component Management Plans (e.g., Sekw'ekw'inexw tl'a shkwen [Marine Bird] Training).</li> </ul>		



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### 3.3.1 Qualified Professional and Specialists

Development, implementation, and supervision of environmental management plans including component plans must be completed by a Qualified Professional. A Qualified Professional must be registered and in good standing with an appropriate B.C. professional organization constituted under the *Professional Governance Act*.

Development, implementation, supervision, and inexwantas (monitoring) must be completed or overseen by a Qualified Professional for, but not limited to, the following tasks and activities:

- Development of environmental management plans (including this CEMP).
- Stakw (Water) quality inexwantas (monitoring) (marine and fresh stakw [water]).
- Determining and inexwantas (monitoring) instream flow requirements for Mill and Woodfibre Creek.
- Observation of marine mammals during selected in-stakw (water) or near-stakw (water) construction activities.
- Identification and management of invasive plants.
- Evaluation of marine sts'úkwi7 (fish) species.
- Pre-vegetation clearance sekw'ekw'inexw (wildlife) surveys.

Specific requirements are detailed within the applicable component Management Plans appended to this CEMP.



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# 4.0 CONSULTATION AND ENGAGEMENT

## 4.1 MANAGEMENT PLANS

Environmental management plans for the below valued components must be submitted to Indigenous Groups and Project stakeholders no less than 30 days prior to the planned date to commence construction. Management plans must be available electronically. Indigenous Groups and stakeholders for each plan are identified below:

- CEMP: EAO, MOF, BCER, and Indigenous Groups.
- Marine Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat Management Plan: EAO, DFO, BCER, and Indigenous Groups.
- Invasive Plants: EAO, MOF, BCER, and Skwxwú7mesh Úxwumixw (Squamish Nation).
- Sekw'ekw'inexw (Wildlife) : EAO, Environment Canada (EC), MOF, BCER, and Indigenous Groups.
- Traffic: EAO, Ministry of Transportation and Infrastructure (MOTI), and the District of Skwxwú7mesh (Squamish) (DOS).
- Marine Transportation: EAO, Transport Canada (TC), Canadian Coast Guard (CCG), Pacific Pilotage Authority, DFO, the DOS, BC Ferries, Skwxwú7mesh (Squamish) Terminals, and Indigenous Groups.

Environmental management plans for the below valued components must be submitted to EAO 60 days prior to commencement of construction works. Indigenous Groups and stakeholders for each plan are identified below:

- Shkwen (Marine Water): MOE, MOH, DFO, BCER, VCH and Indigenous Groups (submitted prior to construction); and
- Marine Mammals: EAO, DFO, BCER, and Indigenous Groups (submitted 30 days prior to the planned date to commence Construction in the marine environment).

Consultation with identified Indigenous Groups and stakeholders regarding management plans will be completed as follows:

- Written notice will be provided to each party that:
  - 1. Includes a copy of the management plan;
  - 2. Invites the party to provide its views on the content of such management plan; and
  - 3. Provides the timeframe for each party to provide such views. A reasonable period of time will be provided to permit the party or parties being consulted to prepare their views and information. A timeframe of 30 days will be adopted, unless otherwise agreed between the consulted party or parties. Extensions to the timeframe may be requested and granted.
- A full and impartial consideration of any views and other information provided by a party in accordance with the timelines specified;
- Written explanation is to be provided to each party that provided comments as to how the views and information provided have been considered and addressed in a revised version of the management



plan OR why such views and information have not been addressed in a revised version of the management plan;

- A record of consultation with each such party regarding the management plan must be maintained; and
- A copy of management plan consultation record must be provided to the EAO, the relevant party, or both, promptly upon the written request of the EAO or such party.

# 4.2 CONSULTATION WITH INDIGENOUS GROUPS

Consultation with Skwxwú7mesh Úxwumixw (Squamish Nation) will be conducted in accordance with the EAC and SNEAA consultation and engagement requirements.

Where consultation with Indigenous Groups, apart from Skwxwú7mesh Úxwumixw (Squamish Nation), is required, communication with each group will be completed prior to initiating consultation to determine how to satisfy the consultation requirements including:

- Methods of notification.
- The type of information and the time period to be provided when seeking input.
- The process for full and impartial consideration of any views and information presented.
- How each Indigenous Group will be informed of how the views and information received have been considered.

Where consultation with Indigenous Groups is a requirement of a follow-up program, the Proponent shall discuss with each Indigenous Group opportunities for the participation of that Indigenous Group in the implementation of the follow-up program.

Indigenous Groups are to be provided opportunity to participate in ínexwantas (monitoring) activities within their asserted traditional territory. Engagement regarding ínexwantas (monitoring) activities is to be completed during development of submission of ínexwantas (monitoring) plans (see Section 7.0).

## 4.3 CONSULTATION AND NOTIFICATION OF MATERIAL CHANGE

Prior to initiating any material change to the Project, consultation with Indigenous Groups is required. The Agency shall be notified in writing no later than 60 days prior to initiating the change.

Requirements for consultation and notification are provided in Section 7.6.

# 4.4 GENERAL PROJECT NOTIFICATION

Notification and Public Communications are provided in Table 4-1.



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Notification and Communication	Requirements
Commencement	The Holder must notify EAO Compliance and Enforcement staff, in writing, three months prior to commencing the construction, operations, and decommissioning phases of the Project.
Project Contact Change	Should the primary contact for the Project change, the Holder must notify EAO Compliance and Enforcement staff, in writing, within 30 days and provide the physical address, email address and phone number(s).
Project Timing and Updates	This schedule will be updated and published on a regular basis and will be posted on the Woodfibre LNG website ( <u>https://woodfibrelng.ca/</u> ).

#### **Table 4-1: Notification and Communication**

# 4.5 COMPLAINTS

A mechanism for receiving complaints has been established. Complaints can be submitted via Woodfibre LNG's website. Complaints will be recorded in a Complaints Register and investigated in a timely manner. Non-conformances or mitigation improvements are to be recorded and managed as per Section 7.3.



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# 5.0 IMPLEMENTATION

# 5.1 ENVIRONMENTAL MITIGATION MEASURES

# 5.2 GENERAL MANAGEMENT

General management requirements to be implemented during Construction are provided in Table 5-1.

Activity/Task	Requirements
Management Plans	CEMP and the Component Environmental Management Plans are to be developed by a Qualified Professional.
Orientation and Training	All Project personnel are to be provided an orientation that outlines the environmental risks and management requirements of the Project. Orientation and additional training / competency requirements are detailed in Section 3.3
Documentation Accessibility	<ul> <li>The following documentation must be readily available at the Project site. The documentation must be current.</li> <li>This CEMP</li> <li>Component Plans described in this CEMP (Section 5.3).</li> <li>The Project EPPs.</li> <li>Current EWPs (i.e., those in use).</li> <li>Applicable permits and licenses</li> <li>Project Environmental Approval documentation (Section 1.4)</li> <li>Environmental Ínexwantas (Monitoring) Plan</li> <li>Non-conformance register (Section 7.3)</li> <li>Incident Register (Section 6.0)</li> <li>Corrective Action Register (Section 7.3)</li> </ul>
Corrective Actions	Requirements for Corrective Actions are detailed in Section 7.3.
Record Keeping	<ul> <li>A written record or a record in a compatible electronic format must be maintained throughout the Construction phase of the Project at a facility close to the Designated Project in Canada (local facility). The record shall include information related to the implementation of the CEMP and associated inexwantas (monitoring) including:</li> <li>The place, date, and time of any sampling, as well as techniques, methods or procedures used;</li> <li>The dates and the analyses that were performed;</li> <li>The names of the persons who collected and analyzed each sample and documentation of any professional certification(s) relevant to the work performed that they might possess; and</li> <li>The results of the analyses.</li> </ul>
Reporting	Reporting requirements are detailed in Section 7.4.

#### Table 5-1: General Management Requirements



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Activity/Task	Requirements
Incidents	Requirements for incident management and reporting are provided in Section 6.0.

# 5.3 BEST MANAGEMENT PRACTICES

## 5.3.1 Emergency Management and Response

An Emergency Response Plan (ERP) has been developed by Woodfibre LNG to satisfy the EAC Application requirements (see Section 13.2.2.6 and Table 22-1 M7.2-5), FDS and Section 38.1 under the *Oil and Gas Activities Act* and Emergency Management Regulation for the BCER. It is noted that the ERP does not form part of this CEMP as it is a standalone document, however, the ERP describes incident and emergency reporting requirements, investigation procedures including requirements for when an investigation must be completed and the responsible role. If required, the report and investigation must include a level of detail appropriate to the incident or emergency rating.

The ERP was developed with input from local, regional, and provincial emergency response authorities, including, but not limited to, Squamish Fire Department, the Squamish RCMP, Vancouver Coastal Health, and BC Ambulance Service. The Emergency Response Plan will be communicated to emergency response authorities and service providers.

Further detail for non-emergency environmental incidents is provided in Section 6.0.

## 5.3.2 Air Quality

The Project will follow best management practices to control emissions (greenhouse gas emissions and dust emissions) to reduce potential effects on air quality and the environment during construction.

Table 5-2 outlines key mitigation measures to be implemented to reduce potential impacts to air quality from greenhouse gas emissions and dust as outlined in the EA Application. Activity specific EWPs will include mitigation measures to reduce greenhouse gas emissions.

Activity/Tasks	Mitigation Measures
Greenhouse Gases- (Scope 1 emissions)	<ul> <li>Maintain equipment / vehicles in good working order.</li> <li>Switch off vehicles / machinery when not in use – implement engine idling time restrictions.</li> <li>Use solar area lighting where feasible.</li> <li>Use appropriate planning and scheduling to minimize unnecessary movement of materials into, around and out of the site.</li> </ul>
Greenhouse Gases- (Scope 2 emissions)	The Project will use renewable electrical power sourced from BC Hydro.
Minimize release of exhaust gases	<ul> <li>Maintain equipment / vehicles in good working order.</li> <li>Use fuel for all equipment that meets the manufacturer's specifications.</li> </ul>

### Table 5-2: Air Quality Mitigation Measures



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Activity/Tasks	Mitigation Measures			
from fuel combustion	• Switch off vehicles / machinery when not in use – implement engine idling time restrictions.			
Dust Control	<ul> <li>The following mitigation measures can be implemented to reduce the emission of fugitive particulate matter (i.e., dust) and prevent offsite dust impacts during construction.</li> <li>Stakw (Water) exposed surfaces (using non-potable stakw [water] source where possible).</li> <li>Cover soil stockpiles and exposed areas (e.g., tarpaulins, geotextile fabric).</li> <li>Progressively restore disturbed surfaces.</li> <li>Modify or cease work in windy conditions.</li> <li>Modify site layout (place stockpiles away from sensitive receivers).</li> <li>Reduce height of material drop if dust emission is evident.</li> <li>Vegetate exposed areas using appropriate seeding.</li> <li>Cover material loads that may emit dust when being hauled.</li> <li>Minimize vertical drop distance of materials to transfer points to the extent feasible.</li> <li>Load trucks with adequate freeboard so that loads do not spill during movement.</li> <li>Maintain paved surfaces to reduce dust build up.</li> <li>Demarcate traffic and parking areas to limit ground disturbance.</li> </ul>			
	Control the speed of vehicles within the Site.			

### 5.3.2.1 Dust Control

General dust control measures are outlined in Table 5-2. The Contractor will develop a dust suppression EPP including required dust control mitigation measures to prevent and control dust emissions associated with construction activities as well as ínexwantas (monitoring) requirements. Activity specific dust control measures will be included in the Dust Suppression Environmental Protection Plan as well as EWPs.

### 5.3.2.2 Noise and Vibration

Construction activities, including blasting, pile driving, and general facility construction, have the potential for adverse effects associated with noise and vibration. Table 5-3 outlines key mitigation measures to be implemented to reduce noise and vibration impacts to the surrounding environment and sensitive receptors (i.e. nearby communities). Details related to the implementation of activity specific mitigation measures will be included in the appropriate EWPs.

Activity/Tasks	Mitigation Measures
Communication with potential receptors	Notify residents prior to high noise-emitting maintenance activities if appropriate.

#### Table 5-3: Noise and Vibration Mitigation Measures



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	• A means (via Woodfibre LNGs website) for people to provide input if experiencing a high- noise activity is to be implemented. Complaints are to be recorded on complaints register and responded to in a timely manner.
Plant, equipment attenuation measures	• Equipment will be fit with standard mufflers or silencers. Mufflers and silencers are to be maintained to ensure they remain in good working order.
Arrange sites to reduce noise impact	• Existing onsite barriers are to be used for screening nearby dwellings from construction equipment sound.
	Heavy equipment muster points will be located at least 500m from any receptor.
	Orientate noisy equipment away from receptors.
	Maximize offset distance between noisy equipment and receptors.
Schedule works	High noise activities will be scheduled to reduce noise disruption whenever possible.
to reduce noise impact	Schedule noisy activities during times of high-background noise where possible.
	<ul> <li>Where possible, heavy earthmoving equipment will be used between 0700 hours and 2200 hours. Works outside of these hours require a Temporary noise exemption permit issued by District of Skwxwú7mesh (Squamish).</li> </ul>
	High noise emitting maintenance activities are to be scheduled during the day whenever possible.

To ensure the effectiveness of these mitigation measures, short- and long-term inexwantas (monitoring) will be implemented. The Contractor will develop specific noise inexwantas (monitoring) requirements within the Inexwantas (Monitoring) Plan which will outline the frequency, methodology, and reporting mechanisms for noise inexwantas (monitoring) to determine compliance within permitted criteria. This inexwantas (monitoring) will enable ongoing evaluation and assessment of the measures' performance in mitigating noise and vibration impacts throughout the construction phase.

## 5.3.3 Blasting Management

The following section outlines the key risks from blasting, as well as the measures required to mitigate, manage, and monitor impacts from blasting activities on the surrounding environment.

Construction blasting activities have the potential to impact the environment, including:

- Generation of noise and vibration
- Generation of fugitive dust and fumes
- Contamination from seepage and accidental spills of explosive materials
- Release of nitrogen compounds (i.e., total ammonia, nitrate, and nitrate)
- Ground disturbance (e.g., shaking loose of silt, sand, and rock particles) which can increase turbidity and TSS in stakw (water) runoff near or in blasting areas, and
- Flyrock

Blasting will be carried out by a certified blasting contractor and follow all relevant blasting regulations and guidelines. Table 5-4 outlines the key mitigation measures to reduce effects from blasting activities. Further details of mitigation measures for blasting with specific consideration to Sts'úkwi7 (Fish) are in Appendix E and marine mammals are in Appendix F.



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Table 5-4:	Blasting	Mitigation	Measures
		Junigation	mououroo

Activity/Tasks	Mitigation Measures
Blasting	<ul> <li>Blasting activities will conform to the Guidelines for the use of Explosives in or near Canadian Fisheries Waters (Wright and Hopky, 1998)</li> </ul>
	Where feasible underwater blasting will be scheduled to occur during periods when the number of birds in the area are at the lowest number where practicable.
	A maximum of one underwater blast per day or at intervals of several hours.
	• Noises or blasts (e.g., thunderflashes) to scare birds away from the immediate vicinity of the blast will be emitted immediately prior to detonation.
	Establish an appropriate blast clearance zone.
	• Use silt fences and curtains in blasting areas where surface stakw (water) runoff is high.
	Schedule blasting activities during dry periods, where practicable.
	Limit the use of ANFO.
	<ul> <li>Monitor stakw (water) quality downgradient of blasting areas.</li> </ul>
	• Implement surface stakw (water) diversion and bench dewatering prior to blasting.
	<ul> <li>Direct surface stakw (water) runoff away from the drilled blast holes before loading begins.</li> </ul>
	• Stakw (Water) runoff from blasting areas will be routed to a retention area and tested to meet BC Stakw (Water) Quality Guidelines prior to discharge, where practicable.
	• Dispose of explosives using a licensed person, or person under the supervision of a licensed person, and ensure disposal methods are appropriate to the type and condition of explosives.
	Personnel to be trained in the proper handling of explosives.
	<ul> <li>Check blast holes for the presence of stakw (water) before loading. ANFO is only to be loaded into dry holes that have been effectively dewatered.</li> </ul>
	Use stakw (water)-resistant cartridge emulsion explosives for blast holes that cannot be effectively dewatered.
	Use stakw (water)-resistant emulsion-based explosives during wet conditions.
	Use a loading funnel in the collar of the blast holes to avoid spillage.
	Use blast borehole liners when loading fractured ground or for blast holes with minor groundwater seepage.
Prevent accidental spills	• Ensure proper handling of the polyethylene bags or other containers during loading and unloading to mitigate potential for spills.
of blasting	Explosive storage bags will be double-lined.
materials	Shrink-wrap explosives stored on wooden pallets.
	• Ensure all poured explosive goes into the blasthole and sweep explosive material(s) surrounding the blast hole into the blast hole when loading is complete.
	• Keep loading sites clean by shoveling spilled explosives into the nearest blast hole prior to detonation.
	Store explosives in proper explosives magazine(s).
	Use blast hole liners in all blast holes containing stakw (water) to prevent seepage into rock and groundwater.
	• Spilled explosives will be cleaned up immediately using safe work procedures following the manufacturers recommendations.



The EM (if safe to do so) or Blasting Contractor will conduct regular inspections of the temporary explosive storage facilities.

A Blasting EPP will be developed which will include mitigation measures to reduce noise, exposed nitrates, metal leaching and ARD potential, blasting residuals, waste rock, material handling and explosives storage. Details related to the implementation of activity specific mitigation measures will be included in the appropriate Environmental Work Plans.

# 5.3.4 Erosion and Sediment Control

Table 5-5 outlines key mitigation measures to be implemented to reduce erosion and sediment issues during construction. An Erosion and Sediment Control Plan (Appendix I) has been developed to satisfy the EAC Application requirements (see Section 13.2.2.9 and Table 22-1 M5.8-1). The ESCP aims to mitigate erosion and sediment transport. Unmitigated erosion and the subsequent generation of sediment could have potential adverse environmental effects on aquatic and terrestrial environments.

Activity/Tasks	Mitigation Measures		
	• Silt fences, filter fabric, straw bales, gravel filter dikes, sedimentation ponds, perimeter ditches, cut- off swales or other stakw (water) quality management measures, will be selected, implemented, monitored, maintained, and repaired as required.		
	Divert surface runoff away from disturbed soil and stockpiles.		
	<ul> <li>Soil stockpiles will be diked, sloped, and seeded or appropriately covered to minimize erosion. If temporary stockpiles are constructed then appropriate erosion prevention measures will be installed and regularly maintained until these stockpiles are decommissioned or seeded. Spoil will be managed in accordance with the appropriate Project-specified regulatory approvals or applicable legislation, regulations, and guidelines prior to the completion of construction activities.</li> </ul>		
Avoid	Install erosion and sediment controls before construction starts.		
unnecessary disturbance of	Inspect controls weekly, daily during rainfall, and immediately after rainfall.		
soils	Rectify damaged controls immediately.		
	<ul> <li>Remove controls once surfaces have been stabilized, including removing trapped sediment in drainage lines.</li> </ul>		
	Minimize ground disturbance and stabilize disturbed areas progressively.		
	<ul> <li>Vegetation cover will be maintained wherever possible. Disturbed areas adjacent to watercourses will be re-vegetated as soon as possible to prevent surface erosion or downstream stakw (water) quality effects.</li> </ul>		
	• Stop work if soils become waterlogged or when there is a risk of sediment loss off site.		
	Sweep up any sediment/soil transferred off site at least daily.		
	• Eliminate ponding and erosion by restoring natural landforms to the pre-works condition.		
Effectively manage stormwater and overland flow	• Flows will be diverted from undisturbed areas away from or around construction areas.		
	• Temporary and/or permanent stormwater drainage systems are to be developed during the construction phase (Section 1.3)		
	<ul> <li>Sediment pond(s) will be incorporated as required, and appropriately designed in accordance with current guidelines to meet site conditions and requirements. Sediment ponds will be maintained until construction or decommissioning is completed and the</li> </ul>		

#### Table 5-5: Erosion and Sediment Control Mitigation Measures



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Activity/Tasks	Mitigation Measures	
	affected areas are sufficiently stabilized and re-vegetated to minimize erosion risk or sediment transport at the site as a result of construction activities.	
	• Erosion and sediment control measures will be maintained, and any required changes made promptly to ensure they are working effectively. An inspection and maintenance program will be developed and followed as part of the Erosion Prevention and Sediment Control Plan.	
Maintain integrity of riparian zones	• Activities within riparian management areas, a 30-m-wide area on either side of both Mill Creek and Woodfibre Creek, will be minimized. Erodible material will not be stockpiled in these areas and no refueling will occur within these areas.	
	No erodible materials will be stockpiled within riparian management areas.	
	<ul> <li>Construction wastes, overburden, soil, or any other substances potentially deleterious to riparian, aquatic or marine habitat will be stored or disposed of in such a manner as to prevent entry to riparian, aquatic or marine areas</li> </ul>	

Further details of specific Erosion and Sediment Control measures are detailed in the Erosion and Sediment Control Plan. Details related to the of activity specific (i.e. site infilling) mitigation measures will be included in the appropriate EPPs (i.e. clear, strip and grubbing EPP, stormwater EPP) and the implementation of those measures in the appropriate EWPs.

# 5.3.5 Concrete Management

The following section outlines the key risks from concrete works, as well as the measures required to mitigate, and manage potential impacts from concrete activities on the surrounding environment.

Concrete works during construction have the potential to impact the environment, including:

- Contamination of stakw (water) (e.g., groundwater, surface stakw [water]) from:
  - Concrete contact runoff during pouring and curing;
  - Concrete vehicle and equipment wash pads and rinse stake (water); and
  - Concrete batch plant area runoff stakw (water).
- Generation of noise and vibration
- Generation of fugitive dust

Table 5-6 outlines key mitigation measures to be implemented to reduce potential impacts from concrete works.



