



APPENDIX A

SPILSBURY POINT – SITE LOCATION AND PHOTOS

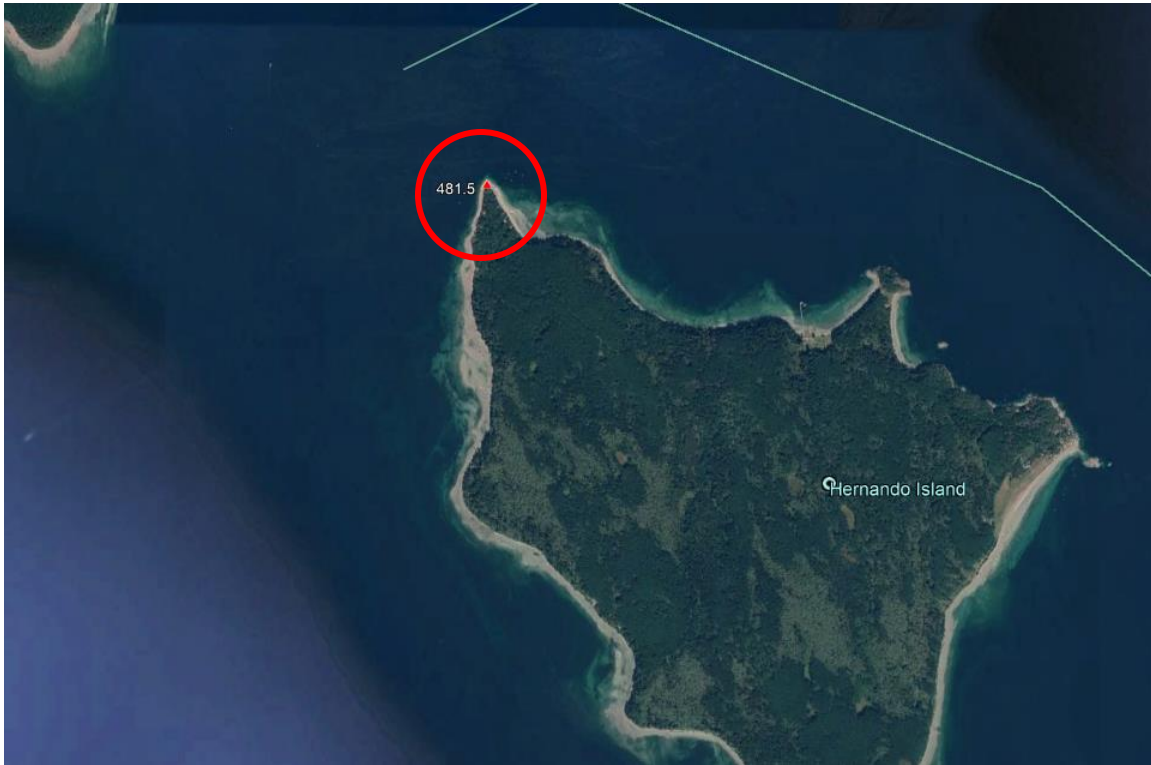


Figure 1 - Site Location



Figure 2 - Existing Site



Figure 3 - Existing and Proposed Site



APPENDIX B

Spilsbury Point – Environmental Protection Measures

Environmental Protection Measures Spilsbury Point Navigational Aid

1.0 Environmental Acts and Regulations

The development of these Environmental Mitigation Measures takes into account the following Acts and Regulations;

- Canadian Impact Assessment Act 2019 (IAA)
- Fisheries Act – Fish and Fish Habitat Protection Program (FFHPP)
- Species At Risk Act (SARA)
- Navigation Protection Act (NPA) – Navigation Protection Plan (NPP)
- Canada Shipping Act
- Canadian Environmental Protection Act (CEPA)
- Conservation Heritage Act
- Migratory Birds Convention Act (MBCA)
- The BC Wildlife Act
- BC Water Sustainability Act

The mitigation measures outlined in this document may be re-evaluated during the course of the construction, identifying and improving upon deficiencies, and improving on environmental management and protection where needed. This document outlines the Environmental Protection Plan for tender and contracting purposes only and a more thorough and detailed Environmental Protection Plan will be required once the project is contracted.