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Activity/Tasks	Mitigation Measures
	• When pouring concrete, spills of fresh concrete will be prevented from entering into the marine environment at the site through use of secondary containment, barriers or other exclusion means.
	• If concrete is being placed with a concrete pump, all hose and pipe connections will be sealed and locked properly so that lines will not leak or uncouple.
	• All concrete forms will be constructed in a manner which will prevent fresh concrete or cement-laden stakw (water) from leaking into surrounding stakw (water).
	<ul> <li>If fresh stakw (water) is used to cure concrete, the run-off will be monitored for acceptable pH levels, if the pH levels are outside the allowable limits, then the run-off stakw (water) will be contained and neutralized.</li> </ul>
	• During inclement weather, uncured concrete will be protected or covered in a manner that minimizes creation of high pH stakw (water).
	<ul> <li>Barriers will be used as appropriate to prevent splashing over forms and into the stakw (water).</li> </ul>
Concrete works	• Wash equipment and tools that have come into contact with concrete will be stored in a designated area away from the marine environment and drainages, so that concrete affected stakw (water) is prevented from entering watercourses (tidal waters, streams, storm drains).
	• If necessary to pour concrete within the intertidal or subtidal zones (e.g. piling installation), contact between cementitious materials and surrounding seawater will be avoided to the extent possible.
	• When grinding cured concrete, stakw (water) pH and TSS levels will be monitored not to exceed allowable limits from the effect of dust and fines when discharging directly into the environment. In the event that the levels are outside the acceptable ranges, preventative measures will be introduced. This may include introducing silt curtains to contain the solids and to prevent sts'úkwi7 (fish) from entering a contaminated area or constructing catch basins to recover the run-off and neutralizing it prior to disposal.
	Concrete will be poured carefully to minimize spillage.
	Appropriate spill cleanup materials will be readily available and easily accessible.     Personnel will be trained in
	• Excess or spilled concrete will be contained, immediately clean up and disposed of in an environmentally acceptable manner.
	• Concrete vehicles and equipment will be cleaned at designated concrete wash pads that are segregated from other contaminated- stakw (water) streams. Designate containers (e.g. chute washout bins, chute washout bucket and pump, lined washout pits, washout roll-off bins) to collect, retain, and recycle the washout stakw (water) and solids from washing down concrete equipment.
	• Protect concrete being poured or setting from precipitation using polyethylene covers and tarps. Freshly poured concrete should be protected from precipitation for 48 to 72 hours.
	Unused concrete will be disposed of properly.
	Treat concrete contact stakw (water) onsite through sedimentation and chemical treatment.
	Contain all runoff associated with concrete use stakw (water) (reclaimed or not) for treatment before it is introduced to the overall wastewater treatment system.

#### **Table 5-6: Concrete Management Mitigation Measures**

A concrete environmental protection plan will be developed in conjunction with the concrete batch plant operator that will include the requirements for transportation, storage, processing, using, cleaning and



disposing of concrete materials. It will also address the known risks associated with concrete management around environmentally sensitive areas. If any concrete works occur prior to the batch plant operations the required mitigation measures will be detailed in an EWP.

# 5.3.6 Waste

Table 5-7 outlines key mitigation measures to be implemented to prevent and or reduce adverse effects from waste generated during construction.

A Waste Management Plan (Appendix J) has been developed to satisfy the EAC Application requirements (see Section 13.2.2.16 and Table 22-1 M5.10-4). The Waste Management Plan aims to ensure that generation of hazardous and non-hazardous wastes from the Project is minimized, and that waste is properly stored and disposed of. The contractor will develop a site specific Waste Management Environmental Protection Plan that will support the objectives in the Waste Management Plan (Appendix J) and describe site specific details related to waste such as waste bin types and locations, segregation procedures, criteria for waste storage locations, waste inspection frequencies, record keeping requirements and reporting frequencies. Activity specific EWPs will include details on how waste will be handled to comply with site waste management requirements and a separate Floatel Waste Management Plan (focusing on waste specific to the Floatel and its operations) will be developed to supplement the Waste Management Plan.

Activity/Tasks	Mitigation Measures
	The Hazardous Waste Regulation (Government of BC 1988) will be followed under the Environmental Management Act for containment, storage and handling, disposal, and transportation of substances identified as hazardous waste.
Hazardous Waste Management	<ul> <li>Where activities involve the handling, storage, and removal of hazardous waste, the following records will be maintained:</li> </ul>
Management	<ul> <li>Inventories of types and quantities of hazardous waste generated, stored, or removed.</li> <li>Manifests identifying hazardous waste haulers and disposal destinations.</li> </ul>
	<ul> <li>Solid waste materials that are not acceptable under the existing landfill permit will be transported offsite by barge for disposal to an appropriate designated disposal or recycling facility.</li> </ul>
Non-Hazardous Waste Management	<ul> <li>Whenever possible, the materials used in construction will be reused and recycled. Recyclable materials will be separated and transported off site.</li> </ul>
	<ul> <li>Clearly labelled garbage bins with lids and recycling containers will be made available for food waste and recyclables.</li> </ul>
	• Food waste will be stored in sekw'ekw'inexw (wildlife) -proof bins.

#### Table 5-7: Waste Mitigation Measures

Further details of specific Waste Management practices are detailed in Appendix J.

# 5.3.7 Stakw (Water) Management

Table 5-8 outlines key mitigation measures to be implemented to reduce adverse effects on stakw (water) resources and, subsequently, freshwater sts'úkwi7 (fish) and sts'úkwi7 (fish) habitat.



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A Stakw (Water) Management Plan (Appendix C) has been developed to satisfy Condition 5 of Schedule B of the EAC and SNEAA Condition 3. The Stakw (Water) Management Plan aims to protect and manage the use of Stakw (Water) resources. Unmanaged Stakw (Water) resources have the potential to adversely impact freshwater sts'úkwi7 (fish) and sts'úkwi7 (fish) habitat.

#### Table 5-8: Stakw (Water) Management Mitigation Measures

Activity/Tasks	Mitigation Measures	
Instream works	Isolate instream construction activities from stream flow where possible.	
	Undertake instream works during periods of reduced flow where possible.	
	<ul> <li>All fill materials or materials that will contact watercourse stakw (waters), including shoreline works or surfacing, will be clean and free of organic material and deleterious substances.</li> </ul>	
	Minimize duration and extent of activities within watercourses and riparian setbacks where possible.	
	Avoid instream use of equipment where possible.	
	Undertake instream works during the reduced risk instream work window.	
Sta <u>k</u> w (Water) take and release	Manage instream flow releases to prevent impact to the Creek.	
	Manage stake (water) take to ensure minimum flow requirements are maintained.	
	Salvage and relocate sts'úkwi7 (fish) prior to instream work where possible.	

# 5.3.8 Shkwen (Marine Water) Quality

Table 5-9 outlines key mitigation measures to be implemented to prevent and or minimize impacts to marine water quality as a direct result of construction activities.

A Shkwen (Marine Water) Quality Management and Ínexwantas (Monitoring) Plan (Appendix D) has been developed to satisfy Condition 6 of Schedule B of the EAC. The requirements from the EA Application for Shkwen (Marine Water) Management Plan (Table 22-1 M5.10-1) and the Underwater Noise Management Plan (Table 22-1 M5.17-6) are addressed in the Shkwen (Marine Water) Quality Management and Ínexwantas (Monitoring) Plan.

The MWQMMP is aimed at minimizing sediment disturbance during construction and prevent discharge or runoff containing high TSS, concrete wash stakw (water) and fuel from entering the marine environment.

If there are competing requirements between BC or CCME, stakw (water) quality criteria and permit requirements (i.e., Waste Discharge Authorization) activities will comply with Project specific commitments and permit conditions.

Activity/Tasks	Mitigation Measures
Marine Works	<ul> <li>All construction operations will be monitored by a qualified Environmental Monitor who will be onsite during the high-risk construction and demolition activities to determine whether the works are resulting in any adverse effects on marine environment. Frequency of</li> </ul>

#### Table 5-9: Shkwen (Marine Water) Quality Mitigation Measures



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Activity/Tasks	Mitigation Measures
	ínexwantas (monitoring) will be detailed in a ínexwantas (monitoring) plan. Any adverse effects will be reported to DFO by WLNG.
	<ul> <li>Marine works will be conducted during the least risk fisheries work window specific by DFO for the region if practical. If the work window cannot be followed, additional mitigation measures including the advice provided by DFO (Measures to Avoid Causing Harm to Fish and Fish Habitat (2013b)) will be implemented. The work window for Nexwnéwu7ts Átl<u>k</u>'a7tsem (Howe Sound) is currently August 16 - January 31 (DFO 2014). If in-water works are required to be completed outside of the timing window of least risk, the work will be reviewed by a QEP and supplemental mitigation will be developed and agreed to with Skwxwú7mesh Úxwumixw (Squamish Nation), Tsleil-Waututh Nation, and Fisheries and Oceans Canada prior to executing any in-water works outside to the timing window of least risk.</li> </ul>
	<ul> <li>Work activities will cease and DFO will be contacted, if aggregations of Slhawt' (herring) (e.g., Slhawt' [herring] spawn) and salmonids (e.g., smolts) are observed within the work area.</li> </ul>
	• Marine works will be avoided during weather that may increase sediment suspension.
	<ul> <li>All works will be conducted in a manner to prevent the discharge or introduction, either direct or indirect, of soil, sediment or sediment laden stakw (water), turbid stakw (water) or any other deleterious substance into the marine environment. All discharges from construction activities shall meet BC stakw (water) quality guidelines (MOE 2009).</li> </ul>
	<ul> <li>Construction materials, excavation wastes, overburden, sediment, or other substances potentially deleterious to marine life shall be disposed of off-site in accordance with regulatory requirements, or placed in such a manner by the contractor, to prevent their entry into the marine environment.</li> </ul>
	The contractor shall follow Best Management Practices for Pile Driving and Related     Operations (BCMPDCA and DFO 2003).
	<ul> <li>Vessels and other equipment involved in pile driving and construction activities will be positioned in a manner that will prevent damage to the seafloor and shoreline.</li> </ul>
	<ul> <li>Where required, turbidity inexwantas (monitoring) will be implemented during all pile drilling/driving activities, to determine that turbidity levels in the marine environment do not exceed established stakw (water) quality regulatory criteria during Project works.</li> </ul>
	<ul> <li>The following stakw (water) quality criteria will be applied based on BC stakw (water) quality guidelines (MOE 2009) with regards to discharge or introduction of sediment or sediment- laden stakw (water) in the marine environment:</li> </ul>
	Turbidity:
	<ul> <li>change from background of 2 NTU when the background level is less than 8 NTU</li> <li>change from background of 5 NTU when background is 8-50 NTU</li> <li>change from background of 10% when background is more than 50 NTU</li> <li>TSS<sup>-</sup></li> </ul>
	<ul> <li>change from background of 5 mg/L when background is less than 25 mg/L</li> </ul>
	<ul> <li>change from background of 10 mg/L when background is 25-100 mg/L</li> </ul>
	<ul> <li>change from background of 10% when background is more than 100 mg/L</li> </ul>
	<ul> <li>If the criteria outlined above is exceeded as a result of Project-related activities, these works, or activities will be halted until measures that will result in compliance with the criteria outlined above are put in place.</li> </ul>
	<ul> <li>Where the sediment control criteria cannot be practically met, the work areas and activities contributing to these conditions will be isolated from tidal and flowing stakw (waters). This may include use of silt curtains and other silt control measures.</li> </ul>
Prevent unnecessary	• Vessels and other equipment involved in pile driving, dredging, and construction activities will be positioned in a manner that will prevent damage to the seafloor and shoreline.



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Activity/Tasks	Mitigation Measures	
entrainment of sediment within the marine	• Avoid marine works during weather conditions that may increase sediment suspension.	
	<ul> <li>Clearly demarcate areas of seafloor to be disturbed (e.g, dredging) to limit the disturbance area.</li> </ul>	
environment	For dredging activities, the following mitigation measures will be followed:	
	<ul> <li>Use methodologies that reduce seafloor disturbances (e.g., making additional dredge passes rather than dragging a bucket or beam to level the dredge surface, not stockpiling material underwater)</li> </ul>	
	• Use of environmental clam shell bucket to minimize sediment loss during dredging.	
	<ul> <li>Ensure any direct discharge of stakw (water) to the marine environment meets relevant stakw (water) quality guidelines.</li> </ul>	
	<ul> <li>Construction materials, excavation wastes, overburden, sediment, or other substances potentially deleterious to marine life shall be disposed of off-site in accordance with regulatory requirements, or placed in such a manner by the contractor, to prevent their entry into the marine environment.</li> </ul>	
	<ul> <li>Install sediment curtains and other sediment control devices to isolate activities likely to result in an increase in turbidity of shkwen (marine water).</li> </ul>	
Prevent unnecessary sediment disturbance and	<ul> <li>Stakw (Water) collected in temporary sediment control structures will be analyzed and its quality determined. If stakw (water) quality meets acceptable guidelines, it will be discharged into Nexwnéwu7ts Átlk'a7tsem (Howe Sound); otherwise, it will be treated prior to discharge or disposed offsite</li> </ul>	
runoff of	For creosote pile removal:	
sediment,	A reasonable attempt will be made to remove the entire creosote-treated pile.	
concrete, chemicals, or other deleterious material to the	<ul> <li>Piles will be removed by a slow, steady pull to minimize disturbance of seafloor habitats and to avoid bringing creosote-contaminated sediments to the surface. If the pile breaks off below the biologically-active zone in the sediment, it may not be advisable to dredge the remainder out, depending on the sensitivity of the habitat at the site.</li> </ul>	
environment	<ul> <li>Used/decommissioned piles will be disposed of on temíxw (land) in an appropriate waste management facility (Hutton and Samis 2000).</li> </ul>	
	<ul> <li>Work will follow procedures outlined in DFO's Guidelines to Protect Fish and Fish Habitat from Treated Wood Used in Aquatic Environments in the Pacific Region (Hutton and Samis 2000).</li> </ul>	
	<ul> <li>A sediment containment system (e.g., silt curtains) will be installed as appropriate during piling removal to prevent the dispersion of suspended sediments.</li> </ul>	
	Creosote piling removal will be conducted during the least-risk fisheries work window specified by DFO for the region, unless approved.	
	Pile Driving and Related Activities:	
Underwater Noise Management	<ul> <li>Multiple underwater noise generating activities will be minimized when practicable (e.g., avoid multiple pile driving activities at the same time). Where multiple underwater noise generating activities are planned, they will be sequenced to minimize construction duration.</li> </ul>	
	<ul> <li>Works in the marine environment will be conducted during the least risk fisheries work window specified by DFO for the region unless otherwise agreed upon by DFO. The prescribed work window for Nexwnéwu7ts Átlk'a7tsem (Howe Sound) is August 16 – January 31 (DFO 2014b).</li> </ul>	
	<ul> <li>Where possible, pile driving activities will avoid impacting hard substrates to prevent disturbance to sts'úkwi7 (fish) habitat.</li> </ul>	
	<ul> <li>The use of vibrational pile driving will be used where practical and feasible as impact pile driving is associated with louder sound pressure levels underwater. The use of vibro-</li> </ul>	



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Activity/Tasks	Mitigation Measures
	hammers for pile installation minimizes the effects on sts'úkwi7 (fish) by decreasing the anticipated noise levels.
	• A ramp up or soft start technique will be used. Where equipment allows, power will be built up slowly from a low energy start-up to give adequate time for marine sekw'ekw'inexw (wildlife) to leave the vicinity before exposure to the maximum sound pressure level. There will be a soft start every time pile driving is resumed following an interval of no pile driving.
	Prior to pile driving, the perimeter of the pile driving area will be identified, so that work occurs within the confines of the pile driving area.

Further details of specific Shkwen (Marine Water) Quality measures are detailed in Appendix D.

### 5.3.9 Marine Mammal Management

Table 5-10 outlines key mitigation measures to be implemented to reduce adverse effects to marine mammals.

A Marine Mammal Management and Ínexwantas (Monitoring) Plan (Appendix F) has been developed to satisfy Condition 9 of Schedule B of the EAC and FDS Condition 3.8. The MMMMP aims to reduce displacement and direct mortality of marine mammals.

Activity/Tasks	Mitigation Measures
Identify opportunities to	• Detect and report the presence of marine mammal species prior to and during works that may impact the area – stop works if a potential for impact to the marine mammal is identified
reduce potential harm and disruption to marine	<ul> <li>Utilize sound dampening technology and soft-start procedures where possible to reduce underwater noise impact</li> </ul>
manninais	Schedule activities (e.g., pile driving) with consideration for:
	Periods of elevated marine mammal occupancy
	Limit sea-vessels speeds within the Project area to minimize potential for contact with marine mammals
	Clearly demarcate sea-vessel shipping / transport routes
	• All Project vessels will maintain a constant course and constant speed, to the extent practical, when operating in the Riparian Assessment Area (RAA).
Avoid / reduce human- sekw'ekw'inexw (wildlife)	• Under no circumstances, other than in the case of an emergency, will vessels approach within 200 m of any marine mammal or 400 m of a yéwyews (killer whale).
	• If marine mammals approach within 200 m, or 400m by a yéwyews (killer whale), of a vessel, the vessel will reduce its speed and, if possible, cautiously move away from the animal. If it is not possible for a vessel to move away from or detour around a stationary marine mammal or group of marine mammals, the vessel will reduce its speed and wait until the animal(s) moves at least 200 m, or 400 m for a yéwyews (killer whale), from the vessel prior to resuming speed.

#### Table 5-10: Marine Mammal Management Mitigation Measures

Further details of specific Marine Mammal measures are detailed in Appendix F.



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# 5.3.10 Marine Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat

Table 5-11 outlines key mitigation measures to be implemented to reduce impacts to sts'úkwi7 (fish) and sts'úkwi7 (fish) habitat in the marine environment.

A Marine Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat Management and Ínexwantas (Monitoring) Plan (Appendix E) has been developed to satisfy Condition 8 of Schedule B of the EAC and FDS condition 3. The Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat Management and Ínexwantas (Monitoring) Plan aims to protect marine sts'úkwi7 (fish) and sts'úkwi7 (fish) habitat and should be read in conjunction with mitigation measures detailed within the Erosion and Sediment Control Plan (Appendix I) and the Shkwen (Marine Water) Quality Management and Ínexwantas (Monitoring) Plan (Appendix D),

Activity/Tasks	Mitigation Measures
Prevent harm to sts'úkwi7 (fish) and sts'úkwi7 (fish) habitat	<ul> <li>Marine works will be conducted during the least risk fisheries work window specific by DFO for the region if practical. If the work window cannot be followed, additional mitigation measures including the advice provided by DFO (Measures to Avoid Causing Harm to Fish and Fish Habitat (2013b)) will be implemented. The work window for Nexwnéwu7ts Átlk'a7tsem (Howe Sound) is currently August 16 January 31 (DFO 2014).</li> </ul>

#### Table 5-11: Marine Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat Mitigation Measures

Further details of specific Marine Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat measures are detailed in Appendix E.



### 5.3.11 Vegetation

Table 5-12 outlines key mitigation measures to be implemented to prevent potential impacts of construction on vegetation and minimize the spread of invasive plant species.

An Invasive Plant Management Plan (Appendix G) has been developed to satisfy Condition 10 of Schedule B of the EAC. The Invasive Plant Management Plan aims to prevent and control the establishment and spread of invasive plant species. Unmanaged invasive plants have the potential to adversely impact the environment, including effects on native vegetation, ecosystems, and biodiversity.

Activity/Tasks	Mitigation Measures
	Clearly delineate vegetation to be cleared using signage.
	<ul> <li>Install signage and barriers to prevent access / harm to vegetation not approved from removal.</li> </ul>
	Limit clearing to approved areas.
Vegetation clearing areas	Restrict vehicle access to designated tracks / roadways.
	<ul> <li>Avoid vegetation clearing within the riparian area along Mill Creek (outside of the Green Zone), Woodfibre Creek, and the adjacent mature forest.</li> </ul>
	<ul> <li>In the event of a spill, vegetation and soil may be removed to facilitate cleanup. Any removed vegetation will be replaced after cleanup to encourage re- establishment of natural vegetation communities</li> </ul>
	<ul> <li>Limit clearing of native vegetation communities to the extent required for construction of Project facilities.</li> </ul>
	Install tree protection prior to commencing works.
Prevent unnecessary harm to vegetation	<ul> <li>Where feasible, temporary construction features, such as laydown areas, will be located on paved or previously disturbed areas to reduce clearing.</li> </ul>
	<ul> <li>Avoid stockpiling of materials and equipment within the drip-line of vegetation.</li> </ul>
	Preferentially tie-back or trim vegetation rather than remove where possible
Weeds and pest management	• Bag all plant parts and excavated topsoil that may be infested with weed propagules and dispose at a licensed waste disposal facility or as outlined in the Invasive Plant Management Plan.
	<ul> <li>All construction vehicles are to be free of any soil, mud and plant debris adhering to tires, undercarriage, or chassis before entering the site to prevent introduction of plant and soil borne pathogens.</li> </ul>
	Minimize soil transportation within, into or out of the site area to reduce the spread of weeds
	• Rare plant surveys will be conducted in areas to be disturbed by the Project (i.e., the footprint) to identify the locations of any listed plant species that may be affected by clearing activities.
Rare Plant Management	<ul> <li>Surveys will be conducted in the spring to coincide with flowering and maximize the detectability of rare plants.</li> </ul>
	<ul> <li>Any listed plant species that are identified within the Project footprint will be salvaged and replanted in appropriate microsites elsewhere in the Local Assessment Area (LAA).</li> </ul>

#### **Table 5-12: Vegetation Mitigation Measures**



Further details of specific Invasive Plant Species control measures are detailed in Appendix G.

### 5.3.12 Sekw'ekw'inexw (Wildlife)

Table 5-13 outlines key mitigation measures to be implemented to reduce impacts to sekw'ekw'inexw (wildlife). A Sekw'ekw'inexw (Wildlife) Management and Ínexwantas (Monitoring) Plan (Appendix H) has been developed to satisfy Condition 11 of Schedule B of the EAC and components of FDS conditions 4 9 and addresses the requirements from the EA Application of the Sekw'ekw'inexw tl'a shkwen (Marine Bird) Management Plan (Table 22-1 M5.17-8). The Sekw'ekw'inexw (Wildlife) Management and Ínexwantas (Monitoring) Plan aims to prevent and reduce potential adverse effects to sekw'ekw'inexw (wildlife) from construction activities.

Activity/Tasks	Mitigation Measures
Identify opportunities to reduce potential harm and disruption to sekw'ekw'inexw (wildlife)	<ul> <li>Schedule activities (e.g., vegetation clearance, blasting) with consideration for:</li> <li>Migratory bird timing</li> <li>Nesting seasons</li> </ul>
Clearing of high-value habitat and habitat features (e.g., nesting areas)	<ul> <li>Install no-go fencing around areas to be retained</li> <li>Avoid clearing vegetation during nesting seasons where possible.</li> <li>Complete pre-construction / clearance surveys to identify the presence of terrestrial sekw'ekw'inexw (wildlife) including sensitive species</li> <li>Prior to site clearing, sekw'ekw'inexw (wildlife) habitat features to be retained will be demarcated with no-go fencing and signage.</li> <li>Maintain appropriate vegetation buffers and setbacks around high-value habitat features (e.g., roosts) where possible</li> <li>Install habitat features to support sekw'ekw'inexw (wildlife) e.g., skáp'kap'tsaylh (bat) boxes to provide additional roosting habitat (following removal of roosting sites)</li> <li>Salvage coarse woody debris that has been removed in upland areas to facilitate Project construction and relocate it along linear features and within the Green Zone upon completion of the construction phase.</li> </ul>
Avoid / reduce human- sekw'ekw'inexw (wildlife) interactions	<ul> <li>Clearly sign post sekw'ekw'inexw (wildlife) crossing locations</li> <li>Limit speed on roadways within the Project area to 30 km/h</li> <li>If wildlife enters a work area, workers will stop work in that immediate area and allow wildlife to exit the work area without herding or harassing the animal(s).</li> <li>Include sign posting and information sheets on the Project site (e.g., lunch room) regarding identification of sensitive species and management requirements</li> <li>Subject to safety requirements, blue or green lighting is to be used preferentially over red or white to reduce attractiveness to birds.</li> <li>Ensure food and/or domestic waste is removed from the construction site daily, or if such waste is to remain on-site overnight, store in animal resistant waste receptables or inside a locked storage structure/container or building.</li> </ul>

#### Table 5-13: Wildlife Mitigation Measures



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Further details of specific Sekw'ekw'inexw (Wildlife) Management measures are detailed in Appendix H.