DFO Projects Near Water and Sensitive

The DFO Projects Near Water assessment tool identified that a DFO Request for Project Review is required as the in-water work activity will be occurring outside the least risk window for fish and fish habitat. The project location is within the DFO Area 15 Powell River with the least risk timing window for summer between July 1 – September 1 and winter window between December 1 and February 15. With the implementation of a project specific Environmental Protection Plan, planned oversight by a designated DFO Environmental Monitor (EM) and the application of mitigation measures listed in the table below, the project does not anticipate to result in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery.

To comply with the Fisheries Act and the Species at Risk Act (SARA) with respect to aquatic species, the [measures to avoid and mitigate harm are applied with regard to](#) project planning, machinery operation and containment and spill management response planning should be followed.

Species At Risk and other Habitats:

The current structure is located within the Provincially Red listed Douglas-fir/dull Oregon-grape ecological community and the Grand-fir/dull Oregon-grape ecological community. As the aid is located on the beach and not in the vegetated area and provided the project activities do not

require interaction with the vegetated area of this habitat it is not anticipated and impacts on the red listed ecological community.

The Provincial ecosystem explorer iMaps BC indicates that the area has seen Pacific White Sided Dolphin and is important for Herring and clam beds either within or adjacent to the project area that could be significant to Indigenous use.

The review identified that within the project work area there is the potential for mobile aquatic species at risk and habitat and residence for aquatic species at risk to be present, listed below and are all mobile species that are both Federally or Provincially listed.

Table 1-1. Aquatic Species at Risk

Common Name*	Scientific Name	Species at Risk Status	Taxon	Population
Basking Shark	<i>Cetorhinus maximus</i>	Endangered	Fishes	Pacific
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Endangered	Reptiles	Pacific
Northern Abalone	<i>Haliotis kamtschatkana</i>	Endangered	Molluscs	None
Humpback Whale	<i>Megaptera novaeangliae</i>	Threatened	Mammals	North Pacific
Killer Whale	<i>Orcinus orca</i>	Threatened	Mammals	West Coast Pacific Transient
Killer Whale	<i>Orcinus orca</i>	Threatened	Mammals	Southern Resident
Bluntnose Sixgill Shark	<i>Hexanchus griseus</i>	Special Concern	Fishes	None
Green Sturgeon	<i>Acipenser medirostris</i>	Special Concern	Fishes	None
Grey Whale	<i>Eschrichtius robustus</i>	Special Concern	Mammals	Eastern North Pacific
Harbour Porpoise	<i>Phocoena phocoena</i>	Special Concern	Mammals	Pacific Ocean
Steller Sea Lion	<i>Eumetopias jubatus</i>	Special Concern	Mammals	None
Tope	<i>Galeorhinus galeus</i>	Special Concern	Fishes	None
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	Special Concern	Fishes	Pacific Ocean Inside Waters/ Outside Waters
Rougheye Rockfish I and II	<i>Sebastes</i> sp.	Special Concern	Fishes	Pacific
Longspine Thornyhead	<i>Sebastolobus altivelis</i>	Special Concern	Fishes	Pacific

Migratory Birds Convention Act: Several species of birds in Canada are protected under the [Migratory Birds Convention Act, 1994](#) (MBCA). Bird species that are not listed in the Act may or may not be protected under provincial or territorial legislation or the federal *Species at Risk Act*. Under the Act, ***it is illegal to harass or kill migratory birds, or to destroy or disturb their nests or eggs. It is also an offence to deposit any substance that is harmful to migratory birds, or permit such a substance to be deposited in waters or areas frequented by birds.***

The area is likely to have several marine birds present around the site, such as diving Glaucous-winged Gulls, dabbling ducks, Loone Grebe, Marbled Murrelets, Cormorants, Eagles, and Herons. The site is within the regional nesting zone A1. The nesting window for the region is between Late March to Mid-August. Although this work is planned during the regional nesting window, the majority of activities

are to occur in water. An inspection for nests within 100 m of the current aid to be demolished should be conducted prior to work on at this location.

2.0 Roles and Responsibilities of Project Team

The roles and responsibilities of the Project Team, which includes the CCG, the Contractors and the CCG/DFO Environmental Monitors as described in the following sub-sections. It is the responsibility of all Project personnel to protect environmental, heritage and socio-economic values during the course of the Project.

2.1 All Project Personnel

All Project personnel must work in accordance with applicable regulations and engineering specifications. In addition, personnel must comply with the mitigation measures identified in this EPP and/or provide suitable alternative approaches, which have been pre-approved by the CCG and/or the Project EM. All CCG staff and Contractor crews will be introduced to and be required to implement the EPP properly as part of the Project standard operating procedure.