### 5.3.13 Lighting

The purpose of this section is to outline the measures required to reduce potential impacts from light and light pollution on the surrounding environment. Construction lighting may be utilized during construction activities for the Project to meet health and safety requirements. Light pollution may impact sekw'ekw'inexw (wildlife) habitat, behaviour, and movement as well as impact humans, other sensitive receptors (i.e. nearby communities), and dark sky values. The Project will require the installation and maintenance of temporary exterior lighting during construction. Light design will be developed in accordance with the International Commission on Illumination's CIE 150:2017 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations and with consideration to marine transport and bird safety requirements (Pollard et al., 2017).

Table 5-14 outlines key mitigation measures to be implemented to reduce effects from light pollution during construction. Further details of specific light mitigation measures to reduce impacts on marine sts'úkwi7 (fish) and sekw'ekw'inexw (wildlife) are detailed in Appendix E and Appendix H, respectively.

Activity/Tasks	Mitigation Measures
Construction Activities	• Direct artificial light away from sensitive receivers where possible (i.e., residents, fauna, or roadways).
	Utilize directional and motion activated security lighting to reduce light pollution.
	• For lights that are not required to be continuously lit, use controls such as timers, sensors, or motion detectors to reduce unnecessary nighttime illumination.
	• Light to be directed only where it is needed. Light fittings / shielding should be used to direct light downwards to avoid light spill.
	Use lighting technology that minimizes the amount of ultraviolet light generated.
	• Minimize lighting to the amount necessary to meet requirements and safely perform work. Intensity should be reduced to as low as possible.
	• Subject to safety and operational requirements, blue or green lighting rather than red and white lighting will be used to reduce the attractiveness to birds.
	Consider curfews (e.g., turn unnecessary lights off late at night) where possible.
	Switch off all construction lighting when not in use.

#### **Table 5-14: Lighting Mitigation Measures**

Details related to the implementation of activity specific mitigation measures will be included in the appropriate EWPs.

A separate Floatel Management Plan will be developed that details the specific lighting considerations and commitments for the floatel. This plan does not form part of this CEMP.



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### 5.3.14 Visual

Table 5-15 outlines key mitigation measures to be implemented to reduce impact on visual quality. The following mitigation measures aim to effectively reduce effects on the visual quality during construction.

#### Table 5-15: Visual Mitigation Measures

Activity/Tasks	Mitigation Measures
Prevent unnecessary	• Initiate decommissioning and maintenance planting programs during the construction phase, recognizing that results will not be realized until the operation or decommissioning phases of the Project. Preserve the level of contrast for Project infrastructure by refinishing and maintaining external surfaces as required.
	• Direct artificial light away from sensitive receivers where possible (i.e., residents, fauna, or roadways).
	Prevent excessive / unnecessary emanation of light from the Project site.
impact to the	Maintain work areas in a clean and tidy condition.
of the Project area and surrounding landscape	• All personnel will maintain a tidy appearance and exercise courtesy in dealings with the public.
	• All work equipment and materials will be contained within the designated boundaries of the work site.
	• All waste generated during the course of the works will be reused or removed from the work areas as soon as practicable and disposed of in accordance with the waste disposal safeguards (Appendix J – Waste Management Plan). Where possible, utilize colors for the facility that blend with the surrounding environment.

Condition 20 of Schedule B of the EAC requires a Visual Quality Management Plan be developed. The focus of the plan is related to mitigation of impacts to visual quality associated with the final design of the Project as well as potential cumulative impacts from the Project, BC Hydro, and Fortis BC. This plan will be developed during construction and distributed for consultation under separate cover.



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### 5.3.15 Indigenous Heritage

Table 5-16 outlines key mitigation measures to be implemented to prevent harm to heritage resources. An Archaeological and Heritage Resources Management Plan has been developed by Woodfibre LNG to satisfy the EAC Application requirements (see Section 13.2.2.11) and FDS Condition 8.1. This plan does not form part of this CEMP.

Table 5-16: Indigenous Heritage Mitigation	Measures
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Activity/Tasks	Mitigation Measures
Prevent harm to Indigenous artifacts and relics	<ul> <li>Heritage Resource Chance Find Management Procedure to be followed.</li> <li>Induct Project construction personnel to the identification of heritage items and required chance find management requirements.</li> </ul>

## 5.3.16 Marine Transportation (Navigation)

Table 5-17 outlines key mitigation measures to be implemented within the Marine Transport Management and Monitoring Plan to reduce impacts of Project-related marine transportation during construction.

A Marine Transport Management and Monitoring Plan has been developed to satisfy Condition 16 of Schedule B of the EAC, Condition 7 of the FDS and mitigation M6.3-1 of Table 22-1 of the EA Application and does not form part of this CEMP.

Activity/Tasks	Mitigation Measures
Prevent impact to existing and traditional navigational routes, fishing areas, habitat, harvesting areas, commercial shipping use, and	<ul> <li>Ensure ongoing effective communication with Indigenous Groups, stakeholders, and public authorities to ensure mutual understanding of potential interference including timing, duration, and type of interference.</li> <li>Install navigational lights.</li> <li>Update navigational charts and other nautical publications with relevant</li> </ul>
	construction details.
Maintain access for Indigenous Groups to traditional use areas	<ul> <li>Consult with Indigenous Groups to identify potential areas of issue.</li> <li>Where possible, maintain access to stakw (water) and temíxw (land) areas for Indigenous Groups.</li> </ul>

#### Table 5-17: Marine Transportation Mitigation Measures



### 5.3.17 Traffic Management

Table 5-18 outlines key mitigation measures to be implemented within the Traffic Control Management Plan to reduce impacts of Project-related transportation during construction:

A Traffic Control Management Plan has been developed by Woodfibre LNG to satisfy Condition 15 of Schedule B of the EAC and does not form part of this CEMP.

Activity/Tasks	Mitigation Measures
Prevent disruption to local traffic	<ul> <li>Work vehicles should not obstruct local roadways or restrict access to any private driveways.</li> </ul>
	Truck movements will be scheduled to cause minimum disruption and queuing.
	Work vehicles will not obstruct vehicular or pedestrian traffic unless necessary.
	Designate parking areas.
	<ul> <li>All temporary closures, diversions or obstructions on roads or parking areas should be clearly marked and equipped with signage explaining the duration and conditions of the closure or obstruction.</li> </ul>
	• Pedestrian access ways should be maintained unless the access poses a safety threat to the community/Project staff.
	Erect signs to inform road users of any temporary road closures.
	Ensure work vehicles do not obstruct vehicular or pedestrian traffic, or private driveways, public facilities, or business access unless necessary and only if appropriate notification has been provided.
Prevent unauthorized access to the Project site	As required, install fences and barricades around the site to prevent access

#### Table 5-18: Traffic Management Mitigation Measures

## 5.4 COMPONENT ENVIRONMENTAL MANAGEMENT PLANS

The EA Application described addition component plans to support the CEMP. Table 5-19 provides details as to where the requirements of those component plans have been, or will be, addressed.

#### Table 5-19: Component Plans to the CEMP

Component Plan	Status Update
Environmental Ínexwantas (Monitoring) Plan	The environmental ínexwantas (monitoring) plan will be a standalone document. Details related to the environmental monitoring plan can be found in Section 7.1
Blasting Management Plan	Section 5.3.3 contains general blasting mitigation measures. A Blasting EPP will be completed in advance of blasting activities (blasting to commence in 2024). A description of the content of the EPP is include in Section 5.3.3. Blasting will also be addressed in the appropriate activity EWPs.



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Component Plan	Status Update
Construction Emergency Response Plan	The Construction Emergency Response Plan has been developed under separate cover and has been accepted by the BC Energy Regulator.
Creosote Pile Removal	The requirements of this plan are addressed in the Shkwen (Marine Water) Quality Management and Ínexwantas (Monitoring) Plan (Appendix D).
Concrete Works Management Plan	Section 5.3.5 contains general concrete mitigation measures. A Concrete Works Environmental Protection Plan will be developed in conjunction with the concrete batch plant operator. Details related to the content of the plan are included in Section 5.3.5. In the interim mitigation measures required for concrete work prior to the construction of the concrete batch plant (early concrete work – bollards and sedimentation ponds) will be included in EWPs.
Dust Control Management Plan	Section 5.3.2.1 contains general dust control mitigation measures. A Dust Suppression EPP will be developed to detail which components of BMPs will be utilized to control dust and the activity specific implementation details of dust control mitigation measures will be addressed in EWPs.
Erosion Prevention and Sediment Control	Section 5.3.4 and Appendix I of the CEMP contain general erosion and sediment control measures. Site specific details related to the implementation of mitigation measures will be documented in activity specific EPPs (i.e. clearing, grubbing and stripping and stormwater management) as well as EWPs.
Heritage Resources and Chance Find	The Archaeological and Heritage Resources Plan, which includes the chance find protocol, has been developed under separate cover. Table 3-2 provides details related to the archaeological and heritage resources component of the Project orientation.
Invasive Plants Management	The Invasive Plant Management Plan is Appendix G.
Marine Works Management Plan	Requirements of the Marine Works Management Plan are included in the Shkwen (Marine Water) Quality Management and Ínexwantas (Monitoring) Plan (Appendix D) and Marine Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat Management and Ínexwantas (Monitoring) Plan (Appendix E).
Underwater Noise Plan	Requirements of the Underwater Noise Plan are included in the Marine Mammal Management and Ínexwantas (Monitoring) Plan (Appendix F), Sekw'ekw'inexw (Wildlife) Management and Ínexwantas (Monitoring) Plan (Appendix H) and the Marine Sts'úkwi7 (Fish) and Sts'úkwi7 (Fish) Habitat Management and Ínexwantas (Monitoring) Plan (Appendix E). In addition, the Contractor will develop a hydroacoustic plan to support construction activities.
Marine Mammal Management	The Marine Mammal Management and Ínexwantas (Monitoring) Plan is in Appendix F.
Noise Vibration, and Ambient Light Management Plan	The general noise, vibration and light mitigations are outlined in the Sections 0 and 0, respectively. Further scope and activity specific mitigations related to noise, vibration and ambient light will be included in activity specific EPPs and EWPs.
Waste Management	General mitigation measures related to waste handling and management are included in Section 5.3.6 and Appendix J. A Waste Management Environmental Protection Plan will be developed, the details of which are outlined in Section 5.3.6. In addition activity specific waste management handling practices to ensure compliance with the Project requirements will be detailed in EWPs.



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## 5.5 ENVIRONMENTAL SCHEDULES

Up to date records of Project Environmental Schedules are to be maintained on site. Environmental Schedules are provided in Table 5-20.

The Contractor Environmental Manager is responsible for ensuring all Environmental Schedules are up to date. The Contractor Environmental Manager may delegate maintenance of an Environmental Schedule.

Schedule	Description
Orientation Register	Register of personnel inducted to the Project.
Training and Qualification Register	Register of personnel training and qualifications required to perform environmental management tasks prescribed by this CEMP.
Waste Register	<ul> <li>Register to track transport and disposal of waste material. Register to include:</li> <li>Site address and responsible person (for management of waste)</li> <li>Date waste was removed from site.</li> <li>Waste type (classification) and estimated quantity.</li> <li>Waste transporter (company name) and waste transporter vehicle registration.</li> <li>Intended waste disposal facility and licence number.</li> <li>Disposal docket (or similar) number and confirmed disposal volume.</li> <li>Intended waste facility and facility license/approval number.</li> </ul>
Chemical Register	Register of all chemicals stored onsite and their respective Safety Data Sheets
Complaints Register	<ul> <li>Register to record environmental related complaints received throughout the Project.</li> <li>Register to include: <ul> <li>Complainant details</li> <li>Date of complaint</li> <li>How the complaint was made</li> <li>Description of complaint</li> <li>Date Environmental Manager was informed of the complaint.</li> <li>Identification of incidents, non-conformances, and any corrective actions pursuant to the complaint are to be recorded in their respective locations.</li> </ul> </li> </ul>
Incident Register	Register of environmental incidents on the Project.
Sekw'ekw'inexw (Wildlife) Mortality	A database of sekw'ekw'inexw (wildlife) mortality associated with construction of the Project activities.

#### Table 5-20: Environmental Schedules



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### 5.6 ENVIRONMENTAL MAPPING

The Project has developed environmentally valuable resources maps to inform construction planning (Figure 5-1). The maps include:

- Environmental Considerations:
  - 1. Environmentally sensitive areas (e.g., riparian areas)
  - 2. Sekw'ekw'inexw (Wildlife) features (i.e. sp'ákw'us [bald eagle] nest).
  - 3. Protected environmental areas/sites (e.g., heritage structures, protected vegetation).
  - 4. Watercourses (Mill Creek, Woodfibre Creek, 2 x ephemeral creeks), and other relevant topographic features (e.g., drainage channels).

EWPs will contain maps which will include:

- 1. Environmental features
- 2. Mitigation measures and locations (e.g., erosion and sediment control measures, noise protection, visual screens)

### 5.7 WORKING WINDOWS

Working windows are prescribed in Component Environmental Management Plans. If any works are required to be completed outside the prescribed working window, the work will be reviewed by a QP and supplemental mitigation will be developed and implemented in agreement with Skwxwú7mesh Úxwumixw (Squamish Nation), Tsleil-Waututh, and other regulating authority as required.



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Figure 5-1: Environmentally Valuable Resources Maps



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# 6.0 ENVIRONMENTAL INCIDENTS

An environmental incident is defined as an event that caused or has the potential to cause an adverse environmental impact. Examples of Environmental Incidents include, but are not limited to:

- Spills of oil, fuel, hazardous chemicals.
- Unauthorized discharges of deleterious substances into sts'úkwi7 (fish)-bearing stakw (water) bodies (e.g., sediment-laden stakw [water]).
- Unauthorized harmful alteration, disruption, or destruction of aquatic or terrestrial habitat.
- Alteration of, or damage to, heritage or archeological resources.
- Fires related to construction activities.
- Unauthorized release of air pollutants.

Incidents will be immediately reported to the Contractor Environmental Monitor and Manager and Woodfibre LNG Environmental Manager. The Woodfibre LNG Environmental Manager will report the incident to the appropriate authority if required.

Within five (5) working days of the Environmental Incident (or such longer time as the nature of the incident requires) the Contractor will provide to the Woodfibre LNG Environmental Manager a written environmental incident report that includes appropriate photo documentation and describes the:

- Cause and nature of the incident.
- Approximate magnitude and duration of the incident.
- Area or habitat affected.
- Environmental resources affected.
- Description of the sequences events leading up to and following the incident
- Results of any sample analysis taken in conjunction with the incident (e.g., stakw [water] samples).
- Mitigation measures (preventive and corrective actions) to control or limit the activity causing the incident, including a time frame for implementation.
- Additional proposed remedial or corrective actions recommended.
- Depending on the nature of the environmental incident, collection and analysis of samples may be required to characterize the extent and nature of the release.
- Reports will be available to regulators or Indigenous Nations upon request.

# 6.1 SPILLS

A spill is reportable under legislation if:

- an actual or potential contravention of a permit/approval condition occurs; or
- if the volume of a substance spilled, or likely to be spilled, is equal to or greater than the minimum quantity outlined in the BC Spill Reporting Regulation; if the spill of a listed substance enters, or is likely to enter, a body of stakw (water); or
- if the spill may result in a threat to drinking water.



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The following measures shall be applied to reduce the likelihood of an environmental incident related to a spill from occurring.

# 6.1.1 Spill Prevention

- Equipment will be kept clean and in good working condition (e.g., free of leaks, excess oil, and grease). At a minimum, daily inspections of heavy equipment (e.g., drill rigs) must be conducted by the Contractor and documented.
- Where possible, all equipment working on or near stakw (water) will use bio-degradable hydraulic fluid unless the specifications of the equipment preclude its use (e.g., extreme high heat or high-pressure applications).
- Shore based equipment maintenance and fueling will be conducted greater than 30 m from freshwater or shkwen (marine water), or as approved by the EM.
- A minimum of one of the Contractors' staff, trained in spill response and the specifics of the Contractors' Spill Response Plan will be on-site at all times.
- Drip trays will be used under non-mobile stationary equipment.
- Fuel and other hazardous material will be stored at least 50 m from a watercourse or Nexwnéwu7ts Átlk'a7tsem (Howe Sound) unless approved by Woodfibre LNG.
- Used spill response materials and/or contaminated soils will be disposed of at a registered, licensed waste disposal facility.
- A spill containment kit will be accessible onsite and in each piece of equipment.

## 6.2 SPILL RESPONSE

The Contractor must immediately report all spills to Woodfibre LNG.

### 6.2.1 Non-Reportable Spill Response

In the event of a minor, non-reportable spill (Level 1), the general procedure outlined below is to be followed:

- Immediately cease work, if necessary to clean the spill.
- Stop the spill at its source, if safe to do so.
- Notify the Site Manager and Environmental Monitor of the spill.
- Contain and clean the spill in an appropriate manner (e.g., use of spill kits).
- Once cleaned, the Site Manager can remove environmental controls around the spill (as required) to continue work.

## 6.2.2 Reportable Spill Response

In the event of a reportable spill (Level 2 and Level 3), the Contractor will immediately implement the following Spill Response Procedure. The Procedure will be posted at the site office, anywhere hazardous materials are stored and at other strategic locations around site.



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- Assess the Situation Immediately cease work, assess the hazards and safety risk, determine the source and type of material spilled, and secure the area.
- Stop the Source If safe to do so, stop the source of the spill.
- Notify Immediately notify the Site Manager and the Environmental Monitor of the spill.
- **Contain the Spill** Contain the spill in an appropriate manner using absorbent products (e.g., spill pads, socks, booms), drip trays and/or containment berms.
- Clean-up and Dispose Impacted Materials Clean-up impacted material (e.g., soil) and used absorbent products. Dispose of impacted material in appropriate storage or transport offsite in accordance with applicable regulations.
- Report All spills are reportable to the Environmental Monitor, regardless of the size.
- Restock the Spill Kit Replace absorbent materials that were used during clean-up.

The following sections provide additional details on the Spill Response Procedure.

#### **Assess the Situation**

If there is imminent danger of explosion, evacuate the site. If evacuation is required, wait for the emergency responders to give approval to re-enter the site.

To ensure the safety of Project personnel and the public, it is essential that the situation be appropriately assessed. Appropriate assessment includes identification of the following:

- Type of material that has been spilled (e.g., workplace label, Safety Data Sheet).
- The source of the release.
- All sources of ignition and stop them it is safe to do so.
- Estimate the quantity of spilled/released materials.
- Potential and actual receptors (e.g., watercourse(s), ditches, catch basins, etc.).

Depending on the outcome of the assessment, the volume and type of product spilled may require that the area be secured (e.g., flagged off), and access limited.

#### Stop the Source

If safe to do so, immediately stop the flow at the source. This includes, but is not limited to, closing the valve, shutting off the pumps, plugging the leak/hole, or using the shut-off switch. Construction personnel working around equipment with an emergency shut-off switch will be made familiar with the location of this switch through daily tailgate meetings.

#### Notify

Upon identification of a spill that requires containment, clean-up, or disposal of material, immediately notify site supervision, who will notify the Contractor Environmental Monitor. The Contractor Environmental Monitor will immediately notify the Contractor Environmental Manager or delegate who will follow the reporting requirements described below.


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When notifying the Contractor Environmental Monitor or delegate, provide as much information as possible, including, but not limited to:

- Location of the spill
- Type and estimated volume (litres) of substance spilled.
- Cause of the spill.
- Time of incident or incident discovery.
- Initial response actions taken.
- Area and environment (ground or stakw [water]) affected by the spill.
- Names of and contact information for personnel involved with spill discovery and response.
- Include photographs where possible to support the above information.

# **Contain the Spill**

For spills to temíxw (land), contain the spilled materials and prevent spilled materials from flowing away from the spill site or from flowing into watercourses (e.g., creek, drainage ditch, or catch basin). Contain the spill with sorbents, booms, berms, diversion channels, or other non-combustible materials. If necessary, use nearby materials and equipment to build earthen containment berms if available and safe to do so.

For spills of petroleum products to stakw (water), deploy booms or other devices to contain the stakw (water) and/or the spilled materials and prevent further flow of materials into the environment.

For spills that cannot managed and contained internally, the Contractor will retain a third-party spill response company that will be on standby 24/7. Once the third-party spill response company has been retained this Plan will be updated with the name and contact information.

# **Dispose of Used Materials**

The Contractor Environmental Manager or delegate, in consultation with Construction personnel, will determine cleanup options and requirements, including the need to bring in a third-party spill clean-up company. Prior to commencing with clean-up activities on reportable spills, a field level health and safety plan will be developed. This plan will identify the product being cleaned up and the appropriate personal protective equipment (PPE) that is required to be worn. Upon completion of the plan, mobilize recovery equipment and conduct clean-up activities.

Clean-up efforts will continue until such time as the Contractor Environmental Manager or delegate determines that the clean-up has been completed in accordance with regulatory and project requirements. Depending on the nature and extent of spill impacts to be cleaned up, the Contractor Environmental Manager or delegate will consult with a Contaminated Site Specialist, and/or the necessary regulatory agencies to ensure clean-up measures meet their requirements.



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Spill-impacted material including spill abatement materials (e.g., absorbents, impacted berm materials), will be disposed of according to the nature and extent of contamination within the impacted material. For example, small volumes of soil impacted by hazardous liquids will be disposed in a waste receptacle (e.g., drum) specifically designated to receive such materials. The designated receptacle will be identified with signage, covered, and be located at a minimum of 30 m from a watercourse or an environmentally sensitive area, or catch basin connecting to a watercourse or ESA. If it is not possible to locate receptacles 30 m from a watercourse or ESA, then secondary containment will be installed if not already built in. As necessary, the receptacle or the contents of the receptacle will be classified and disposed of at a licensed facility, as transported by an appropriately licensed hauler. The Contractor Environmental Manager or delegate will retain the manifests and/or bills of lading for all hazardous materials transported offsite.

In the event impacted material is to be directly hauled from the site of the spill to a designated facility, the Contractor Environmental Manager or delegate must notify Environmental Emergency Program (EEP) and request an Exemption from a Provincial Environmental Emergency Response Officer (EERO) during normal work hours, or from the on-call EERO for incidents that occur outside normal work hours. An EERO will immediately receive the report from EEP and assess whether a Section 52 Exemption under the Hazardous Waste Regulation (HWR) will be issued. This EERO may impose specific limits to determine to what extent the Section 52 offers relief from the HWR and will communicate this information to the Contractor or their delegate. Should a Section 52 exemption under the HWR be provided by the EERO, the space that normally notes the BC Generator Registration Number, will now have "Sec 52 HWR" followed by the assigned "Dangerous Goods Incident Report (DGIR) number" for the spill incident recorded in that space of the Hazardous Waste Manifest. An alternative to obtaining a Section 52 Exemption is to retain a Contaminated Site Specialist to characterize the material to confirm whether it is contaminated.