2.2 Canadian Coast Guard

CCG is responsible for the overall Project management and environmental management of the Project. In addition, CCG will be responsible for the following:

- Supplying the Contractor with details regarding the Project, such as background information, any regulatory permits and this EPP
- Delegating authority and communicating requirements, as required, for all aspects of communication with interested parties about construction activities and potential disturbances with respect to this Project
- Promoting compliance with the terms of the regulatory permits or notifications as mandated under the applicable legislation
- Coordinating environmental and construction inspections to check compliance with permits and this EPP
- Notifying regulatory agencies or authorizing notification on their behalf to regulatory agencies of environmental non-compliance or environmental incidences
- Reviewing environmental monitoring reports prepared by the EM for completeness, accuracy and assessment of mitigation measures
- Authorizing stop work authority for non-compliance with this EPP and contravention of regulatory permits
- Granting stop-work authority to Project personnel and allow them to have the ability to suspend Project activities that are at risk of potentially causing serious harm to fish and to valued ecosystem components
- Submit of a Notice of Works to Transport Canada, under the Navigation Protection Act (NPA), where required
- Submit a DFO Request for Project Review, under the Fisheries Act, where required
- Conduct Indigenous Engagement

2.3 Contractor

The Contractor will be responsible for constructing the Project in accordance with the design specifications. In addition the Contractor will be responsible for;

- Understanding details of the Project by reviewing relevant documentation supplied by CCG and DFO, such as background information, permits and this EPP
- Facilitating effective environmental communication among crews and any subcontractors so that environmental responsibilities and requirements are understood by crews and subcontractors prior to the start of work, and are implemented through tailgate or other meetings
- Following the EPP and having on-site environmental protection measures to mitigate potential environmental impacts
- Inspecting the work regularly to evaluate adherence to this EPP and regulatory requirements
- Facilitating personnel training and verifying that personnel are competent in the use of environmental protection and mitigation measures, such as sediment, waste, spill and noise control measures
- Application of onsite mitigation measures

2.4 Environmental Monitor

It is anticipated that this Project will have an on-site EM perform environmental inspections during the work. The EM will be appropriately qualified to conduct this work, based on Project experience, appropriate training and professional responsibility.

The EM will be responsible for;

- Visual monitoring for marine mammals and sensitive fish species
- Confirming with construction crews that they are aware of the environmental requirements of the work
- Evaluating and reporting on the effectiveness of the environmental mitigation measures and on the Contractor's work procedures and practices
- Inspecting the site before work begins to check for sensitive species or habitat
- Inspecting regularly the effectiveness of sediment control measures, where appropriate
- Conducting digital monitoring of water quality during in-water construction activities
- Conducting acoustic monitoring of underwater noise during in-water construction activities
- Communicating with CCG and DFO on the effectiveness of the mitigation measures being implemented, any difficulties encountered and how they are being managed
- Reporting environmental non-compliance and environmental incidents to CCG
- Writing an Environmental Monitoring report upon completion of the Project

3.0 Standard Mitigation Measures

3.1 General Mitigation Measures

Table 3-1 General Mitigation Measures

Category/Activity	Mitigation Measures
Project Timing	<ul style="list-style-type: none"> • The construction schedule falls just outside of the DFO timing windows due to scheduling to COVID-19 restricting work that could be completed leading up to this work. (Timing windows of least risk are summer between July 1 – September 1 and winter window between December 1 and February 15 for Area 15 – Powell River.) • Ensure mitigation measures are in place prior to starting construction and a copy of any required approvals, permits or conditions is available at the work site. • Follow the most current revised Environmental Protection Plan to ensure any DFO-FFHPP conditions are also being followed.
Permits/ Authorizations	<ul style="list-style-type: none"> • A copy of any permits or authorizations will be onsite and readily available. Public notices should be given to transportation authorities to warn of potential disruptions to navigation during works.
Environmental Protection Plan (EPP)	<ul style="list-style-type: none"> • A copy of the Project’s Environmental Protection Plan will be onsite and readily available. The EPP should be accessible to Contractors to ensure familiarity with the Project’s requirements.
Training	<ul style="list-style-type: none"> • The Contractor will verify personnel involved in construction activities are adequately trained and use personal protective equipment necessary for work.
Site Access	<ul style="list-style-type: none"> • Site access practices must be undertaken with regard to resident flora and fauna, especially during times of the year when they are most sensitive.
Pre- Construction Wildlife Survey	<ul style="list-style-type: none"> • A pre-construction survey is recommended to identify if any wildlife habitat or species at risk located at the construction site, and if encountered, determine the level of protection if necessary. If a nest, aquatic species at risk or at risk fish habitat is encountered, it is recommended that construction does not proceed until the Environmental Monitor (EM) has determined if a permit is required or