Site remediation may be required depending upon a variety of conditions including but not limited to, the size of the spill, type of hazardous substance spilled, and time between release and identification of a spill. The Contractor Environmental Manager and, if necessary, a Contaminated Sites Specialist, will determine whether site assessment and possible remediation is required, as per the Contaminated Sites Regulation (CSR). In the event remediation is required, the party responsible for the spill will complete the work in accordance with applicable law and regulation.

# **Restock the Spill Kit**

The Contractor will maintain an adequate supply of surplus spill response equipment to ensure that spill kits can be replenished after use. It is the responsibility of the crew/supervisor responding to a spill to check the spill kit following clean-up operation and determine whether the spill kit requires immediate restocking. If restocking is required, the Contractor Environmental Monitor must be immediately notified. The Contractor Environmental Monitor will also conduct weekly inspections of spill kits deployed in the field and inform both the Contractor Environmental Manager and construction personnel of spill kit deficiencies. Visual inspections of spill kits must ensure that kits are onsite and readily available (i.e.,



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easily accessible in the case of deployment), and contain the minimum required spill response equipment described in Section 6.3.

The Contractor Environmental Monitor will also conduct follow-up inspections after a known spill event to ensure that the spill kits are adequately stocked.

# 6.3 SPILL KITS

During the Project, all heavy equipment should be equipped with a spill kit. Typical equipment/vehicle spill kit contents are listed below:

- 15 to 20 all-purpose universal absorbent pads.
- Personal protective equipment, including nitrile gloves and eye protection (goggles).
- Heavy duty hazmat disposal bags.
- 2 to 3 absorbent socks.
- Laminated instruction sheets.
- Plug putty to plug punctured drums or tanks.

A barrel/tote spill kit will be placed near construction activities and will be immediately accessible in the event of a significant spill. These typically contain:

- Absorbent pillows
- Bag of granular absorbent
- 6 to 8 containment booms
- Tarp
- Disposable bags
- Neoprene drain cover
- 100 absorbent pads
- Nitril gloves
- Plug putty
- Goggles
- Laminated instruction sheet

# General Spill Response Equipment Cache to be stored in the environmental spill container seacan:

- Communication
- Up-to-date Emergency Spill Response Plan
- Inventory of spill response equipment and locations
- Spill assessment forms (i.e., Environmental, safety, and spill assessments)
- Two-way radios, cell phone or other appropriate radio transmitter/receiver
- Personal Protection and Safety
- PVC gloves, insulated rubber gloves, leather gloves
- Rain gear (pants and jackets), steel toed rubber boots
- Safety glasses, hard hat, hearing protection
- 20:BC rated fire extinguisher, first aid kits
- Hand tools
- Tool kit, drum bung-wrench



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- Pointed and/or broad shovels
- Flagging / barrier tape, traffic cones
- Tie wire, duct tape, 100 m of nylon rope (braided or twisted)
- Containment
- 1L of commercially available bentonite clay or equivalent (in dry or pre-mixed form) used to plug holes in leaking containers
- 3 tarps (large and medium)
- 80-100 empty sandbags (to be filled when requested)
- River boom (30-180 m)
- Re-bar (12 stakes)
- Rope ¼" diameter x 300 ft (200 m)
- 5 PVC pipes, 4" x 12'
- Recovery and Storage
- 3-6 bails of sorbent pads
- 2-4 bails of sorbent booms
- 1 roll of sorbent blanket
- 1,000-gallon (4,546 litre) port-a-tank
- 45-gallon drums open tops with lids
- Plastic drum liners

### Equipment for 500 L truck-box fuel tanks, 200 L drums and pails:

- Personal Protective Equipment
- Rubber steel toe boots, hard hat
- Rain gear, PVC gloves, eye/ splash protection
- Hand Tools
- Shovel
- Flagging / barrier tape
- Containment
- 250ml commercially available bentonite clay (in dry or pre-mixed form) used to plug holes in leaking containers
- 1 tarp (4m x 5m) and rope
- 10-20 empty sandbags (to be filled when needed)
- Plywood (1m x 2m)
- Recovery and Storage
- Plastic drum liners (heavy plastic bags)
- 25 absorbent pads (for petroleum)
- 1 absorbent boom (3m) and rope

#### Equipment for 2,000L – 5,000L tanks & 10,000L fuel trucks:

- Personal Protection and Safety
- Rubber steel toe boots, hard hat
- Rain gear, PVC gloves, eye/ splash protection
- Hand Tools
- 2 shovels
- Tool kit
- Reflective traffic warning triangles
- Containment



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- 1L of commercially available bentonite clay (in dry or pre-mixed form) used to plug holes in leaking containers.
- 2 tarps (medium and large)
- Hatch-cone kit and hatch lock kit
- 3 plastic pails

### Mobile Operations:

- • Plastic drum liners (heavy plastic bags)
- • 25 absorbent pads (for petroleum)
- • 1 sorbent boom (3m) and rope

# 6.4 SPILL REPORTING

All spills and environmental incidents on stakw (water) or Temíxw (land) will be immediately reported to Woodfibre LNG. All reportable spills will be reported by Woodfibre LNG to Emergency Management BC (EMBC) by calling 1-800-663-3456. All spills into a stakw (water) body are reportable and will require notification to DFO, Violations and Reporting at 604-666-3500 in addition to EMBC and Skwxwú7mesh Úxwumixw (Squamish Nation) Environmental Manager. Indigenous groups (as defined in the LNG Project Federal Decision Statement) will also be notified of the spills as soon as possible.

An initial verbal report must be made immediately in the event of a reportable spill or release; the initial report will include the following information, where available without delaying reporting, with additional details provided as they become available:

- Contact information for the individual making the report, the responsible person for the spill, and the owner of the substance spilled.
- Date and time of the spill.
- Location of the spill site.
- Description of the spill site and the surrounding area.
- Description of the source of the spill.
- Type and quantity of the substance spilled.
- Description of the circumstances, cause, and adverse effects of the spill.
- Details of any action taken or proposed to:
  - Identify and evaluate the immediate risks to and impacts on the environment, human health, or infrastructure.
  - Address the threat or hazard caused by the spill.
  - o Assess, monitor, and prevent, or prevent the continuation of, the threat or hazard.
  - o Stabilize, contain, remove, and clean up the spill.
  - Advise persons to take protective action in relation to the spill.
  - Protect, recover, and restore the environment and infrastructure.
  - Identify and evaluate the long-term effect and resolve or mitigate immediate and long-term effects.
  - Names of any provincial, federal, local, and/or Indigenous government agencies at the spill site.
  - The names of other persons or government, federal government, local government or Indigenous government agencies advised about the spill.



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# 6.5 SPILL REPORTING REGULATION

Spill quantities per the BC *Environmental Management Act* Spill Reporting Regulation are included in Table 6-1 below.

Table 6-1:	Reportable	e Spill Quantities	
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Item	Substance Spilled	Specified Amount
1	Class 1, Explosives as defined in section 2.9 of the Federal Regulations	50 kg, or less if the substance poses a danger to public safety
2	Class 2.1, Flammable Gases, other than natural gas, as defined in section 2.14 (a) of the Federal Regulations	10 kg
3	Class 2.2 Non-Flammable and Non- Toxic Gases as defined in section 2.14 (b) of the Federal Regulations	10 kg
4	Class 2.3, Toxic Gases as defined in section 2.14 I of the Federal Regulations	5 kg
5	Class 3, Flammable Liquids as defined in section 2.18 of the Federal Regulations	100 L
6	Class 4, Flammable Solids as defined in section 2.20 of the Federal Regulations	25 kg
7	Class 5.1, Oxidizing Substances as defined in section 2.24 (a) of the Federal Regulations	50 kg or 50 L
8	Class 5.2, Organic Peroxides as defined in section 2.24 (b) of the Federal Regulations	1 kg or 1 L
9	Class 6.1, Toxic Substances as defined in section 2.27 (a) of the Federal Regulations	5 kg or 5 L
10	Class 6.2, Infectious Substances as defined in section 2.27 (b) of the Federal Regulations	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
11	Class 7, Radioactive Materials as defined in section 2.37 of the Federal Regulations	Any quantity that could pose a danger to public safety and an emission level greater than the emission level established in section 20 of the Packaging and Transport of Nuclear Substances Regulations, 2015 (Canada)



ltem	Substance Spilled	Specified Amount
12	Class 8, Corrosives as defined in section 2.40 of the Federal Regulations	5 kg or 5 L
13	Class 9, Miscellaneous Products, Substances or Organisms as defined in section 2.43 of the Federal Regulations	25 kg or 25 L
14	Waste containing dioxin as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
15	Leachable toxic waste as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
16	Waste containing polycyclic aromatic hydrocarbons as defined in section 1 of the hazardous Waste Regulation	5 kg or 5 L
17	Waste asbestos as defined in section 1 of the Hazardous Waste Regulation	50 kg
18	Waste oil as defined in section 1 of the Hazardous Waste Regulation	100 L
19	Waste that contains a pest control product as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
20	PCB Wastes as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
21	Waste containing tetrachloroethylene as defined in section 1 of the Hazardous Waste Regulation	50 kg or 50 L
22	Biomedical waste as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
23	A hazardous waste as defined in section 1 of the Hazardous Waste Regulation and not covered under items 1 – 22	25 kg or 25 L
24	A substance, not covered by items 1 to 23, that can cause pollution	200 kg or 200 L
25	Natural gas	10 kg



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# 7.0 ÍNEXWANTAS (MONITORING), REVIEW AND REPORTING

Environmental inexwantas (monitoring) and review will be completed with consideration for the principles of Adaptive Management. The Adaptive Management process is used to:

- Drive environmental monitoring requirements;
- Monitor the effectiveness of mitigation measures;
- Identify deficiencies in implemented environmental mitigation measures;
- Identify improvements to or additional environmental mitigation measures;
- Track and report on environmental non-conformances; and
- Track and report on corrective actions.

# 7.1 ENVIRONMENTAL ÍNEXWANTAS (MONITORING) PLAN

Environmental Ínexwantas (Monitoring) will include regular, periodic, or continuous ínexwantas (monitoring) of environmental mitigation measures and observations required to determine effectiveness and performance of implemented mitigation measures and identify the requirement for additional or amended mitigation measures.

As part of the Project Environmental Management Framework, an Environmental Monitoring Plan shall be developed by the Contractor. The Environmental Monitoring Plan will consolidate all environmental Ínexwantas (Monitoring) requirements as detailed in the Project certificates, permits, conditions, commitments, management plans, and the EPPs. The Monitoring Plan will also describe how the ínexwantas (monitoring) will be conducted (e.g., frequency, location), roles and responsibilities for ínexwantas (monitoring) activities, trigger values (where applicable) for ínexwantas (monitoring) activities, reporting mechanism and frequency and compliance values.

The Contractor Environmental Monitor is responsible for implementing the Environmental Monitoring Plan. Woodfibre LNG's Environmental Monitor is responsible for auditing the Environmental Monitoring Plan for compliance as described in Section 7.2.

At a minimum, ínexwantas (monitoring) records will include:

- Date;
- Location;
- Description of activities;
- · Description of environmental risks and respective mitigation measures implemented;
- Summary of effectiveness of implemented mitigation measures
- Deficiency list; and
- Non-conformances.

Weekly Environmental Monitoring Reports are to be submitted by the Contractor Environmental Monitor to Woodfibre LNG and Skwxwú7mesh Úxwumixw (Squamish Nation) (see Section 7.4.2).



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# 7.2 COMPLIANCE AUDITS

In addition to the inexwantas (monitoring) and reporting requirements documented in the Monitoring Plan, surveillance and compliance audits will be undertaken. The Woodfibre LNG Environmental Monitor will conduct surveillance audits at regular intervals (e.g. minimum bi-weekly or more frequently based on environmental sensitivity of activities being conducted) to verify that work is proceeding in accordance with statutory requirements and the CEMP. The Woodfibre LNG Environmental Manager will conduct compliance audits of the environmental management systems quarterly, at a minimum.

The environmental auditing programme (surveillance and compliance) will be established by the Woodfibre Environmental Manager for the Project consisting of:

- Compliance with approvals permits and licences relevant to construction activities;
- Compliance with the CEMP, component plans and procedures;
- Stakeholder consultation and response;
- Contractor compliance requirements;
- Environmental training records; and
- Environmental records, inexwantas (monitoring) and inspection records.

An environmental inexwantas (monitoring) checklist will be developed to be used for auditing purposes

Compliance audit reports/actions will be provided to the Contractor Environmental Manager. Results of the surveillance audits will be documented in the Woodfibre LNG weekly (nexwantas (monitoring) reports which will be provided to the Contractor Environmental Manager.



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# 7.3 CONTRACTOR NON-CONFORMANCES & CORRECTIVE ACTIONS

All non-conformances of work activities identified (during inexwantas [monitoring] activities or otherwise) will be documented and reported to the Contractor Environmental Manager to identify the cause(s), and to identify required action(s) to prevent recurrence.

Woodfibre LNG and the Contractor Environmental Monitor will be notified immediately or at first available opportunity following notification of any affected authorities. The Contractor Environmental Monitor has the authority to stop Project work if works do not fully comply with environmental approval requirements and stopping works is necessary to prevent or reduce significant harm. Woodfibre LNG will notify EAO of any non-conformance with the Certificate within 48 hours of becoming aware of any such non-conformance, or immediately for any non-conformance that may cause significant adverse effects.

The Contractor Environmental Monitor is responsible for immediately taking steps to detect the cause of the non- conformance and advise on preventative action necessary to prevent recurrence. The Contractor Environmental Manager shall implement the action requests within the agreed time-period.

Action requests will be implemented within a period reasonably required by the Contractor Environmental Manager or relevant authority. Corrective actions shall be monitored for effectiveness by the Contractor Environmental Monitor. Duration of (nexwantas (monitoring) and reporting requirements shall be confirmed with the Contractor Environmental Monitor on an action-by-action basis.

The Contractor Environmental Manager will develop new or alternative mitigation measures, with input from a QP if required, considering any recommendations or feedback provided, if the measures identified in this CEMP prove ineffective or may be improved to avoid or reduce adverse environmental effects. The implementation of the proposed change in mitigation measures is subject to the approval and judgement of the Contractor Environmental Monitor to ensure compliance with environmental objectives and regulatory obligations. Following approval, the change in mitigation measures will be documented and communicated to relevant personnel. Inexwantas (Monitoring) of the effectiveness of the new or alternative mitigation measures will be conducted.

Non-conformances and corresponding corrective actions shall be recorded on the Corrective Actions Register (Appendix B). Verification of successful implementation of corrective actions is required for each action. Verification may include sampling results, photographic evidence, or other such items which appropriately demonstrate effective implementation of the action.

Woodfibre LNG will prepare monthly reports detailing compliance with approval requirements. Reports will be retained by Woodfibre LNG throughout the construction phase of the Project and for five years after commencing the operations phase.



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# 7.4 REPORTING

# 7.4.1 Monthly Compliance Reports

EAC Schedule B Compliance Reports will be submitted to the EAO Compliance and Enforcement staff at least 30 days prior to the start of construction. Monthly reports will be developed throughout the Construction phase of the Project. The Compliance Reports will include:

• Status of Compliance with the EAC.

Reports will be retained by Woodfibre LNG through the Construction phase of the Project and for five years after commencing operations.

# 7.4.2 Weekly Environmental Ínexwantas (Monitoring) Reports

The Contractor Environmental Monitor will produce daily records that will be complied into weekly (nexwantas (monitoring) reports to ensure ongoing effectiveness of implemented mitigation measures. The Contractor weekly (nexwantas (monitoring) reports are to be submitted to Woodfibre LNG. Woodfibre LNG's Environmental Monitor will produce weekly Environmental (nexwantas (Monitoring) Reports that summarize all (nexwantas (monitoring) activities and quality assurance assessments (contractor weekly (nexwantas [monitoring] reports to be appended or similar). Evidence of (nexwantas (monitoring) results is to be included where relevant (e.g., photographs, sampling results).

Woodfibre LNG will provide weekly EM reports to Skwxwú7mesh Úxwumixw (Squamish Nation) when available, and to other Indigenous Groups if interest is expressed.



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# 7.5 CEMP REVIEW

Woodfibre LNG Environmental Personnel shall review this CEMP (and associated documents) and update where required, at the following frequency:

• Annually (12 months) from commencement of construction works.

In addition, Woodfibre LNG shall review and update this CEMP (and associated documents) and update where required, if:

- A significant actual or potential incident resulting in or having potential to result in significant environmental harm occurs;
- Environmental (nexwantas (monitoring) determines implemented environmental management measures are not effectively managing Project environmental risks; or
- Material change to the Project scope, construction methodology, or any other change that occurs that is material in nature.

# 7.6 MATERIAL CHANGE

Written request to the Chief Executive Assessment Officer for determination of material change must be made if Project activities, components, and/or locations described in Schedule A (Project Activities) of the EAC (E15-02) require change, amendment, or are otherwise identified as inconsistent.

Written request must include, where relevant, details regarding:

- A description of the change to the Project;
- The proximity of the proposed location to the location referenced in Schedule A;
- The purpose of the proposed changes to Project activities described in the change request;
- Whether the proposed activities were considered in any regulatory or approval process that concluded after the date of the EAC;
- Whether or to what extent the proposed activities or similar activities were considered in the EA;
- Whether, after any consultation with Indigenous Groups undertaken or any further such consultation directed or undertaken by the Executive Director, the proposed activities may adversely affect Indigenous Interests that were not (i) considered in the Application and assessment, or (ii) considered in any regulatory or approval processes that concluded after the date of this Certificate;
- Description and analysis of the adverse environmental effects of the change(s);
- Any modified or additional measures to mitigate any environmental effect and additional follow-up requirements resulting from the change; and
- Whether and to what extent the conditions in the EAC constitute practical means of preventing or reducing any potential adverse effects that will, or are reasonably likely to, result from the proposed activities.

In addition, consultation with Skwxwú7mesh Úxwumixw (Squamish Nation) via the Rights and Title department is required prior to material change to determine if the change is material to the existing scope of this CEMP and / or Project approval.



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If any material change(s) occur from the initial schedule, a revised implementation schedule will be provided to the Agency and anyone designated pursuant to section 89 of the *Canadian Environmental Assessment Act, 2012* at least 30 days prior to the implementation of the change.

A template for assessment of Material Change and determining updates to this CEMP and supporting documents is provided in Appendix K. As required, figures, inexwantas (monitoring) results, or other details are to be appended to the template.



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Appendix A Table of Concordance

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# Table A-1: FDS Approval Conditions (relevant to this CEMP)

Note – Within the concordance tables agency and regulator names and Aboriginal Groups are used verbatim from the condition text indicated; FLNR is now MOF, OGC is now BCER and Aboriginal Groups are now referenced as Indigenous Nations

No.	Condition	CEMP Reference
	FDS	
2.1	The Proponent shall, throughout all phases of the Designated Project, ensure that its actions in meeting the conditions set out in this Decision Statement are considered in a careful and precautionary manner, promote sustainable development, are informed by the best available information and knowledge, including community and Aboriginal traditional knowledge, are based on validated methods and models, are undertaken by qualified individuals, and have applied the best available economically and technologically feasible mitigation measures.	Section 1.0
	The Proponent shall, where consultation is a requirement of a condition set out in this Decision Statement:	
	<ul> <li>(2.2.1) provide a written notice of the opportunity for the party or parties being consulted to present their views and information on the subject of the consultation;</li> </ul>	
2.2	• (2.2.2) provide sufficient information and a reasonable period of time to permit the party or parties being consulted to prepare their views and information; Page 5 of 15	Section 4.0
	• (2.2.3) provide a full and impartial consideration of any views and information presented by the party or parties being consulted; and	
	(2.2.4) advise the party or parties that have provided comments on how the views and information received have been considered by the Proponent	
2.3	Where consultation with Aboriginal groups is a requirement of a condition set out in this Decision Statement, and prior to initiating that consultation, communicate with each Aboriginal group to determine the manner by which to satisfy the consultation requirements referred to in condition 2.2, including methods of notification, the type of information and the period of time to be provided when seeking input, the process for full and impartial consideration of any views and information presented and the means by which each Aboriginal group will be informed of how the views and information received have been considered by the Proponent.	Section 4.2
2.4	Where a follow-up program is a requirement of a condition set out in the Decision Statement, undertake monitoring and analysis to verify the accuracy of the environmental assessment as it pertains to the particular condition and/or to determine the effectiveness of any mitigation measure(s). Determine whether additional mitigation measures are required based on the monitoring and analysis undertaken and if additional mitigation measures are required, implement the additional mitigation measures and monitor them accordingly.	Section 7.0
2.6	The Proponent shall, commencing in the reporting year that implementation of the conditions set out in this Decision Statement begins, prepare an annual report that sets out:	N/A

No.	Condition	CEMP Reference
	<ul> <li>(2.6.1) the activities undertaken in the reporting year to comply with each of the conditions set out in this Decision Statement;</li> </ul>	
	• (2.6.2) how the Proponent complied with condition 2.1;	
	<ul> <li>(2.6.3) for conditions set out in this Decision Statement for which consultation is a requirement, how the Proponent considered any views and information that the Proponent received during or as a result of the consultation;</li> </ul>	
	• (2.6.4) the results of the follow-up program requirements identified in conditions 3.14, 4.3, 6.5, 7.2 and 9.3; and	
	(2.6.5) any additional mitigation measures implemented or proposed to be implemented by the Proponent, as determined under condition 2.4.	
2.7	The Proponent shall submit to the Agency the annual report referred to in condition 2.6, including an executive summary in both official languages, no later than March 31 following the reporting year to which the annual report applies.	N/A
2.8	Publish on the Internet, or any medium which is widely publicly available, the annual report and the executive summaries referred to in conditions 2.6 and 2.7, any plan(s) to offset the loss of fish and fish habitat referred to in condition 3.11, the archaeological and heritage resources management plan referred to in condition 8.1, the decommissioning plan referred to in condition 10.1, the annual report referred to in condition 10.3, the reports referred to in conditions 11.4, the communication plan referred to in condition 11.5, the implementation schedule referred to in condition 12.1 and any update(s) or revision(s) to the above documents, upon submission of these documents to the parties referenced in the respective conditions. The Proponent shall keep these documents publicly available for 25 years following the end of operation or until the end of decommissioning of the Designated Project, whichever comes first. The Proponent shall notify the Agency and Aboriginal groups of the availability of these documents once they are published	N/A
2.9	Notify the Agency and Aboriginal groups no later than 60 days after the day on which there is a transfer of ownership, care, control, or management of the Designated Project in whole or in part.	Section 4.4
2.10	Consult with Aboriginal groups prior to initiating any material change(s) to the Designated Project that may result in adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s)	Section 4.3
2.11	In notifying the Agency pursuant to condition 2.10, the Proponent shall provide the Agency with an analysis of the adverse environmental effects of the change(s) to the Designated Project, as well as the results of the consultation with Aboriginal groups.	Section 4.3
3.1	Conduct in-water construction activities during timing windows of least risk for the area, unless otherwise agreed to by relevant federal and provincial authorities. If in-water construction activities cannot be conducted during timing windows of least risk, the Proponent shall develop and implement additional mitigation measures, in consultation with Fisheries and Oceans Canada and Aboriginal groups, to protect fish during sensitive life stages	Section 5.3.7 Appendix C
3.2	The Proponent shall implement measures to mitigate adverse environmental effects of the Designated Project on fish and fish habitat from changes to water quality during all phases of the Designated Project. The mitigation measures shall include:	Section 5.3.3 Appendix I