Aid Maintenance	<ul style="list-style-type: none"> • Equipment maintenance activities must be completed in a manner that prevents the deposit of foreign materials to the environment. • Power washing activities must follow mitigation provided under “Power Washing” • An approach of “contain and recover” should be adopted. Drop sheets or other means should be used to prevent paint chips and other debris from entering the surrounding environment. Refuse should be disposed of properly. • Painting activities should be completed in such a way as to minimize the amount of fumes that may enter the environment. The amount of paint used should be minimized and unused containers must be covered.
Stop Work	<ul style="list-style-type: none"> • The Contractor will stop work and contact the EM for assistance prior to commencing and continuing with any Project activities that may pose an environmental risk not addressed in this EPP. The EM will have the authority to issue a Stop Work order where activities are or will adversely affect the environment (flora/fauna, water quality). The EM will also make in-field recommendations for avoiding or mitigating impacts.
Site Cleanliness	<ul style="list-style-type: none"> • The Project site(s) should be kept tidy during work activities and left in good condition at the Project’s closure. Materials and wastes should be contained and secured when not in use, including at the end of a work day.
Power Washing	<ul style="list-style-type: none"> • Activities should be completed in such a way as to minimize the amount of fines and organic debris that may enter nearby aquatic environments.
Laydown Area/	<ul style="list-style-type: none"> • Operate machines and equipment from the barge platform to limit the level of disturbance to the aquatic environmental and to reduce the chance of a spill or incident. Stockpiles of any materials or wastes should be safely placed/ contained within the barge platform. Avoid placement of materials or waste on shore.
Equipment Operation	<ul style="list-style-type: none"> • All equipment will be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products. • Vehicles should not be operated below the line of Highest High Water in the intertidal zone. If no other method is available to access/ complete the work, the vehicle should proceed with due care and minimize its foot print wherever possible. • Operations should only operate where entirely necessary to complete the works to reduce effects to nearby soils, vegetation, and resident species. Respect should be given to the natural environment to minimize the footprint of the Project. • Machinery must be operated efficiently, to ensure that noise and air quality issues are short-term and local.

Air Quality and Noise	<ul style="list-style-type: none"> Operate machinery efficiently to limit noise and air quality issues and comply with local Noise Control Bylaws, where applicable. Limit night time construction activity to low noise activities, where appropriate.
Water Quality	<ul style="list-style-type: none"> <u>Oil, Fuels, Grease</u>: The Contractor will have measures in place (e.g. routine equipment maintenance) to prevent the release of oil, fuel and grease (detectable by sight and smell) to the environment. <u>Turbidity</u>: monitor turbidity prior to the construction to observe the general instream conditions. Plan in-water activities in a manner that will reduce the amount of turbidity and sea floor disturbances, where possible. During construction activities, monitor turbidity within the work site area to confirm that any changes to water quality. The terms clear water and turbid flow are used to describe when suspended sediment concentrations in the aquatic environment are low (< 8 NGTU) and relatively elevated (≥ 8 NTU). (MoE Water Quality Guideline, 2001)
Sediment Control	<ul style="list-style-type: none"> Work will be conducted with limited sediment disturbance. Work activities will require pile extraction and replacement. Monitor turbidity levels during this activity. Where high water flow is not a factor, the Contractor should be prepared to install a silt curtain if increased turbidity is a concern for aquatic habitat or permits require such mitigation measures (e.g. working outside of the DFO Fish Timing Window).Turbidity levels will be monitored for compliance with the BC Water Quality Guideline (e.g. if as required by DFO Project Review).
Prop Wash	<ul style="list-style-type: none"> Prop wash and scouring will be avoided in shallow water, to the extent possible.
Deleterious Substances	<ul style="list-style-type: none"> Deleterious substances (e.g. hydrocarbons and wood preservatives) will not be deposited into the environment (aquatic, terrestrial).
Spudding and Anchoring	<ul style="list-style-type: none"> Barges and other Project support vessels will avoid disturbing the sea floor, unless where disturbance will be reasonably required (e.g. from use of barge spuds) If a spud barge is used for the Project, position the barge strategically to limit repeated lifting and lowering of the spuds where practicable. The Contractor will position their water borne equipment in a manner that will limit damage to habitat and where possible, employ alternative methods.