No.	Condition	CEMP Reference
	<ul> <li>(3.2.1) implementing erosion control measures and sediment control measures during all phases of the Designated Project.</li> <li>(3.2.2) revegetating disturbed riparian areas, using native plant species, after construction.</li> <li>(3.2.3) using silt control measures around in-water construction activities.</li> <li>(3.2.4) preventing wet concrete or cement-laden water from entering the marine environment.</li> </ul>	
3.3	<ul> <li>The Proponent shall implement measures to mitigate adverse environmental effects of the Designated Project on fish, including mortality, physical injury and behavioral change, during all phases of the Designated Project. The mitigation measures shall include:</li> <li>(3.3.1) isolating instream construction activities in Mill Creek from adjacent streamflow.</li> <li>(3.3.2) salvaging and relocating fish during instream construction activities requiring isolation of freshwater fish habitat in Mill Creek.</li> <li>(3.3.3) maintaining minimum flow in Mill Creek and Woodfibre Creek to support fish and fish habitat.</li> <li>(3.3.4) designing, installing, and operating a water intake structure to avoid or reduce the risk of injury and mortality to fish in Mill Creek and Woodfibre Creek</li> </ul>	Section 5.3.7 Appendix C
3.4	Prevent or avoid the destruction of fish, or any potentially harmful effects to fish habitat, during all phases of the Designated Project when using explosives in or around water frequented by fish.	Section 5.3.7 Appendix E
3.5	Remove existing creosote-treated piles in a manner to prevent the mobilization of deleterious substances in water frequented by fish and taking into consideration navigational safety.	Section 5.3.8 Appendix D
3.6	Design, install and operate any marine water intake to avoid or reduce the incidental capture of fish through entrainment and impingement, including the risk of entrainment of Pacific herring ( <i>Clupea pallasi</i> ) larvae.	Section 5.3.7 Appendix C
3.7	Design, install, and operate any marine discharge diffuser to prevent the deposit of a deleterious substance in water frequented by fish.	Section 5.3.10 Appendix E
3.8	<ul> <li>The Proponent shall establish and maintain marine mammal underwater noise impact areas for all construction activities to avoid adverse behavioural change in or injury to marine mammals. In doing so, the Proponent shall:</li> <li>(3.8.1) identify each construction activity that generates underwater noise levels greater than 160 decibels and 190 decibels at a reference pressure of one micropascal and the periods of time when each activity occurs.</li> <li>(3.8.2) for cetaceans, establish the boundary of the marine mammal underwater noise impact area for each construction activity identified in condition 3.8.1 at the distance from the activity at which the underwater noise level is predicted to reach 160 decibels.</li> </ul>	Section 5.3.9 Appendix F

No.	Condition	CEMP Reference
	• (3.8.3) for all other marine mammals, including pinnipeds, establish the boundary of the marine mammal underwater noise impact area for each construction activity identified in condition 3.8.1 at the distance from the activity where underwater noise levels reach 190 decibels or at a distance of 125 metres, whichever is the greater distance.	
	• (3.8.4) employ a marine mammal observer, who is a qualified individual, and require that person to detect and report the presence of marine mammals in the marine mammal underwater noise impact areas identified in conditions 3.8.2 and 3.8.3 during construction activities identified in condition 3.8.1.	
	<ul> <li>(3.8.5) stop or not start the construction activities identified in condition 3.8.1 if a cetacean is detected in the underwater noise impact area identified in condition 3.8.2 or if a pinniped is detected in the underwater noise impact area identified in condition 3.8.3, and only begin or continue the construction activities identified in condition 3.8.1 once the cetacean or pinniped has moved out of their respective underwater noise impact area.</li> </ul>	
	(3.8.6) implement mitigation measures, including sound dampening technology and soft-start procedures, to reduce construction noise levels in the marine mammal underwater noise impact areas identified in conditions 3.8.2 and 3.8.3.	
3.9	Require that LNG vessels associated with the Designated Project respect speed profiles applicable to the operation of the Designated Project, subject to navigational safety, to prevent or reduce the risks of collisions between LNG vessels and marine mammals	Section 5.3.16
3.10	Require that LNG vessels and tug operators associated with the Designated Project report collisions with marine mammals in Howe Sound to the Canadian Coast Guard within two hours of a collision occurrence, and notify Aboriginal groups in writing	Section 5.3.16
3.11	In consultation with Fisheries and Oceans Canada and Aboriginal groups, develop and implement any plan(s) required to offset the loss of fish and fish habitat associated with the carrying out of the Designated Project	Appendix E
	For any fish habitat offset areas proposed in any offsetting plan(s) under condition 3.11, and prior to submitting the offsetting plan to Fisheries and Oceans Canada, the Proponent shall determine whether there are adverse effects:	
	(3.12.1) on migratory birds and their habitats	
	<ul> <li>(3.12.2) on terrestrial species, including amphibians and reptiles, and their habitats</li> <li>(3.40.2) on kints domentiate strictly and their habitats</li> </ul>	
0.40	<ul> <li>(3.12.3) On listed species at risk and their habitats</li> <li>(3.12.4) on the current use of lands and resources for traditional nurposes by Aboriginal neonles</li> </ul>	N1/A
3.12	<ul> <li>(3.12.5) on the flow rates, water depths or water widths that may affect the passage of a vessel, including a vessel used by Aboriginal peoples in the context of their current use of lands and resources for traditional purposes</li> </ul>	N/A
	• (3.12.6) on physical and cultural heritage and structure, site or thing that is of historical, archaeological, paleontological or architectural significance to Aboriginal peoples	
	(3.12.7) from potential sources of contamination including polycyclic aromatic hydrocarbons, dioxins, furans, copper, lead, zinc, tri-n-butyltin, arsenic, cadmium and methyl-mercury in the receiving environment.	
3.13	Avoid or lessen adverse effects on elements in conditions 3.12.1 to 3.12.7	N/A

No.	Condition	CEMP Reference
3.14	In consultation with Fisheries and Oceans Canada and Aboriginal groups, develop, prior to construction, and implement, during all phases of the Designated Project, a follow-up program to verify the accuracy of the environmental assessment and to determine the effectiveness of the mitigation measures identified under conditions 3.1 to 3.10.	Appendix E
4.1	Carry out all phases of the Designated Project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall take into account Environment and Climate Change Canada's Avoidance Guidelines. The Proponent's actions in applying the Avoidance Guidelines shall be in compliance with the Migratory Birds Convention Act, 1994 and with the Species at Risk Act.	Section 5.3.12 Appendix H
4.3	Develop, prior to construction and in consultation with Aboriginal groups, and implement, during all phases of the Designated Project, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the environmental effects of the air cooling system on migratory birds and to determine the effectiveness of the mitigation measures used to avoid harm to migratory birds, their eggs and nests, including the measures used to comply with condition 4.1.	N/A
6.1	The Proponent shall implement noise and air emission reduction measures during all phases of the Designated Project to avoid or reduce adverse environmental effects on human health, including: (6.1.2) following best management practices and guidance from the British Columbia Oil and Gas Commission's Noise Control Best Practices Guidelines.	Section 5.3.2.2
6.2	The Proponent shall, in consultation with Aboriginal groups and other parties who may be adversely affected by the noise caused by the Designated Project, develop, prior to construction, and implement, during all phases of the Designated Project, a mechanism for receiving noise complaints associated with the Designated Project. The Proponent shall respond in a timely manner to any noise compliant(s) received.	Section 5.3.2.2
6.3	The Proponent shall install and manage exterior lighting from all components of the Designated Project and during all phases of the Designated Project to prevent excessive emanation of light, by following the International Commission on Illumination's CIE 150:2003 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations, while meeting marine transportation and aviation safety requirements.	Section 0
6.4	Monitor water quality and sediment, using as a benchmarks the Canadian Council of Ministers of the Environment's Water Quality Guidelines for the Protection of Aquatic Life and Interim Sediment Quality Guidelines for the Protection of Aquatic Life, and shall communicate any exceedance(s) of the Guidelines to relevant government authorities and Aboriginal groups, and implement additional mitigation measures to remedy those exceedances.	Section 5.3.8 Appendix D
6.5	The Proponent shall, in consultation with Aboriginal groups and relevant health authorities, develop, prior to construction, and implement a follow-up program to verify the assessment predictions regarding the bioavailability and bioaccumulation of contaminants in fish consumed by humans. The follow-up program shall include:	N/A
	<ul> <li>(6.5.1) prior to the commencement of marine in-water construction activities, establishing baseline conditions in the tissue of shellfish and groundfish for polycyclic aromatic hydrocarbons, polychlorinated dibenzo-p-dioxins and furans,</li> </ul>	

No.	Condition	CEMP Reference
	copper, lead, zinc, tributyltin, arsenic, cadmium and methylmercury and using this information to update the human health risk assessment for the consumption of shellfish and groundfish;	
	<ul> <li>(6.5.2) during marine in-water construction activities, monitoring the re-suspension and bioavailability of polycyclic aromatic hydrocarbons, dioxins, furans, copper, lead, zinc, tri-n-butyltin, arsenic, cadmium and methyl-mercury in the tissue of shellfish and groundfish; and</li> </ul>	
	<ul> <li>(6.5.3) if a potential for human health risk is identified in the updated human health risk assessment for the consumption of shellfish and groundfish referred in condition 6.5.1 or through monitoring referred in condition 6.5.2, conducting additional sampling of polycyclic aromatic hydrocarbons, dioxins, furans, copper, lead, zinc, tri-n-butyltin, arsenic, cadmium and methyl-mercury in the tissue of shellfish and groundfish to confirm the assessment predictions regarding the bioavailability and bioaccumulation of contaminants in fish consumed by humans. If required, additional sampling shall start immediately upon completion of marine in-water construction activities and continue for one year following completion of marine in-water construction activities. The Proponent shall communicate the results of the follow-up program, including the results of any additional sampling, to Aboriginal groups.</li> </ul>	
	The Proponent shall, in consultation with Aboriginal groups and other marine users, develop, prior to construction, and implement, during all phases of the Designated Project, a communication protocol related to marine transportation. The communication protocol shall include procedures and practices for sharing information between the Proponent and Aboriginal groups and other marine users on the following:	
	<ul> <li>(7.1.1) location and timing of construction activities associated with the Designated Project-related, location and timing of ferry and water taxi traffic associated with the Designated Project and location of marine access route to be used by LNG vessels associated with the Designated Project in Howe Sound;</li> </ul>	
- 4	• (7.1.2) location and timing of traditional activities by Aboriginal groups and of activities by other marine users;	0 11 5 0 10
7.1	<ul> <li>(7.1.3) Designated Project-related safety procedures, such as navigation aids, updated navigational charts and use of escort tugboats;</li> </ul>	Section 5.3.16
	(7.1.4) areas where navigation may be controlled for safety reasons;	
	<ul> <li>(7.1.5) speed profiles and schedules applicable to the operation of LNG vessels associated with the Designated Project; and</li> </ul>	
	<ul> <li>(7.1.6) ways in which Aboriginal groups and other marine users can provide feedback to the Proponent about adverse environmental effects related to navigation caused by activities associated with the Designated Project, including construction activities and the operation of ferry and water taxi and LNG vessels.</li> </ul>	
7.2	Project and location of the marine access route to be used by LNG vessels associated with the Designated Project in Howe Sound; location and timing of traditional activities by Aboriginal groups and of activities by other marine users; Designated Project-related safety procedures, such as navigation aids, updated navigational charts and use of escort tugboats; areas where navigation may be controlled for safety reasons; speed profiles and schedules applicable to the operation of LNG vessels associated with the Designated Project; and ways in which Aboriginal groups and other marine users can provide	Section 5.3.16

No.	Condition	CEMP Reference
	feedback to the Proponent about adverse environmental effects related to navigation caused by activities associated with the Designated Project, including construction activities and the operation of ferry and water taxi and LNG vessels	
7.3	Prior to construction, consult with Aboriginal groups to seek opportunities for marine and land access around the Project area for Aboriginal groups to practice their current use of land and resources for traditional purposes and to pursue socioeconomic opportunities, subject to safety requirements in the Project area.	N/A
7.4	Provide Aboriginal groups with the implementation schedule and any update(s) or revision(s) to that schedule as stated in condition 12 at the same time the Proponent provides the schedule to the Agency	Section 4.2
	The Proponent shall, in consultation with Aboriginal groups, develop, prior to construction, and implement, during all phase of the Designated Project, an archaeological and heritage resources management plan for the Designated Project. The archaeological and heritage resources management plan shall take into account the <i>British Columbia's Handbook for the Identification and Recording of Culturally Modified Trees</i> . The archaeological and heritage resources management plan shall include:	Section 5.3.15
8.1	• (8.1.1) a description of structures, sites or things of historical, archaeological, paleontological or architectural significance (including culturally modified trees) that may be encountered by the Proponent during construction	
	<ul> <li>(8.1.2) procedures and practices for on-site monitoring of construction activities that may affect a structure, site or thing of historical, archaeological, paleontological or architectural significance (including culturally modified trees) and for the identification and removal of that structure, site or thing.</li> </ul>	
	<ul> <li>(8.1.3) a chance find protocol, should a previously unidentified structure, site or thing of historical, archaeological, paleontological or architectural significance (including culturally modified trees) be discovered by the Proponent or brought to the attention of the Proponent, during construction, by an Aboriginal group or another party.</li> </ul>	
9.1	Conduct pre-clearing surveys to determine the distribution of little brown myotis (Myotis lucifugus), and establish, in consultation with relevant government authorities, buffer zones around active hibernacula and active roosts.	Section 5.3.12 Appendix H
9.2	Prior to construction and throughout all phases of the Designated Project, install and maintain roosting structures to offset any loss of little brown myotis (Myotis lucifugus) roosting habitat.	Section 5.3.12 Appendix H
9.3	Develop and implement a follow-up program to monitor the little brown myotis (Myotis lucifugus) usage of buffer zones and roosting structures to determine the effectiveness of the mitigation measures throughout all phases of the Designated Project and to verify the accuracy of the environmental assessment as it pertains to the environmental effects of the air cooling system on little brown myotis (Myotis lucifugus).	Section 5.3.12 Appendix H
11.1	Take all reasonable measures to prevent accidents or malfunctions that may result in adverse environmental effects.	Section 5.3.1
11.2	Prior to construction, the Project Proponent shall consult with Aboriginal groups on measures to be implemented to prevent accidents or malfunctions.	Section 5.3.1

No.	Condition	CEMP Reference
11.3	Prior to construction and in consultation with relevant federal and provincial authorities and Aboriginal groups, develop an emergency response plan in relation to the Designated Project	Section 5.3.1
11.4	<ul> <li>In the event of an accident or malfunction with the potential to cause adverse environmental effects, the Proponent shall implement the emergency response plan referred to in condition 11.3 and shall:</li> <li>(11.4.1) notify relevant federal and provincial authorities and Aboriginal groups of the accident or malfunction as soon as possible and, in writing, the Agency;</li> <li>(11.4.2) implement immediate measures to mitigate any adverse environmental effects associated with the accident or malfunction;</li> <li>(11.4.3) submit a written report to the Agency no later than 30 days after the day on which the accident or malfunction took place. The written report shall include:</li> <li>(11.4.3.1) a description of the accident or malfunction and of its adverse environmental effects;</li> <li>(11.4.3.2) the measures that were taken by the Proponent to mitigate the adverse environmental effects of the accident or malfunction;</li> <li>(11.4.3.3) any views received from relevant federal and provincial authorities and Aboriginal groups with respect to the accident or malfunction, its adverse environmental effects, and any additional measures required by the Proponent to mitigate residual adverse environmental effects; and</li> <li>(11.4.3.5) details concerning the implementation of the emergency response plan referred to in condition 11.3;</li> <li>(11.4.4) submit a written report to the Agency no later than 90 days after the day on which the accident or malfunction took place, on the changes made to avoid a subsequent occurrence of the accident or malfunction in adverse environmental effects; and</li> </ul>	Section 5.3.1
11.5	Develop and implement a communication plan in consultation with Aboriginal groups. The communication plan shall be developed prior to construction and shall be implemented and maintained up to date during all phases of the Designated Project. The plan shall include: the types of accidents or malfunctions requiring a notification by the Proponent to the respective Aboriginal groups; the manner by which Aboriginal groups shall be notified by the Proponent of an accident or malfunction and of any opportunities for the Aboriginal groups to assist in the response to the accident or malfunction; and the contact information of the representatives of the Proponent that the Aboriginal groups may contact and of the representatives of the Proponent provides notification.	Section 5.3.1
12.1	Submit an implementation schedule for conditions contained in this Decision Statement to the Agency, or anyone designated pursuant to section 89 of the <i>Canadian Environmental Assessment Act, 2012</i> , at least 30 days prior to the start of	N/A

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No.	Condition	CEMP Reference
	construction. The Page 15 of 15 implementation schedule shall indicate the commencement and completion dates for each activity relating to conditions set out in this Decision Statement.	
12.2	The Proponent shall submit an update to this implementation schedule in writing to the Agency, or anyone designated pursuant to section 89 of the <i>Canadian Environmental Assessment Act, 2012</i> , every two years on or before March 31, until completion of the activities	N/A
12.3	Provide the Agency, or anyone designated pursuant to section 89 of the <i>Canadian Environmental Assessment Act, 2012</i> , with a revised implementation schedule if any material change(s) occur from the initial schedule referred to in condition 12.1 or any subsequent update(s). The Proponent shall provide the revised implementation schedule at least 30 days prior to the implementation of the change.	N/A
	Maintain a written record, or a record in an electronic format compatible with that used by the Agency, and retain and make available that record to the Agency, or anyone designated pursuant to section 89 of the <i>Canadian Environmental Assessment Act, 2012</i> , at a facility close to the Designated Project in Canada (local facility). The record shall include information related to the implementation of the conditions set out in this Decision Statement, and the results of all associated monitoring, including:	
13.1	<ul> <li>(13.1.1) the place, date and time of any sampling, as well as techniques, methods or procedures used;</li> <li>(13.1.2) the dates and the analyses that were performed:</li> </ul>	N/A
	<ul> <li>(13.1.3) the analytical techniques, methods or procedures used in the analyses;</li> </ul>	
	• (13.1.4) the names of the persons who collected and analyzed each sample and documentation of any professional certification(s) relevant to the work performed that they might possess; and	
	(13.1.5) the results of the analyses.	
13.2	The Proponent shall retain and make available upon demand to the Agency, or anyone designated pursuant to section 89 of the <i>Canadian Environmental Assessment Act, 2012</i> , the information referred to in condition 13.1 at a facility in Canada close to the Designated Project (or at another location within Canada and agreed upon by the Agency, should the local facility no longer be maintained). The information shall be retained and made available throughout construction and operation, and for 25 years following the end of operation or until the end of decommissioning of the Designated Project, whichever comes first.	N/A

# Table A-2: EAC Approval Conditions (relevant to this CEMP)

No.	Condition	CEMP Reference
EAC		

No.	Condition	CEMP Reference
Condition 1	<b>Environmental Monitor</b> Prior to commencing Construction, the Holder must retain the services of a Qualified Professional as an Environmental Monitor throughout the Construction phase of the Project. The Holder must give the Environmental Monitor the authority to stop Project work if the Environmental Monitor determines that the Holder has not, or may have not, complied fully with the Certificate requirements and the Environmental Monitor determined that stopping work is necessary to prevent or reduce significant harm. The Environmental Monitor must be retained by the Holder throughout Construction. The Holder must notify EAO of any non-compliance with the Certificate within 72 hours of the Environmental Monitor or the Holder becoming aware of any such non-compliance, or immediately for any non-compliance that may cause significant adverse effects. The Holder must prepare monthly reports on the Holder's compliance with this Certificate. These reports must be retained by the Holder through the Construction phase of the Project and for five years after commencing Operations.	Section 3.2.1.1
Condition 2	<ul> <li>Consultation Regarding Management Plans</li> <li>Where a condition of this EA Certificate requires the Holder to consult particular party or parties regarding the content of a management plan, the Holder must: <ul> <li>Provide written notice to each such party that:</li> <li>includes a copy of the management plan;</li> <li>invites the party to provide its views on the content of such management plan; and</li> <li>indicates: if a timeframe providing such views to the Holder is specified in the relevant condition of this EA Certificate, that the party may provide such views to the Holder within such time frame; or if a timeframe providing such views to the Holder in the relevant condition of this EA Certificate, that the party may provide such views to the Holder within such time frame; or if a timeframe providing such views to the Holder in the relevant condition of this EA Certificate, specifies a reasonable period during which the party may submit such views to the Holder;</li> <li>Undertake a full and impartial consideration of any views and other information provided by a party in accordance with the timelines specified in a notice given pursuant to paragraph (a);</li> <li>Provide a written explanation to each party that provided comments in accordance with a notice given pursuant to paragraph (a) as to: i) how the views and information provided by such party to the Holder received have been considered and addressed in a revised version of the management plan; or ii) why such views and information have not been addressed in a revised version of the management plan; and</li> <li>Maintain a record of consultation with each such party regarding the management plan; and e) Provide a copy of such consultation record to the EAO, the relevant party, or both, promptly upon the written request of the EAO or such party.</li> </ul> </li> </ul>	Section 7.6
Condition 3	Satisfaction of Agencies Where a condition of this EA Certificate requires the Holder develop a management plan or other document to the satisfaction of one or more agencies (which may include the EAO), after submitting a draft of the management plan or other document to the agency or agencies listed in the relevant condition the Holder will not need to make further revisions to, or obtain further approval of, such management plan or other document unless any such listed agency	N/A