Flora and Fauna	<ul style="list-style-type: none"> • Operations should only be conducted where it is necessary to reduce the effects on nearby vegetation, soil substrates and resident species. Select with care the project laydown area(s) to avoid sensitive habitat. • Reduce foot traffic on vegetation where possible to limit project impact, respect should be given to the natural environment. • If species at risk are observed during construction, work will stop/pause and the Contractor will advise the on-site DFO/CCG personnel. • If stressed animals are observed in or near the construction area, stop work and contact the EM immediately. • Feeding wildlife is not permitted. • Marine mammals are classified as “fish” under the Fisheries Act and additional regulations specific to these taxa are detailed in the Marine Mammal Regulations. Under Section 7 of the Marine Mammal Regulations, “disturbance” of marine mammals is prohibited except when fishing for them under the authority of the Regulations. The Regulations also prohibit moving a marine mammal from the immediate vicinity in which it is found. • Tide pools may be impacted by work activity (site mob, barge ramp) and should be inspected for sensitive habitat or species. • Any intakes to draw water from the marine environment should be appropriately screened and monitored periodically while operating to prevent harm to fish. • When conducting work in areas where fish spawning is present, appropriate monitoring by a qualified professional will be undertaken.
Archaeology	<ul style="list-style-type: none"> • Archaeological sites in remote locations are not likely to have been previously identified. Care should be taken to avoid archaeological deposits while work is underway. • Inspect the proposed work site footprint and barge landing area for archaeological evidence (e.g. rock art, petroglyphs, cairn, midden) before construction activities (e.g. rock drilling, power washing, concrete works). • If work activity is anticipated to impact an archaeological site, stop work and contact the EM. Trees should be inspected for CMT features. If an archaeological or heritage resource is encountered, work should stop within that area and the work crew to review the Archaeological Chance Find Protocol in Appendix B.

3.2 Pile Removal and Installation

Pile removal and installation have the potential to adversely affect water and sediment quality, fish and wildlife, and important habitats. Table 3-2 outlines mitigation measures aimed to limit effects of pile removal and installation on valued ecosystem components, such as flora and fauna, water quality, and important habitats.

Table 3-2 Pile Removal and Pile Installation - Mitigation Measures

Category/ Activity	Mitigation Measures
General	Recommended Mitigation and Monitoring for Impact Pile Driving provided by DFO Fish and Fish Habitat Protection Program (2018-04-30) will be applied. For work sites with sensitive species present, additional mitigation measures to reduce acoustic noise, vibration and shock waves should be implemented (i.e. bubble curtain, exclusion net). These measures may be present in any terms and conditions the Project receives through aquatic species approvals and permitting.
Pre-Construction Survey	<ul style="list-style-type: none"> • A pre-construction survey will be completed and identify any existing bird nesting sites or aquatic species at risk habitat at the navigation aids and take the appropriate steps taken to reduce effects. • A Environmental Monitor (EM) will conduct acoustic monitoring during all pile driving components of the project for each driving method, pile type and substrate type. • A 30 minute visual assessment will be conducted prior to initiation of activities, to ensure that no marine mammals are in the exclusion zone.
Equipment	<ul style="list-style-type: none"> • Equipment (e.g. cables, vibratory hammer, buckets) should be kept out of the water to avoid a release of deleterious substances. • Where possible, avoid pinching the treated timber (i.e. pile) below the waterline.
Containment Booms	<ul style="list-style-type: none"> • Sorbent booms should be on hand and readily available. • At the discretion of the EM, deploy sorbent booms around the perimeter of the work area and maintain them during the removal of treated timber. These booms should remain in place and operational until such time as visible evidence of wood treatment chemicals on the water surface is no longer apparent. • At the discretion of the EM, a floating surface boom shall be installed to capture floating surface debris where practicable.
Cutting	<ul style="list-style-type: none"> • Cutting of treated wood should take place on the barge or an area approved by the EM. All waste materials must be kept out of the aquatic environment, be contained, and be properly disposed of offsite. • Work that is to be done <i>in situ</i> is to be fully contained so that no waste materials are deposited into the aquatic environment. Any debris on the water surface should be recovered as soon as possible.