No.	Condition	CEMP Reference
	communicates to the Holder that further revisions to such management plan or other document are required. Any such required changes or approval must be pursued by the Holder in accordance with the timelines and in a manner that is acceptable to the agency that made such request.	
	Where a condition of this EA Certificate requires the Holder implement a management plan to the satisfaction of the EAO, the Holder must ensure that it implements such management plan in a manner and on timelines that are acceptable to the EAO. If changes or further approval are requested, the Holder must continue to implement the then current management plan unless the Holder is advised to the contrary by the EAO.	
	Air Quality	
	The Holder must develop, in consultation with MOE, MOH, OGC, VCH and Aboriginal Groups, an air quality mitigation and monitoring plan, which must include at a minimum:	
	<ul> <li>Measures to monitor liquefaction facility air emissions and contaminants of concern for sources modelled in the Application;</li> </ul>	N/A
Condition 4	<ul> <li>Procedures for regular reporting of liquefaction facility air emission data gathered, including reporting to the appropriate government agencies, Aboriginal Groups and the public; and</li> </ul>	
Condition 4	<ul> <li>An adaptive management plan to address effects of the Project related to air quality from liquefaction facility emissions in the event:</li> </ul>	
	<ul> <li>Those effects are not mitigated to the extent identified in the Application, or</li> <li>Effects related to air quality occur that were not predicted in the Application.</li> </ul>	
	A Qualified Professional must develop the plan and supervise the implementation of the plan. The Holder must provide the plan to EAO, MOE, MOH, OGC, VCH and Aboriginal Groups no less than 30 days prior to the Holder's planned date to commence Commissioning. The Holder must implement the plan to the satisfaction of EAO.	
	Instream Flow Requirements	
	The Holder must require a Qualified Professional to prepare an instream flow requirements (IFR) report for Mill Creek and Woodfibre Creek, in consultation with FLNR and OGC. The IFR report must be completed at least 60 days prior to the commencement of Construction. The IFR report must include:	
	An interim IFR regime and a procedure for establishing a long-term IFR regime for Mill Creek;	Section 5.3.7 Appendix C
Condition 5	An IFR regime for Woodfibre Creek for the duration of anticipated water withdrawal for Woodfibre Creek;	
	<ul> <li>A record of the data utilized to support the IFR regimes for Mill Creek and Woodfibre Creek;</li> </ul>	
	<ul> <li>Monitoring locations, methods, and procedures for the IFR regimes for Mill Creek and Woodfibre Creek;</li> </ul>	
	<ul> <li>The content and frequency for monitoring reports on the implementation of the IFR program and a list of agencies, including, but not limited to, FLNR, OGC and Aboriginal Groups, that will receive copies of the reports; and</li> </ul>	

No.	Condition	CEMP Reference
	<ul> <li>The process by which the Holder can revise the IFR, including any consultation with OGC, FLNR, and EAO that would occur in connection with any such revisions.</li> </ul>	
	The Holder must monitor and report on instream flow in Mill Creek during Construction and Operations phases of the Project provided that water withdrawals continue. The Holder must also monitor and report on instream flow in Woodfibre Creek during the Construction phase or, if water withdrawals from Woodfibre Creek extend beyond the Construction period, for the duration of water withdrawal from Woodfibre Creek. Monitoring and reporting for both Creeks must be done in accordance with the IFR report for Mill Creek and Woodfibre Creek required by this condition. The Holder must obtain approval from the EAO for the IFR report prior to implementing the IFR regimes.	
	The Holder must provide a copy of the IFR report to Aboriginal Groups within seven days of the report being approved by the EAO.	
	Marine Fish and Fish Habitat	
	The Holder must develop, in consultation with DFO and Aboriginal Groups, a marine fish and fish habitat management and monitoring plan that must include at a minimum:	
	• The means by which the mitigation measures in the Application (Section 22, Table 22-1) and the recommendations in the Herring Survey Summary Report, section 4.0 (May 2015) will be implemented;	
	<ul> <li>Identification of reduced risk work windows and the work that will occur within these windows;</li> </ul>	
Condition 8	<ul> <li>Identification of any work that will occur outside of the reduced risk work windows, and measures to mitigate impacts to fish and fish habitat; and</li> </ul>	Section 5.3.10 Appendix E
	An adaptive management plan to address the effects of the Project on fish and fish habitat in the event:	
	<ul> <li>those effects on fish and fish habitat are not mitigated to the extent identified in the Application, or</li> <li>effects on fish and fish habitat occur that were not predicted in the Application.</li> </ul>	
	A Qualified Professional must develop the plan and supervise the implementation of the plan. The Holder must provide the plan to EAO, DFO, OGC and Aboriginal Groups no less than 30 days prior to the Holder's planned date to commence Construction. The Holder must implement the plan to the satisfaction of EAO.	
	Marine Mammals	
Condition 9	The Holder must develop, in consultation with DFO, OGC and Aboriginal Groups, a marine mammal management and monitoring plan for Construction that must at a minimum:	Section 5 3 9
	<ul> <li>Set out the means by which the mitigation measures related to Construction in the Application Table 22-1 under the heading "Marine Mammals" will be implemented;</li> </ul>	Appendix F
	<ul> <li>Identify the geographic areas where, and periods of time when, Construction could cause injury to marine mammals;</li> </ul>	

No.	Condition	CEMP Reference
	<ul> <li>Identify the geographic areas where, and periods of time when, Construction could cause behavioural change to marine mammals;</li> </ul>	
	<ul> <li>Identify the time periods when elevated marine mammal occupancy is anticipated within the areas of potential injury to marine mammals or areas of potential behavioural change;</li> </ul>	
	<ul> <li>Specify the role of a Qualified Professional in observing and reporting marine mammals in the areas of potential injury to marine mammals during Construction;</li> </ul>	
	<ul> <li>Specify the Construction activities (e.g. blasting, pile driving) which must stop or not start if a marine mammal is sighted in the areas of potential injury to marine mammals, and not re-start until the marine mammal has moved out of the relevant area, to the satisfaction of the Qualified Professional; and</li> </ul>	
	<ul> <li>Specify mitigation measures for Construction underwater noise that will prevent or reduce behavioural change or injury to marine mammals.</li> </ul>	
	A Qualified Professional must develop the plan and supervise the implementation of the plan. The Holder must provide the plan to EAO no less than 60 days prior to the Holder's planned date to commence Construction in the marine environment. The Holder must provide the plan to EAO, DFO, OGC and Aboriginal Groups no less than 30 days prior to the Holder's planned date to commence Construction in the marine environment. The Holder must provide the plan to EAO, DFO, OGC and Aboriginal Groups no less than 30 days prior to the Holder's planned date to commence Construction in the marine environment. The Holder must implement the plan to the satisfaction of EAO	
	Invasive Plant Management	
Condition 10	The Holder must develop, in consultation with FLNR, OGC and Squamish Nation an invasive plant management plan that describes measures to prevent, monitor and control the establishment and spread of invasive plant species in the terrestrial portions of the Certified Project Area during Construction and Operations.	Section 5.3.11
	A Qualified Professional must develop the plan and supervise the implementation of the plan. The Holder must provide the plan to EAO, FLNR, OGC, and Squamish Nation no less than 30 days prior to the Holder's planned date to commence Construction. The Holder must implement the plan to the satisfaction of EAO.	Appendix G
	Wildlife – Construction	
	The Holder must develop, in consultation with EC, FLNR, OGC and Aboriginal Groups, a wildlife management and monitoring plan for Construction that must at a minimum:	
Condition 11	<ul> <li>Set out the means by which the wildlife mitigation measures related to Construction in the Application Table 22-1 (sections 5.12 – 5.14 and 5.17) will be implemented;</li> </ul>	Section 5.3.12 Appendix H
	<ul> <li>Include results of completed marbled murrelet presence and habitat surveys, plans for additional presence surveys, and specify mitigation to avoid or reduce adverse effects of the Project on birds, including marbled murrelets and marbled murrelet habitat, to the satisfaction of a Qualified Professional.</li> </ul>	
	<ul> <li>Include mitigation measures to avoid or reduce human-wildlife conflicts and to avoid or reduce direct and indirect wildlife mortality;</li> </ul>	

No.	Condition	CEMP Reference
	<ul> <li>Specify the mitigation measures that will be implemented for the protection of wildlife habitat features that are encountered within the terrestrial portions of the Certified Project Area;</li> </ul>	
	<ul> <li>Specify mitigation measures to identify and avoid clearing high-value nesting habitat for western screech-owl;          <ul> <li>Specify the consideration of migratory bird timing windows when scheduling planned flaring events, where feasible from a technical and safety perspective to the satisfaction of a Qualified Professional, to minimize the risk of mortality and injury to birds during Commissioning; and</li> </ul> </li> </ul>	
	<ul> <li>Design a monitoring and follow-up program with respect to impacts to wildlife within the terrestrial portions of the Certified Project Area during Construction. A Qualified Professional must develop the plan and supervise the implementation of the plan.</li> </ul>	
	The Holder must provide the plan to EAO, EC, FLNR, OGC and Aboriginal Groups no less than 30 days prior to the Holder's planned date to commence Construction. The Holder must implement the plan to the satisfaction of EAO. Marbled murrelet survey results must be provided to EC and FLNR prior to site clearing.	
	Local Economic Opportunities	
Condition 13	The Holder must design and deliver programs to support local and Aboriginal employment and contracting opportunities, skills training and education. The Holder must provide Project information related to job opportunities and subcontracting business opportunities to the affected communities and Chambers of Commerce within the labour market Local Assessment Area identified in the Application, including holding at least one job fair in Squamish at least 30 days prior to Construction. At the time of submitting compliance reports required by this EA Certificate's clause 1, the Holder must report to EAO on the implementation of these programs. The programs must be implemented during Construction.	N/A
	Community Services and Infrastructure	
	The Holder must develop, in consultation with Aboriginal Groups, local governments, provincial government infrastructure and service providers, a plan to adaptively manage and monitor effects on services and infrastructure delivered by provincial agencies and local governments. The scope of the plan is for effects that are directly attributable to the Project, and related to Construction. The plan must include the mitigation measures in the Application Table 22-1 under the heading "infrastructure and community services". The plan must include specific actions to address the following:	
Condition 14	<ul> <li>Communication with potentially affected Aboriginal Groups, local governments and regional districts, and provincial government infrastructure and service providers regarding Project activities and actions; and</li> </ul>	N/A
	An approach for monitoring and reporting on the effectiveness of the mitigation measures set out in the plan.	
	The Holder must provide the plan to EAO no less than 60 days prior to the Holder's planned date to commence Construction.	
	The Holder must not commence Construction until the plan has been approved by EAO, unless otherwise authorized by EAO. Once approved, the Holder must also provide the approved plan to EAO, local governments, and provincial government infrastructure and service providers, and Aboriginal Groups. The Holder is required to implement the plan to	

No.	Condition	CEMP Reference
	the satisfaction of EAO, as of the start of Construction until two years after the completion of Construction, unless otherwise directed by EAO.	
	Transportation	
	The Holder must develop, in consultation with MOTI and the DOS, a traffic control management plan and a traffic impact assessment. The traffic impact assessment must be developed in accordance with MOTI's Planning and Designing Access to Developments manual (2009 or as updated from time to time). The traffic impact assessment must include, at a minimum, an analysis of the Project's effects on vehicular traffic and infrastructure and proposed mitigation measures for the Highway 99 and Darrell Bay Road intersection.	
	The traffic management plan must at a minimum:	
Condition 15	<ul> <li>Identify measures to mitigate the impacts of Project-related transportation during Construction on the safety of other users and the efficiency of the transportation network on Highway 99 and the Darrell Bay ferry location;</li> </ul>	Section 5.3.17
	<ul> <li>Include measures for traffic control, public communications, incident management and response, and plan implementation; and</li> </ul>	
	<ul> <li>Identify measures to reduce the number of vehicles of Project employees commuting on Highway 99 and at the Darrell Bay ferry location.</li> </ul>	
	The Holder must provide the traffic control management plan to EAO, MOTI, and the DOS no less than 30 days prior to the Holder's planned date to commence Construction. The Holder must implement the plan to the satisfaction of EAO.	
	Marine Transportation – Construction	
	The Holder must develop, in consultation with TC, DFO, CCG, Pacific Pilotage Authority, the DOS, BC Ferries, Squamish Terminals and Aboriginal Groups a marine transport management and monitoring plan for Construction. The plan must identify at a minimum:	
	• The means by which the marine transportation mitigation measures related to Construction in the Application Table 22-1 under the heading "marine transport" (section 7.3, M7.3-1 to M7.3-17) will be implemented;	
	<ul> <li>Construction activities that have the potential to interfere with marine navigation;</li> </ul>	
Condition 16	<ul> <li>Existing and traditional navigational routes, fishing areas, habitat areas, harvesting areas, commercial shipping use, recreational and tourism use, Aboriginal Groups' use, and any associated timing windows;</li> </ul>	Section 5.3.16
	<ul> <li>Actions to inform affected stakeholders and Aboriginal Groups of potential interference with marine navigation as a result of Construction activities;</li> </ul>	
	<ul> <li>Methods to coordinate activities with other marine users, including FortisBC;</li> </ul>	
	<ul> <li>Methods to minimize displacement of marine-based recreational activities;</li> </ul>	
	<ul> <li>Mitigation measures to reduce disruption of marine navigation in Howe Sound as a result of Construction activities; and</li> </ul>	

No.	Condition	CEMP Reference
	• Methods to monitor the effects of the Holder's shipping activities on marine users during Construction. The Holder must provide the plan to EAO, TC, CCG, Pacific Pilotage Authority, DFO, the DOS, BC Ferries, Squamish Terminals and Aboriginal Groups no less than 30 days prior to the Holder's planned date to commence Construction. The Holder must implement the plan to the satisfaction of EAO.	
Condition 19	<ul> <li>Engagement with Forest Tenure Holders</li> <li>At least six months prior to the Holder's planned date to commence Construction, the Holder must engage with tenure holders:</li> <li>that hold a form of agreement listed in Section 12 of the Forest Act as of at least six months prior to the Holder's planned date to commence Construction, and</li> <li>(ii) that are affected by the Project. The purpose of this engagement is to seek opportunities for future ongoing access for forestry operations, while ensuring the safety and security of the site.</li> <li>The Holder must provide a report to FLNR and EAO on the results of such engagement at least 30 days prior to the Holder's planned date to commence Construction.</li> </ul>	N/A
Condition 20	<ul> <li>Visual Quality The Holder must develop and implement a visual quality management plan in consultation with FLNR, OGC, Aboriginal Groups, Tourism Squamish and the Sea to Sky Gondola that must at a minimum: </li> <li>Specify mitigation measures to reduce the level of contrast, and provide for additional screening of land-based infrastructure to blend infrastructure with the existing landforms in the context of surrounding landscape features; Specify mitigation measures to promote screening, including but not limited to, the establishment of new native vegetation; Specify the selection of natural colours and flat or low glare external finishes on buildings and structures; Include measures to monitor and maintain natural screening and external finishes, whereby the reduced the level of contrast is maintained for minimal visibility of infrastructure; and Specify approach to engaging with Aboriginal Groups, Tourism Squamish, and the Sea to Sky Gondola Limited Partnership. The Holder must consult with BC Hydro and FortisBC on the final designs of the Woodfibre sub-station and Eagle Mountain-Woodfibre Pipeline projects and determine whether additional mitigation measures are required to ensure that cumulative effects to visual quality are no greater than identified in the Application.</li></ul>	Section 5.3.14
Condition 21	<b>Environmental Management Plans</b> The Holder must develop, in consultation with FLNR, OGC and Aboriginal Groups, a construction environmental management plan and an operations environmental management plan in accordance with section 13.2 of the Application. All requirements pertaining to Mill Creek in section 13.2 of the Application must also be applied to Woodfibre Creek. All	Entire CEMP

No.	Condition	CEMP Reference
	requirements pertaining to the certificate of compliance or onsite landfill in section 13.2 of the Application are excluded from the construction environmental management plan and operations environmental management plan. A Qualified Professional must develop the plan and supervise the implementation of the plan. The Holder must provide the construction environmental management plan to EAO, FLNR, OGC and Aboriginal Groups no less than 30 days prior to the Holder's planned date to commence Construction. The Holder must provide the operation environmental management plan to EAO, FLNR, OGC and Aboriginal Groups no less than 60 days prior to the Holder's planned date to commence Operations. The Holder must develop and implement the plans to the satisfaction of EAO.	
Condition 22	Aboriginal Consultation The Holder must continue to engage Aboriginal Groups for the life of the Project. Engagement must include information sharing and discussion of site-specific mitigation measures, including the development and implementation of plans and the conditions of this Certificate. The Holder must provide, to the satisfaction of EAO, an Aboriginal consultation summary report no later than:	Section 4.2
	Two years after the commencement of Construction; and One year after the commencement of Operations. The Holder must share the Aboriginal consultation summary report with Aboriginal Groups for no less than 30 days review and comment prior to providing it to EAO.	
Condition 23	Aboriginal Monitoring The Holder must, through discussion with Aboriginal Groups, seek to provide opportunities for members of Aboriginal Groups to participate in monitoring activities identified in the plans in this Table of Conditions that are occurring within their asserted traditional territory. In the Aboriginal consultation reports required by Condition # 22 to EAO, the Holder must include information regarding the opportunities provided and the participation of members of Aboriginal Groups in monitoring activities.	N/A
Condition 24	Public Consultation         The Holder must continue to engage the public for the life of the Project. Consultation and engagement must include information sharing and discussion of site-specific mitigation measures, including the development and implementation of plans and the conditions of this Certificate. The Holder must provide, to the satisfaction of EAO, a public consultation summary report no later than:         Two years after the commencement of Construction; and         One year after the commencement of Operations.	Section 4.0
Condition 25	<b>Public Communications</b> The Holder must establish and maintain for the life of the Project a dedicated publicly available Project website. The website must be used for communicating information on Project status in order to promote public awareness of ongoing activities and Construction schedules, and to ensure general safety in and surrounding the Project area. Information available on the website must be kept up to date to achieve the above goals	Section 4.0

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# Table A 3: Skwxwú7mesh Úxwumixw (Squamish Nation) Approval Conditions (relevant to this CEMP)

No.	Condition	CEMP Reference
Skwxwú7mesh (	Squamish)	
4.3 -Condition #3 (a)	Prior to commencing construction, a water management plan for Mill Creek will be developed and will develop interim minimum instream flow releases (IFRs) on Mill Creek to protect aquatic life as well as the procedure for establishing long-term IFRs, if required in accordance with Squamish Condition #3: 4.3 (c).	Section 5.3.7 Appendix C
Skwxwú7mesh (Squamish) Condition #3: 4.3 (b) Mill Creek	The Holder will engage with Squamish Nation through the Environmental Working Group in establishing the minimum IFRs, which will be initially determined based on the standard-setting guidelines defined by <i>Instream Flow Thresholds for Fish and Fish Habitat as Guidelines for Reviewing Proposed Water Uses</i> (Hatfield et al 2003)	Section 5.3.7 Appendix C
Skwxwú7mesh (Squamish) Condition #3: 4.3 (c) Mill Creek	The IFR regime in Mill Creek will not be changed during the critical stream flow periods (CSFP) prior to completion of a detailed study, based on Lewis et al. (2004), and will review the results of any associated studies with Squamish Nation through the Environmental Working Group.	Section 5.3.7 Appendix C
Skwxwú7mesh (Squamish) Condition #3: 4.3 (d) Mill Creek	If minimum instream flow is not available on Mill Creek during CSFP for both fish habitat and Project needs, alternative water sources will be identified to meet requirements subject to emergency provisions for fire suppression. Unless otherwise shown through site-specific studies, the CSFP will be from August 1 through October 31.	Section 5.3.7 Appendix C
Skwxwú7mesh (Squamish) Condition #3: 4.3 (e) Mill Creek	Any on-site hydrometric data collection and long-term compliance monitoring shall be undertaken in accordance with the <i>Manual of British Columbia Hydrometric Standards</i> (RISC 2009).	Section 5.3.7 Appendix C
	Environmental Management Programs	
4.6 - Condition #6 (a)	Woodfibre LNG Limited is committed to undertaking EMP in accordance with the conditions attached to the Environmental Assessment Certificate and the Decision Statement and will Co-Manage such EMP according to the terms and conditions under this section 4.6.	Section 1.0 Section 1.5
4.6 - Condition #6 (b)	Woodfibre LNG will provide a list of EMP to Squamish Nation through the Woodfibre Environment Working Group, and within 30 days of receipt of the EMP list, Squamish Nation will inform Woodfibre LNG which of the EMP are Non-regulated EMP (as defined below) and which of the EMP are Regulated EMP (as defined below).	Section 4.1

No.	Condition	CEMP Reference
4.6 - Condition #6 (d)	Non-regulated EMP remain subject to consultation requirements with Squamish Nation. Woodfibre LNG agrees to make all EMP available electronically at the same times such plans are made available to relevant regulatory agencies. Where Squamish Nation provides comments in writing on such EMP within 30 days of receipt, Woodfibre LNG will reasonably accommodate the requests for revision or clarification; where Woodfibre LNG considers the requested revisions to be unnecessary or impracticable, rationale will be provided to Squamish Nation in writing. Should there be a dispute arising from this section 4.6(d) either Party may submit the matter to the dispute resolution process set out in section 8.1.	Section 4.1
	In respect of the Regulated EMP, Woodfibre LNG will submit the Regulated EMP to Squamish Nation for approval, which will be undertaken based on the following principles:	
	<ul> <li>The process and timing for consultation and approval will be aligned with the process for approval through the applicable regulatory agency including the review period;</li> </ul>	
	<ul> <li>In the event that multiple regulatory agencies are involved with varying review periods, Squamish Nation's review period shall align with the longest option;</li> </ul>	
	• For cases where there is no regulatory agency-defined review period, Squamish Nation will review the request for approval and provide a written decision in a timely manner and in any event within 30 days of receipt of the request for approval (the "Decision Period"), and if Squamish Nation does not provide written notice to Woodfibre LNG by the end of the Decision Period, the consultation will be deemed to have been approved;	
4.6 - Condition #6 (e)	<ul> <li>Squamish Nation may either approve the Regulated EMP or withhold its approval pending incorporation by Woodfibre LNG of amendments recommended by the Squamish Nation to the Regulated EMP;</li> </ul>	Section 4.1
	<ul> <li>If Squamish Nation withholds approval subject to the incorporation of the recommended amendments, Woodfibre LNG will work with Squamish Nation through the Woodfibre Environmental Working Group to incorporate such amendments into the Regulated EMP and re-submit the Regulated EMP to Squamish Nation for approval; and</li> </ul>	
	• Should there be a dispute arising from this section 4.6(e) either Party may submit the matter to the dispute resolution process set out in section 8.1 and if the reasonableness of the amendments is at issue the expert or expert panel shall consider the following when making its decision: whether the amendment has a material impact on constructability, cost, operability, safety, environment, or schedule; whether the amendment creates unacceptable risk or legal liability for the Project; whether the amendment conflicts with any legal, regulatory, or pre-existing contractual obligations of Woodfibre LNG; whether the Woodfibre LNG response to the proposed amendment(s) conforms to Good Industry Practice; and any other information the expert or expert panel considers relevant.	
	Marine Mammals	
4.10 - Condition #10 (a)	Woodfibre LNG agrees to conduct a noise monitoring program that will involve collecting data from a hydrophone deployed within the Project area, the purpose of which program will be:	Appendix F
	To collect local data on underwater sound levels;	
	<ul> <li>To supplement existing data on presence, frequency and seasonality of use by marine mammals;</li> </ul>	

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No.	Condition	CEMP Reference
	<ul> <li>To establish baseline data against which to compare ambient underwater sound levels and marine mammal use throughout the life of the Project; and</li> </ul>	
	• Prior to commencement of construction, prepare, for approval by Squamish Nation in accordance with section 4.6, an Underwater Noise Management Plan and a Marine Mammals Management Plan that include mitigation measures and monitoring programs design to address potential residual adverse effects on marine mammals from underwater noise.	
4.10 - Condition #10 (b)	Woodfibre LNG will participate in studies of sub-lethal acoustic impacts on marine mammals by sharing its noise monitoring data and marine mammal monitoring data collected in respect of the Project, where and when such data are requested by qualified and reputable researchers. Woodfibre LNG also agrees to adopt in its adaptive management framework progressive strategies to minimize cumulative impacts on underwater noise on marine mammals. Woodfibre LNG's funding commitment for this work will be as set out in the IBA.	Appendix F

# Table A 4: EA Application Commitments

No.	Condition	CEMP Reference
M5.2-1	Woodfibre LNG Limited will prepare and implement a Dust Control Plan for construction, operation, and decommissioning activities. The objectives of this plan will be to prevent and control dust emissions. Monitoring will be conducted to make sure that mitigation measures are properly implemented and are effective. Mitigation measures to reduce the emission of fugitive particulate matter (i.e., dust) may include activities such as	Section 5.3.2.1
	Watering of exposed surfaces;	
	Reducing the height of material drops;	
	Covering stockpiles; and	
	Controlling the speed of onsite off-road vehicles.	
M5.3-1	Woodfibre LNG Limited will develop and implement best management practices to reduce GHG emissions. Woodfibre LNG Limited will be compliant with regulations and permitting and associated reporting requirements (see Section 14.0 Compliance Reporting). Best management practices will include the following:	Section 5.3.2
	Reduce emissions from mobile equipment (such as through ongoing vehicle maintenance and reducing the idling time of vehicles).	
	Develop and implement a leak detection and repair program for Project facilities.	

No.	Condition	CEMP Reference
	Develop control philosophies to minimize the amount of flared and vented gases and select chemicals which minimize contributions to global warming.	
	These best mitigation approaches will address regulatory developments on both a provincial and federal level through the incorporation of new processes and operations. Annual compliance reports will track the implementation and success of the best management practices. Compliance will be demonstrated through reporting emission to the BC MOE, according to the regulation outlined in Appendix 5.3-1 Greenhouse Gas Methodology. Leak detection will follow the recommendations of the American Petroleum Institute (2013) and leak repair will follow the engineering design of the Project.	
M5.4-1	Woodfibre LNG Limited will conduct earthmoving equipment construction using heavy earthmoving equipment between 0700 hours and 2200 hours to reduce the potential effect of construction sound on nearby dwellings whenever possible.	Section 5.3.2.2
M5.4-2	Woodfibre LNG Limited will schedule high noise activities to reduce disruption whenever possible.	Section 5.3.2.2
M5.4-3	Woodfibre LNG Limited will establish heavy equipment muster points at least 500 m from any receptor.	Section 5.3.2.2
M5.4-4	Woodfibre LNG Limited will fit equipment with standard mufflers or silencers and keep these mufflers and silencers in good working order.	Section 5.3.2.2
M5.4-5	Woodfibre LNG Limited will take advantage of acoustical screening from existing onsite barriers to shield dwellings from construction equipment sound.	Section 5.3.2.2
	Woodfibre LNG Limited will develop and implement an Erosion Prevention and Sediment Control Plan as part of the Construction Environmental Management Plan (CEMP). Existing applicable guidelines will be followed as appropriate to mitigate erosion and sediment transport and include the following:	
	Environmental Protection and Management Guide (OGC 2013)	
	Land Development Guidelines for the Protection of Aquatic Habitat (DFO 1993)	
	<ul> <li>Develop with Care Environmental Guidelines for Urban and Rural Land Development in British Columbia (MOE 2014)</li> </ul>	
	Standards and Best Practices for Instream Works (MWLAP 2004)	Section 5.3.3
M5.8-1	The following erosion and sediment control measures will be implemented at the site during the construction and decommissioning phases and included in the Erosion Prevention and Sediment Control Plan (refer to Section 13.0 Summary of Proposed Environmental and Operation Management Plans and Follow- up Programs):	Appendix I
	<ul> <li>Activities within riparian management areas, a 30-m-wide area on either side of both Mill Creek and Woodfibre Creek, will be minimized. Erodible material will not be stockpiled in these areas and no refueling will occur within these areas.</li> </ul>	
	<ul> <li>Vegetation cover will be maintained wherever possible. Disturbed areas adjacent to watercourses will be re- vegetated as soon as possible to prevent surface erosion or downstream water quality effects.</li> </ul>	
	Overland flows will be diverted from undisturbed areas away from or around construction areas.	

No.	Condition	CEMP Reference
	<ul> <li>Erosion and sediment control measures, including silt fences, filter fabric, straw bales, gravel filter dikes, sedimentation ponds, perimeter ditches, cut- off swales or other water quality management measures, will be selected, implemented, monitored, maintained, and repaired as required.</li> </ul>	
	<ul> <li>Sediment pond(s) will be incorporated as required, and appropriately designed in accordance with current guidelines to meet site conditions and requirements. Sediment ponds will be maintained until construction or decommissioning is completed and the affected areas are sufficiently stabilized and re-vegetated to minimize erosion risk or sediment transport at the site as a result of construction activities.</li> </ul>	
	• Construction wastes, overburden, soil, or any other substances potentially deleterious to riparian, aquatic or marine habitat will be stored or disposed of in such a manner as to prevent entry to riparian, aquatic or marine areas.	
	<ul> <li>No erodible materials will be stockpiled within riparian management areas. Soil stockpiles will be diked, sloped, and seeded or appropriately covered to minimize erosion. If temporary stockpiles are constructed then appropriate erosion prevention measures will be installed and regularly maintained until these stockpiles are decommissioned or seeded. Spoil will be managed in accordance with the appropriate Project-specified regulatory approvals or applicable legislation, regulations, and guidelines prior to the completion of construction activities.</li> </ul>	
	<ul> <li>Erosion and sediment control measures will be maintained and any required changes made promptly to ensure they are working effectively. An inspection and maintenance program will be developed and followed as part of the Erosion Prevention and Sediment Control Plan.</li> </ul>	
	Water collected in temporary sediment control structures will be analyzed and its quality determined. If water quality meets acceptable guidelines, it will be discharged into Howe Sound; otherwise it will be treated prior to discharge.	
M5.8-3	Woodfibre LNG Limited will mitigate effects to freshwater from instream works required during the construction and maintenance of the Mill Creek intake by implementing the following strategies:	
	<ul> <li>Instream construction activities will be completed in isolation of stream flows (e.g., flow diverted around work area) as much as possible.</li> </ul>	Section 5.3.7
	<ul> <li>All fill materials or materials that will contact watercourse waters, including shoreline works or surfacing, will be clean and free of organic material and deleterious substances.</li> </ul>	Appendix C
	Water intakes will be designed and constructed following existing regulation and BMPs, such as <i>Best Management Practices for Installation and Maintenance of Water Line Intakes</i> (MOE 2006).	
M5.8-4	Woodfibre LNG Limited will retain a qualified Environmental Monitor to oversee the implementation of the selected mitigation measures. The Environmental Monitor will evaluate the performance of mitigation measures (e.g., through water quality sampling) and will have the authority to suspend activities that are causing an unexpected adverse effect, or potentially contravening environmental legislation. The Environmental Monitor will be given the authority to immediately suspend all activities that are resulting, or could imminently result, in the release of sediment or other deleterious substances to the watercourses in the Project area.	Section 3.2.1.1
No.	Condition	CEMP Reference
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M5.8-5	Woodfibre LNG Limited will develop and implement a water quality monitoring program for Mill Creek and Woodfibre Creek. Information to be included within this program will include sample sites, frequency of sampling, and parameters to be monitored.	Section 5.3.7 Appendix C
M5.9-1	Minimum instream flow releases (IFRs) will be established by a qualified professional. When required, the water diversions will be interrupted or reduced as required to maintain minimum or higher instream flows.	Section 5.3.7 Appendix C
M5.9-2	Woodfibre LNG Limited will limit clearing of native vegetation communities to the extent required for construction of Project facilities. Where feasible, temporary construction features, such as laydown areas, will be located on paved or previously disturbed areas to reduce clearing. In addition, areas to be cleared will be delineated to help limit clearing to what is planned. Reducing the clearing area to the minimum amount required to accommodate the Project footprint will reduce the direct loss of vegetation communities and wildlife habitat. Monitoring will be conducted to ensure that mitigation measures are properly implemented and effective.	Section 5.3.11
M5.10-1	<ul> <li>Woodfibre LNG Limited will prepare and implement a Marine Works Management Plan to minimize sediment disturbance during construction and prevent discharge or runoff containing high TSS, concrete wash water and fuel from entering the marine environment. The plan will contain (but not be limited to) the following measures:</li> <li>All construction operations will be monitored by a qualified Environmental Monitor who will be onsite during the high risk construction and demolition activities to determine whether the works are resulting in any adverse effects on marine environment. Frequency of monitoring will be detailed in a monitoring plan. Any adverse effects will be reported to DFO by WLNG.</li> <li>Marine works will be conducted during the least risk fisheries work window specific by DFO for the region if practical. If the work window cannot be followed, additional mitigation measures including the advice provided by DFO (Measures to Avoid Causing Harm to Fish and Fish Habitat (2013b)) will be implemented. The work window for Howe Sound is currently August 16 - January 31 (DFO 2014).</li> <li>Work activities will cease and DFO will be contacted, if aggregations of herring (e.g., herring spawn) and salmonids (e.g., smolts) are observed within the work area.</li> <li>Marine works will be conducted in a manner to prevent the discharge or introduction, either direct or indirect, of soil, sediment or sediment laden water, turbid water or any other deleterious substance into the marine environment. All discharges from construction activities shall meet BC water quality guidelines (MOE 2009).</li> <li>Construction materials, excavation wastes, overburden, sediment, or other substances potentially deleterious to marine life shall be disposed of off-site in accordance with regulatory requirements, or placed in such a manner by the marine anvironment.</li> </ul>	Section 5.3.8 Appendix D Appendix E
	<ul> <li>The contractor shall follow Best Management Practices for Pile Driving and Related Operations (BCMPDCA and DFO 2003).</li> </ul>	

No.	Condition	CEMP Reference
	• Vessels and other equipment involved in pile driving and construction activities will be positioned in a manner that will prevent damage to the seafloor and shoreline.	
	<ul> <li>Where required, turbidity monitoring will be implemented during all pile drilling/driving activities, to determine that turbidity levels in the marine environment do not exceed established water quality regulatory criteria during Project works.</li> </ul>	
	• The following water quality criteria will be applied based on BC water quality guidelines (MOE 2009) with regards to discharge or introduction of sediment or sediment- laden water in the marine environment:	
	1. Turbidity:	
	<ul> <li>change from background of 2 NTU when the background level is less than 8 NTU</li> </ul>	
	<ul> <li>change from background of 5 NTU when background is 8-50 NTU</li> </ul>	
	<ul> <li>change from background of 10% when background is more than 50 NTU</li> </ul>	
	2. TSS:	
	<ul> <li>change from background of 5 mg/L when background is less than 25 mg/L</li> </ul>	
	<ul> <li>change from background of 10 mg/L when background is 25-100 mg/L</li> </ul>	
	<ul> <li>change from background of 10% when background is more than 100 mg/L</li> </ul>	
	<ul> <li>If the criteria outlined above is exceeded as a result of Project-related activities, these works, or activities will be halted until measures that will result in compliance with the criteria outlined above are put in place.</li> </ul>	
	• Where the sediment control criteria cannot be practically met, the work areas and activities contributing to these conditions will be isolated from tidal and flowing waters. This may include use of silt curtains and other silt control measures.	
	<ul> <li>For dredging activities, the following mitigation measures will be followed:</li> </ul>	
	1. Prior to dredging, the perimeter of the dredge area will be identified, so that work occurs within the confines of the project area. Tools such as real-time kinematic positioning controls (e.g., differential GPS) may be used to assist in positioning.	
	<ol> <li>Employ sediment containment and water filtering devices on the barge to meet the TSS and turbidity criteria outlined above. This may require containment and treatment of barge dewatering effluent that exceeds the criteria.</li> </ol>	
	3. Water quality monitoring will be implemented during dredging works to verify that the turbidity and TSS criteria are being met and enable management decisions to be made in the event that the performance criteria are not met.	
	<ol> <li>The contract specifications will include operational controls to minimize disturbance of substrates (e.g., making additional dredge passes rather than dragging a bucket or beam to level the dredge surface, not stockpiling material underwater, controlling the rate of ascent and descent of the bucket).</li> </ol>	

No.	Condition	CEMP Reference
	<ol> <li>The dredged material barge will not be overloaded beyond the top of the side rails to minimize loss of dredged material from the barge and to prevent barge listing or instability.</li> </ol>	
	The barge will not come to rest on the seafloor (no grounding) (spuds may be used to anchor the barge).	
	Woodfibre LNG Limited will prepare and implement a Concrete Works Management Plan as part of the CEMP. The following mitigation measures will be included in this plan to mitigate potential effects to the marine environment from concrete works:	
	<ul> <li>When pouring concrete, all spills of fresh concrete will be prevented from entering into the marine environment at the site.</li> </ul>	
	<ul> <li>If the concrete is being placed with a concrete pump, all hose and pipe connections will be sealed and locked properly so that lines will not leak or uncouple.</li> </ul>	
	<ul> <li>All concrete forms will be constructed in a manner which will prevent fresh concrete or cement-laden water from leaking into the surrounding water.</li> </ul>	
	• If fresh water is used to cure concrete, the runoff will be monitored for acceptable pH levels. If the pH levels are outside the allowable limits, then the runoff water will be contained and neutralized.	
M5.10-2	• During inclement weather, uncured concrete will be protected or covered in a manner that minimizes the creation of high pH water.	Section 5.3.5
	Barriers will be used as appropriate to prevent splashing over forms and into the water.	
	<ul> <li>Wash equipment and tools that have come in contact with concrete in a designated area away from the marine environment and drainages, so that concrete affected water is prevented from entering watercourses (tidal waters, streams, storm drains).</li> </ul>	
	<ul> <li>If necessary to pour concrete within the intertidal or subtidal zones (e.g., piling installation), contact between cementitious materials and surrounding seawater will be avoided to the extent possible.</li> </ul>	
	<ul> <li>When grinding cured concrete, water pH and TSS levels will be monitored not to exceed allowable limits from the effect of dust and fines. In the event that the levels are outside the acceptable ranges, preventative measures will be introduced. This may include introducing silt curtains to contain the solids and to prevent fish from entering a contaminated area or constructing catch basins to recover the runoff and neutralizing it prior to disposal.</li> </ul>	
	Excess or spilled concrete will be contained, immediately cleaned up and disposed of in an environmentally acceptable manner.	
	Woodfibre LNG Limited will prepare and implement creosote pile removal mitigation measures as part of the CEMP, including the following measures:	Section 5.3.8
M5.10-3	A reasonable attempt will be made to remove the entire creosote-treated pile.	Appendix D
	<ul> <li>Piles will be removed by a slow, steady pull to minimize disturbance of seafloor habitats and to avoid bringing creosote-contaminated sediments to the surface. If the pile breaks off below the biologically-active zone in the</li> </ul>	

No.	Condition	CEMP Reference
	sediment, it may not be advisable to dredge the remainder out, depending on the sensitivity of the habitat at the site.	
	<ul> <li>Used/decommissioned piles will be disposed of on land in an appropriate waste management facility (Hutton and Samis 2000).</li> </ul>	
	• Work will follow procedures outlined in DFO's Guidelines to Protect Fish and Fish Habitat from Treated Wood Used in Aquatic Environments in the Pacific Region (Hutton and Samis 2000).	
	<ul> <li>A sediment containment system (e.g., silt curtains) will be installed as appropriate during piling removal to prevent the dispersion of suspended sediments.</li> </ul>	
	Creosote piling removal will be conducted during the least-risk fisheries work window specified by DFO for the region, unless a self-assessment determines that the work will not cause serious harm to fish or their habitat.	
	Woodfibre LNG Limited will develop and implement a Waste Management Plan for hazardous and non-hazardous waste to ensure that waste generation is minimized and that waste is properly stored and disposed of. The plan will contain (but is not limited to) the following measures:	
	Hazardous Wastes:	
	<ol> <li>The Hazardous Waste Regulation (Government of BC 1988) will be followed under the Environmental Management Act 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</li> </ol>	
	maintained:	
ME 10 4	<ul> <li>inventories of types and quantities of hazardous waste generated, stored, or removed</li> </ul>	Section 5.3.6
IVID. 10-4	<ul> <li>manifests identifying hazardous waste haulers and disposal destinations</li> </ul>	Appendix J
	<ul> <li>disposal certification documents.</li> </ul>	
	Non-Hazardous Wastes:	
	<ol> <li>Solid waste materials that are not acceptable under the existing landfill permit will be transported offsite by barge for disposal to an appropriate designated disposal or recycling facility</li> <li>Whenever possible, the materials used in construction will be reused and recycled. Recyclable materials will be separated and transported off site.</li> <li>Clearly labelled garbage bins with lids and recycling containers will be made available for food waste and</li> </ol>	
	recyclables.	
M5.11-1	Woodfibre LNG Limited will develop an Invasive Plant Management Plan to mitigate the introduction, transport, and extent expansion of invasive plant species (including noxious weeds) to and from the Project area during construction and operation. The objectives of this plan will be to detect, control (i.e., remove), and monitor invasive plant species in	Section 5.3.11 Appendix G

No.	Condition	CEMP Reference
	the Project footprint area. Part of this plan will include mapping invasive plant extent and tracking this extent over the life of the Project to record invasive species proliferation.	
M5.11-2	Woodfibre LNG Limited will, where possible, design the Project to avoid the riparian area along Mill Creek (outside of the Green Zone) and the mature forest adjacent to the Creek.	Section 5.3.11 Appendix G
M5.11-3	Rare plant surveys will be conducted in areas to be disturbed by the Project (i.e., the footprint) to identify the locations of any listed plant species that may be affected by clearing activities. Surveys will be conducted in the spring to coincide with flowering and maximize the detectability of rare plants. Any listed plant species that are identified within the Project footprint will be salvaged and replanted in appropriate microsites elsewhere in the LAA.	Section 5.3.11 Appendix G
	Woodfibre LNG Limited will develop and implement a Wildlife Management Plan prior to initiation of the construction phase of the Project. The Wildlife Management Plan will provide the following information:	
	Details regarding any required pre-construction surveys and wildlife monitoring:	
	Call-playback surveys prior to clearing that specifically focus on western screech-owl at night to ensure the cleared areas are not being used as post-fledgling areas	
	Pre-construction surveys to assess potential western screech-owl nesting habitat in the potential corridors for the gas and water pipeline ROWs, and avoidance of such habitat in the final design for the Project	
M5.12-1	Surveys will also be conducted in areas to be cleared to confirm that natural mineral sites (i.e., mineral water springs) that may be used by band-tailed pigeon are not impacted by the Project	Section 5.3.12
	• Information on how to report and record wildlife conflicts, including wildlife mortality due to vehicles and equipment. A database of wildlife mortality associated with construction and operation of the Project should be maintained through the construction and operation phases. Observations of Red and Blue-listed species will be conveyed to the CDC.	Аррениіх п
	Limit speed on roadways within the Project area to 30 km/h	
	Measures to identify amphibian crossings (if any)	
	details regarding posting signage and educating workers to ensure vigilance for amphibians during peak movement periods (i.e., rainy nights in April and September)	
M5.12-2	Woodfibre LNG Limited will retain wildlife habitat features, including those for avifauna and bats, such as snags and wildlife trees (mature trees are included in M5.9-2) wherever possible and safe to do so. Prior to site clearing, wildlife habitat features to be retained will be demarcated with no-go fencing and signage. Habitat features to be field identified and retained will be included on Project Environmental Management Plan mapping.	Section 5.3.12 Section 5.6 Appendix H
M5.12-3	Woodfibre LNG Limited will establish and retain vegetative buffers around raptor nests to mitigate sensory disturbance in accordance with Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia (MOE 2013). These guidelines suggest that a 100-m vegetated buffer be retained around osprey and bald eagle nests	Section 5.3.12 Appendix H

No.	Condition	CEMP Reference
	and a 200-m vegetated buffer be retained around western screech-owl nests. An additional 100-m no-disturbance buffer for each species nests is recommended during the nesting season.	
	Where possible, Woodfibre LNG Limited will avoid vegetation clearing during the nesting season for bald eagles, osprey and western screech-owl in accordance with MOE (2013). The least risk periods for development outlined in MOE's Develop with Care 2014 guidelines (MOE 2014) are identified as follows:	
	bald eagle – September 1 to December 31	
	osprey – September 15 to March 31	Section 5.3.12
M5.12-4	other raptors – October 1 to February 28	Appendix H
	Woodfibre LNG Limited will avoid clearing during nesting season for passerines in accordance with least risk development windows to passerines (September 1 to February 28) provided in MOE (2014). Pre-clearing bird nest surveys will be undertaken if the aforementioned least risk windows cannot be maintained.	
	Appropriate, species-specific setback buffers will be established and maintained around any confirmed or suspected active nests that are detected.	
M5.12-5	Subject to safety and operational requirements, Woodfibre LNG Limited will use blue or green lighting rather than red or white lighting in order to reduce attractiveness to birds.	Section 5.3.12 Appendix H
M5.12-6	Woodfibre LNG Limited will develop and implement a blasting management plan as part of the CEMP to mitigate effects of blasting to freshwater and marine aquatic life and marine birds. Monitoring of effects should be incorporated into the plan so that corrective mitigation measures can be undertaken if necessary. Blasting activities will conform to the Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters (Wright and Hopky 1998).	Section 5.3.3 Section 5.3.12 Appendix E
	Where feasible, underwater blasting will be scheduled to occur during periods when the number of birds in the area is lowest (likely the summer), with a maximum of one underwater blast per day, or at intervals of several hours (Cooper 1982). In addition, noises or blasts (e.g., "thunderflashes") to scare birds away from the immediate vicinity of the blast site will be emitted immediately prior to detonation (Cooper 1982; Demarchi and Bentley 2004).	
M5.12-9	Woodfibre LNG Limited will design building facilities to reduce the potential for bird strikes and bird mortality. Design features will include minimizing the amount of glass and applying tints or facades where glass is required to provide visual cues.	Section 5.3.12 Appendix H
M5.12-10	Woodfibre LNG Limited will meet with BC Hydro (i.e., Woodfibre Substation project) and FortisBC (i.e., Eagle Mountain – Woodfibre Gas Pipeline Project) to identify further measures to minimize potential adverse cumulative effects on wildlife.	Section 5.3.12
M5.13-1	Woodfibre LNG Limited will avoid clearing when maternity roosts of at-risk bat species are likely to be active. The least risk season for bats in the Project area (i.e., when females are not heavily pregnant, nor when juvenile bats are present and unable to fly) is expected to occur between September 1 and May 15, therefore clearing will be avoided when possible between May 16 and August 31. Pre-clearing maternity roost surveys will be undertaken if the least-risk windows cannot be maintained. Acceptable non-disturbance buffers will be established around active maternity roosts.	Section 5.3.12 Appendix H

No.	Condition	CEMP Reference
M5.13-2	Woodfibre LNG Limited will, where possible, use lighting technology that minimizes the amount of ultraviolet light generated, thereby minimizing its attractiveness to insects.	Section 0 Appendix H
M5.14-1	Where safe to do so, WLNG will avoid falling trees into the watercourse where clearing is necessary adjacent to a watercourse (e.g., Mill Creek).	Section 5.3.12 Appendix H
M5.14-2	Prior to initiation of the construction phase of the Project, WLNG will identify important habitat to be retained by including it in construction plans and by field- identified with no-go fencing.	Section 5.3.12 Appendix H
M5.14-3	Woodfibre LNG Limited will salvage coarse woody debris that has been removed in upland areas to facilitate Project construction and will relocate it along linear features and within the Green Zone upon completion of the construction phase.	Section 5.3.12 Appendix H
M5.14-4	Woodfibre LNG Limited will develop and implement an Environmental Protection Plan specific to works required in and around Mill Creek. The Plan will be developed prior to the initiation of instream works. This plan will require coastal tailed frog salvage for instream construction.	Section 3.0
M5.15-1	<ul> <li>Implement instream works best management practices:</li> <li>Reduced risk instream work windows</li> <li>Undertake Project activities and physical works in freshwater fish habit during the reduced risk instream work window unless otherwise approved by MFLNRO. The reduced risk instream work windows for the Lower Mainland (Region 2) are between July 15 and September 15 for salmon, and between August 1 and 31 for trout and Dolly Varden (MOE 2006).</li> <li>Avoidance of instream disturbance <ul> <li>Project activities and physical works pertaining to placement of water supply infrastructure, as well as bridge construction on Mill Creek will avoid, wherever possible, instream operation of equipment and release of debris within the creek.</li> </ul> </li> <li>Isolation of instream works <ul> <li>The installation of the water supply intake in Mill Creek will require work areas within the creek to be isolated. If isolation of instream work areas will be required, activities will adhere to the provincial Standards and Best Practices for Instream Works (MWLAP 2004). If construction of required intake structures cannot avoid disturbance of instream environments from equipment operation, structure placement, or debris entering the creek, these activities will be isolated to minimize effects to the stream. If construction of the water supply intake cannot avoid the disturbance of instream environments, either directly by equipment operation or structure placement, or indirectly by causing debris to enter the creek, these activities will be isolated to minimize flow effects on bank erosion, will be protected from high flow events, will include the use of clean materials, and will allow for the salvage of fish.</li> </ul> </li> </ul>	Section 5.3.7 Appendix C

No.	Condition	CEMP Reference
	<ul> <li>Any habitat isolation conducted in instream work areas will require fish salvage prior to the commencement of works. Prior to any fish salvage, fish sampling permits will be required under the provincial Wildlife Act (RSBC 1996, c. 488) and the federal Fisheries Act. Sampling methods will adhere to fish collection methods and standards (RISC 1997) and general operational BMPs for salvage of fish (MOE 2014c).</li> </ul>	
	Minimize the duration of activities within watercourses and riparian setbacks	
	<ul> <li>The duration of necessary activities, including both dismantling and constructing structures, which must occur within watercourses and within the 30-m riparian setback, will be minimized to avoid potential fish mortality and changes in fish presence, the quality and quantity of fish habitat, habitat availability, and riparian habitat.</li> </ul>	
M5.15-2	Woodfibre LNG Limited will develop a Water Management Plan for Mill Creek, which will afford protection of fish and fish habitat by prescribing the minimum IFRs. During low flows, water withdrawals from Mill Creek will be reduced to meet IFRs. If stream flows are less than the IFR, water will not be withdrawn from Mill Creek. Instream flow releases specific to the existing flow regime and geomorphology of Mill Creek will be developed in general accordance with Assessment Methods for Aquatic Habitat and Instream Flow Characteristics in Support of Applications to Dam. Divert, or Extract Water from Streams in British Columbia (Lewis et al. 2004) and consultation with	
	MFLNRO. The information requirements for determining IFRs include the fish-bearing status of the stream, historic flow records, and any recently collected data. This current and historical information will allow for the establishment of seasonally adjusted instream flow thresholds calculated as percentiles of natural mean daily flows each month. Until such time as the Mill Creek-specific IFRs can be developed, the Project will adhere to IFRs calculated in accordance with the methods outlined in Development of Instream Flow Thresholds as Guidelines for Reviewing Proposed Water Uses (Hatfield et al. 2003)	Section 5.3.7 Appendix C
	Monitoring will be a requirement of the Water Management Plan to confirm that the plan is effective in protecting fish and fish habitat. Effective monitoring will include a combination of compliance monitoring and biotic response monitoring and the definition of program objectives. Design of a monitoring program will consider program objectives, scope of effort, timing, and duration. Typical designs include, though are not limited to, the following:	
	continuous streamflow monitoring downstream of point of withdrawal	
	<ul> <li>intermittent monitoring of biotic variables (e.g., fish abundance or density)</li> </ul>	
	random IFR compliance audits	
M5.17-1	Woodfibre LNG Limited will follow guidelines for restricted activity periods to protect nesting marine birds to comply with the federal Migratory Birds Convention Act and the provincial Wildlife Act. The site is located within the A1 bird nesting zone in Canada, which has a regional nesting period of March 19 to August 17 (EC 2014b); however, the breeding season for colonial waterbirds extends from March into September (EC 2013a). Based on the locations of recorded colonial waterbird nesting habitat, colonial waterbirds are unlikely to be affected by clearing activities associated with the Project; therefore, the A1 bird nesting zone period (March 19 to August 17) will be followed and the clearing activities will be avoided during the nesting season where feasible.	Section 5.3.12 Appendix H

No.	Condition	CEMP Reference
	When clearing is required during the nesting season, pre-clearing surveys for nesting birds will be conducted and appropriate, species-specific setback buffers will be established and maintained around any confirmed or suspected active nests to reduce potential mortality. This mitigation measure is predicted to be effective in reducing potential marine bird mortality.	
M5.17-2	Project activities will maintain a minimum 30 m setback distance from active marine bird nests identified in the Project area. Larger setbacks may be established for listed species and will be considered on a species-by-species case.	Section 5.3.12 Appendix H
M5.17-3	Woodfibre LNG Limited will comply or require its contractors to comply with the recommended 300 m minimum setback from waterbird colonies (see Figure 5.17-2) for Project – related marine vessel traffic, and subject to safety concerns, refrain from blowing horns or whistles and maintain constant engine noise while passing near the colonies (EC 2013a).	Section 5.3.12 Appendix H
M5.17-4	During inbound travel, LNG carriers will be moving at a maximum speed of 8 to 10 knots at the south end of Passage Island (entrance to Howe Sound and the RAA) until they reach the immediate vicinity surrounding the Project area (LAA) where speeds will be reduced to 6 knots. To the extent practical, all other Project vessels will limit their speed while travelling within the RAA.	Section 5.3.16
M5.17-5	Woodfibre LNG Limited will minimize the duration of necessary activities, including both dismantling and construction of structures, that must occur within the intertidal zone to the extent possible to reduce the disturbance of marine birds and marine bird habitat. Where practicable, activities will be scheduled during low tide.	Section 5.3.12 Appendix H
M5.17-6	Woodfibre LNG Limited will prepare and implement an Underwater Noise Management Plan as a component of the Marine Works Management Plan (M5.10-1) to mitigate potential mortality and behavioural changes to birds, fish and marine mammals. The plan will reference DFO's BMP for Pile Driving and Related Operations (BCMPDCA and DFO 2003), and will contain the following measures:	
	<ul> <li>Pile Driving and Related Activities:</li> <li>Multiple underwater noise generating activities will be minimized when practicable (e.g., avoid multiple pile driving activities at the same time). Where multiple underwater noise generating activities are planned, they will be sequenced to minimize construction duration.</li> </ul>	Section 5.3.8
	<ul> <li>Works in the marine environment will be conducted during the least risk fisheries work window specified by DFO for the region unless otherwise agreed upon by DFO. The prescribed work window for Howe Sound is August 16 – January 31 (DFO 2014b).</li> </ul>	Appendix E Appendix F Appendix H
	• Where possible, pile driving activities will avoid impacting hard substrates to prevent disturbance to fish habitat.	
	• The use of vibrational pile driving will be used where practical and feasible as impact pile driving is associated with louder sound pressure levels underwater. The use of vibro-hammers for pile installation minimizes the effects on fish by decreasing the anticipated noise levels.	
	<ul> <li>A ramp up or soft start technique will be used. Where equipment allows, power will be built up slowly from a low energy start-up to give adequate time for marine wildlife to leave the vicinity before exposure to the maximum</li> </ul>	

No.	Condition	CEMP Reference
	sound pressure level. There will be a soft start every time pile driving is resumed following an interval of no pile driving.	
	Prior to pile driving, the perimeter of the pile driving area will be identified, so that work occurs within the confines of the pile driving area.	
	Woodfibre LNG Limited will develop and implement a Marine Bird Management Plan (MBMP) prior to the initiation of the construction phase of the Project. This MBMP will be part of an overall Wildlife Management Plan document. This plan will include:	Section 5.3.12 Appendix H
M5.17-8	<ul> <li>Pre-construction surveys within mapped (but not field-verified) marbled murrelet critical nesting habitat to be cleared as part of the Project will be undertaken following appropriate standards developed by the Resource Information Standards Committee for marbled murrelet inventory (MELP 2001). These surveys will determine if marbled murrelets are currently nesting in these areas (if timing of Project construction allows for these surveys to be conducted during nesting season), or if these areas provide suitable nesting habitat (if timing of Project construction prevents surveys of during active nesting activity).</li> </ul>	
	<ul> <li>Provision of information and training to all workers (contractors, staff, and employees) on how to report and record marine bird conflicts in the Project area, specifically vessel strikes (bird species, location of carcass on vessel, weather conditions) in a database during construction, operation and decommissioning.</li> </ul>	
	<ul> <li>Should regular review of the database identify areas of persistent conflict or mortality rates that would affect populations, the Project operations will be reviewed to identify potential mitigation measures.</li> </ul>	
	Survey methods may include stand watches during migratory periods (spring and fall) in an adaptive management approach.	
M5.17-9	Woodfibre LNG Limited will coordinate with BURNCO to mutually share results of marine bird monitoring studies to contribute to the knowledge base for marine bird interactions.	Section 5.3.12 Appendix H
M5.19-1	In addition to the mitigation measures described in M5.17-6, WLNG will prevent pile driving activities from impacting hard substrates, where possible. During impact pile-driving activities, a qualified specialist marine mammal observer will monitor for marine mammals and will communicate presence or absence to the contractor.	Section 5.3.9 Appendix F
M5.19-2	Woodfibre LNG Limited will produce a Marine Mammal Management Plan for the Project. This plan will include vessel speed reductions and avoidance of marine mammals:	Section 5.3.9 Appendix F
	<ul> <li>LNG carrier and other deep-sea vessel speeds will be kept at a maximum of 8 to 10 knots when operating in the LAA.</li> </ul>	
	All Project vessels will follow established shipping lanes/navigational routes typically used in the area.	
	<ul> <li>All Project vessels will maintain a constant course and constant speed, to the extent practical, when operating in the RAA.</li> </ul>	

No.	Condition	CEMP Reference
	<ul> <li>Under no circumstances, other than in the case of an emergency, will vessels approach within 100 m of any marine mammal.</li> </ul>	
	<ul> <li>If marine mammals approach within 100 m of a vessel, the vessel will reduce its speed and, if possible, cautiously move away from the animal. If it is not possible for a vessel to move away from or detour around a stationary marine mammal or group of marine mammals, the vessel will reduce its speed and wait until the animal(s) moves at least 100 m from the vessel prior to resuming speed.</li> </ul>	
	<ul> <li>During impact pile-driving activities, a qualified specialist marine mammal observer will monitor for marine mammals and will communicate presence or absence to the contractor.</li> </ul>	
M6.3-1	Woodfibre LNG Limited will develop and implement strategies, best management practices, and guidelines to avoid and minimize Project-related disruption of marine-based recreational activities in the Squamish Harbour area during construction and operation. In developing this plan, WLNG will consult with key marine user groups (e.g., Squamish Terminals, yacht clubs, kiteboard clubs, and kayaking operators) to identify the routes of all Project-associated marine traffic (e.g., ferries and water taxis) and discuss strategies to manage the interaction of Project vessel traffic with recreational and tourism areas during the high season months. Woodfibre LNG Limited's use of the Darrell Bay terminal for the worker ferry is part of this plan as it minimizes interaction with recreationists and tourists who are using the marine waters of Squamish Harbour and the head of Howe Sound. This traffic plan will include a procedure for marine stakeholders to consult with WLNG regarding special events such as yacht races, regattas, and marine-based festivals to ensure that additional passage planning and scheduling can be reviewed.	Section 5.3.16
M7.2-5	Prior to commencing construction, WLNG will develop and implement an Emergency Response Plan for the construction phase of the project. The Emergency Response Plan will be developed with input from local, regional and provincial emergency response authorities, such as Squamish Fire Department, the Squamish RCMP, Vancouver Coastal Health and BC Ambulance Service. The Emergency Response Plan will be communicated to emergency response authorities and service providers.	Section 5.3.1
M7.2-7	Woodfibre LNG Limited will continue to participate in Transport Canada's voluntary shipping and navigational risk assessment TERMPOL review process. TERMPOL studies will be agreed to by Transport Canada and will include a systematic assessment of safety and risk management in the joint use of the waterway. Any recommendations from the TERMPOL Review Committee will be integrated into the Project design and operating procedures, including but not limited to those related to navigation, passage planning, traffic management, suitability of the terminal location, orientation, and operation.	Section 5.3.16
M7.3-1	Woodfibre LNG Limited will prepare and implement a marine transport management plan prior to construction activities or as outlined through TERMPOL. This plan will outline measures to ensure all vessel traffic is aware of Project activities. The plan will also provide details of the communication channels to be used and the Project-related safety procedures to be followed.	Section 5.3.16
M7.3-2	Woodfibre LNG Limited will install aids and navigational lights based on recommendations following the NPA review process.	Section 5.3.16

No.	Condition	CEMP Reference
M7.3-3	Woodfibre LNG Limited will notify the relevant authorities, including the CCG, so that Notices to Mariners and Notices to Shipping can be issued.	Section 5.3.16
M7.3-4	Woodfibre LNG Limited will ensure CHS navigational charts and other appropriate nautical publications are updated to show the terminal and other marine features, where appropriate.	Section 5.3.16
M7.3-5	Woodfibre LNG Limited will conduct all Project shipping and transportation of passengers in accordance with the requirements of the Canada Shipping Act, in compliance with the CCG and PPA. Maritime legislation and other requirements are outlined in Section 7.3.1.1.2. In addition, shipping activities will also comply with all other applicable national and international safety regulations that have not been listed, such as requirements established by the International Maritime Organization. Where applicable, consideration will also be given to best practice criteria for the safe operation of LNG vessels presented by the Society of International Gas Tanker and Terminal Operators, and the World Association for Waterborne Transport Infrastructure.	Section 5.3.16
M7.3-6	Woodfibre LNG Limited commits to further consult with BC Ferries and Squamish Terminals regarding potential interference, vessel routes, and current operating practices.	Section 5.3.16
M7.3-14	Woodfibre LNG Limited commits to further consultation with recreational stakeholder groups in Howe Sound to identify areas of concerns and where practicable, to identify additional mitigation that can be implemented to reduce effects.	Section 5.3.16
M7.4-2	As discussed, WLNG will develop a Squamish Harbour Vessel Traffic Plan (M6.3-1) to identify strategies to minimize effects to marine-based recreational activities. Its development will incorporate consultations with Squamish Harbour users. To help avoid cumulative effects, as a component of the Squamish Harbour Vessel Traffic Plan, WLNG will also work with Matthews Southwest and Bethel Lands Corporation and District of Squamish to minimize displacement of recreation activity by Project-associated ferry and water taxi traffic that travels to the Project site.	Section 5.3.16
M7.5-1	Reduce the level of contrast by finishing new buildings' external surfaces or re-finishing existing buildings' external surfaces and structures as appropriate for required functional utility. The finish will have low glare and natural colours to reduce contrast with the qualities of the surrounding landscape features.	N/A
M7.5-2	Provide additional screening of land-based infrastructure not currently screened by existing vegetation through temporary or permanent planting, where possible and safe to do so.	N/A
M7.5-3	Initiate decommissioning and maintenance planting programs during the construction phase, recognizing that results will not be realized until the operation or decommissioning phases of the Project.	N/A
M7.5-4	Monitor and maintain natural screening to ensure minimal visibility of infrastructure and activity in operational areas by establishing vegetation and avoiding surface and root disturbance.	N/A
M7.5-5	Preserve the level of contrast for Project infrastructure by re-finishing and maintaining external surfaces as required. As part of the integrity management program, or other maintenance program, WLNG will establish re-finishing and maintenance schedules for site buildings and infrastructure external surfaces.	N/A

No.	Condition	CEMP Reference
M7.5-6	Re-vegetate or treat exposed slopes throughout the operation phase (where possible) to reduce contrast and ensure blending with the existing landform. This mitigation can include planting ground covers and colour treatment. Promote successful establishment of vegetation screening and minimize visibility of infrastructure and activity in operational areas.	N/A
M7.5-7	Re-contour disturbed areas not required for the future operation or maintenance of the Project area to approximate natural slopes and reduce form contrast between disturbed and natural environments.	N/A
M7.5-8	Consult with BC Hydro and FortisBC to determine construction areas and operation design options so that additional mitigation measures can be identified to avoid and minimize potential cumulative effects on visual quality from both development projects.	N/A
M7.6-1	Consult with Tsleil-Waututh Nation on additional mitigation for Aboriginal Interests	Section 4.2
M8.2-1	Woodfibre LNG Limited will avoid effects to heritage resources, if present, through partial Project redesign or relocation. This will result in minimal effect to the heritage site and is the preferred option from a cultural resource management perspective. It can also be the least expensive option from a construction or operation perspective. A site investigation may be required to define the heritage site limits.	Section 5.3.15
M8.2-2	Woodfibre LNG Limited will employ non-intrusive systematic data recovery techniques. This may include the documentation of heritage resources, if present, such as a canoe run or fish trap, historic structure or a heritage wreck; detailed recording of culturally modified trees, or surface collection of palaeontological material; activities which may or may not require a Section 14 HCA permit, in addition to a Section 12 HCA permit prior to site alteration.	Section 5.3.15
M8.2-3	Woodfibre LNG Limited will employ systematic data recovery (archaeological salvage or emergency excavation), if necessary. In addition to a Section 12 HCA permit prior to site alteration, this option will likely require a Section 14 HCA permit and can delay construction or operation by up to several weeks and additionally involve extensive artifact analysis. Consequently, salvage or emergency excavation is not a preferred option.	Section 5.3.15
M8.2-4	In the event that no newly identified heritage resources are identified within the LAA, it remains possible that yet undetected heritage resources could still be encountered once ground-disturbing activities begin. This mitigation option may require an HCA Site Alteration permit from the Archaeology Branch if a registerable or new archaeological site that has not been previously identified is discovered. Woodfibre LNG Limited will continue monitoring where site-specific Project effects cannot be predicted or evaluated before construction or operation, especially near the margins of a heritage site, or in cases where deeply buried deposits are expected that cannot be accessed without the assistance of heavy machinery. Monitoring may also be appropriate where systematic data recovery has been undertaken, but where significant heritage deposits (potentially archaeological or palaeontological) remain.	Section 5.3.15
M8.2-5	To provide a cost-effective method of managing heritage resources throughout the life of the Project, WLNG will develop Heritage Resource Chance Find Management Procedures that would provide direction to the Proponent and its contractors if unforeseen heritage resources are encountered.	Section 5.3.15

No.	Condition	CEMP Reference
M11-1	In the event of a spill, vegetation and soil may be removed to facilitate cleanup. Any removed vegetation will be replaced after cleanup to encourage re- establishment of natural vegetation communities	Section 5.3.1
M11-2	Development of Spill Contingency and Cleanup Measures Plan for Marine Birds This plan will be developed in keeping with the province of BC's Marine Oil Spill Prevention and Preparedness Strategy (MOE, 1991) and will include the EPA suggestions (US EPA 2014).	Section 6.2
M11-3	Develop Heritage Site-specific Clean-up Plan: If the spill occurs over or into ground where a paleontological, archeological, or historical site exists or where potential for a paleontological site has been identified but not assessed, a professional paleontologist, archaeologist, historic archaeologist or built-heritage specialist respectively will be engaged to participate in the non-emergency development of the EMP specific to the spill event.	Section 5.3.1 Section 5.3.15
M12-1	Woodfibre LNG Limited will conduct a fuel hazard assessment based on the Guide to Fuel Hazard Assessment and Abatement in British Colombia (wildfire Management Branch 2012) pursuant to the Wildfire Act.	Section 5.3.1

November 19, 2024

### Appendix B Corrective Actions Register

Client:	Project:	
Site Address:		
Work Description:		Sign off:

Report Number	Hazard Identified	Corrective and Preventative Action	Action By	Date Due	Sign-Off	Date

November 19, 2024

Appendix C Water Management Plan

November 19, 2024

# Appendix D Marine Water Quality Management and Monitoring Plan

November 19, 2024

# Appendix E Marine Fish and Fish Habitat Management and Monitoring Plan

November 19, 2024

# Appendix F Marine Mammal Management and Monitoring Plan

November 19, 2024

## Appendix G Invasive Plant Management Plan

November 19, 2024

### Appendix H Wildlife Management and Monitoring Plan – Construction Phase

November 19, 2024

# Appendix I Erosion and Sediment Control Plan

November 19, 2024

Appendix J Waste Management Plan

November 19, 2024

### Appendix K Material Change Compliance Review Template

Material Change Compliance Review - Assessment						
Approved Activity						
Description of Change						
Justification for Change						
Assessment of Change	Assessment of Change					
Valued Component	Potential impact consistent from environmental assessment? (Y/N)	Description of change in impact OR justification as to why impact is not different	Description of required amendment to mitigation measures			
Air quality						
Greenhouse gas management						
Freshwater sts'úkwi7 (fish) and sts'úkwi7 (fish) habitat						
Shkwen (Marine Water) quality and benthic habitat						
Marine sts'úkwi7 (fish) and mammals						
Vegetation communities						
Terrestrial sekw'ekw'inexw (wildlife) and sekw'ekw'inexw tl'a shkwen (marine birds)						
Labour market and sustainable economy						
Infrastructure and community services						
Temíxw (Land) and resource use						
Marine transport						
Visual quality						
Community health and well- being						
Heritage resource						
Human health						

Material Change Compliance Review - Summary				
Consistency	Yes	No	Commentary	
Does the assessment in the above environmental impact table conclude:				
There are no new impacts?				
The change will have a similar, lesser, or positive impact compared with the approved impacts?				
The change can be managed without any new mitigation measures?				
There will be no new receptors affected by an impact who were not previously?				
Is the change consistent with the objectives in the Project Approvals?				
Is the change consistent with the Project description in the approved Project Approvals?				
Is the change consistent with all mitigation measures in the Project Approvals?				
Is an update to the Project CEMP or any Component Plan required (provide justification)?				