<p>Pile Removal and Containment</p>	<ul style="list-style-type: none">• When removing timber piles, the Contractor will remove the piling by mechanical means, and make every effort to remove the pile intact (one piece). Where complete removal is not possible, piles will be cut off within 100mm of the sea floor and apply boom around creosote treated wood pile.• Avoid intentionally breaking the pile by twisting and bending as this can cause the wood treatment to release into the water column.• Use methods to reduce turbidity and recover of blocks of sediment adhered to the pile (e.g “wake up” the pile by vibrating it to break its bond with the seabed sediment).• Sediment blocks found attached to a pile will not be returned to the aquatic environment. Instead they will be collected, contained and disposed of appropriately offsite.• A containment area (e.g. sediment control; hay bales, geotextile fabric, silt fence, plastic sheeting) for removed treatment timber piles and any adhering sediment shall be included into the work platform/ surface (i.e. the barge deck).
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<p>Pile Installation Impact Pile Driving</p>	<ul style="list-style-type: none"> • To limit impacts to fish and wildlife and reduce shock waves, a vibratory hammer is recommended to install piles. <p>Finfish:</p> <ul style="list-style-type: none"> • Acoustic monitoring will be conducted within 10 m of the noise source to ensure that a dual criteria of a peak sound pressure level of 206 dB re 1 μPa and a SELcum of 187 dB re 1 μPa²-s is not exceeded. • If sound levels exceed the threshold of 206 dB re 1 μPa, the work must be halted. After consultation with DFO, work can resume only after additional mitigation measures have been implemented. • If serious harm to fish or marine mammals is observed, you are required to report to DFO immediately through the DFO-Pacific Observe, Record and Report phone line (toll free) at 1-800-465-4336. <p>Marine Mammals:</p> <ul style="list-style-type: none"> • A marine mammal monitoring program will be implemented to enforce an exclusion zone around all pile driving. • A disturbance threshold of 160 dBRMS re 1 μPa is to be used to define the marine mammal exclusion zone (initially based on modelling but confirmed with monitoring data). • If monitoring indicates sound levels in excess of 160 dB at the edge of the marine mammal exclusion zone for any activity, the activity will cease and the Proponent will notify DFO. The activity will only resume after additional mitigation measures are implemented. • Pile driving that results in sound levels above 160 dB re 1 μPa should be completed during daylight hours only. • Activities will be ceased if any marine mammal is observed within the exclusion zone and will only resume once the animal has left the exclusion zone or has not been re-sighted for 30 minutes. • Activities will be ceased if any marine mammal is observed immediately adjacent to the activity such that there is a risk of physical harm from direct contact and only resumed once the animal has left the exclusion zone or has not been re-sighted for 30 minutes. • If serious harm to fish or marine mammals is observed, you are required to report to DFO immediately through the DFO-Pacific Observe, Record and Report phone line (toll free) at 1-800-465-4336.
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<p>Pile Installation Vibratory Pile Driving</p>	<p>Finfish:</p> <ul style="list-style-type: none"> • Acoustic monitoring will be conducted within 10 m of the noise source to ensure that a dual criteria of a peak sound pressure level of 206 dB re 1 μPa and a SELcum of 187 dB re 1 μPa²·s is not exceeded. • If sound levels exceed the threshold of 206 dB re 1 μPa and a SELcum of 187 dB re 1 μPa²·s, the work must be halted. After consultation with DFO, work can resume only after additional measures have been implemented (e.g., bubble curtains). • If serious harm to fish or marine mammals is observed, you are required to report to DFO immediately through the DFO-Pacific Observe, Record and Report phone line (toll free) at 1-800- 465-4336. <p>Marine Mammals:</p> <ul style="list-style-type: none"> • In addition to the acoustic monitoring within 10 m of the noise source to ensure compliance with the of 206 dB re 1 μPa and a SELcum of 187 dB re 1 μPa²·s threshold for finfish within the project area, the QEM will establish a marine mammal exclusion zone where sound levels do not exceed 120 dB re 1μPa (example a 500 m perimeter around the source). • In order to conduct marine mammal observations, any pile driving or associated activities that generate sound above the 206 dB re 1 μPa and a SELcum of 187 dB re 1 μPa²·s within 10 m of the source must be conducted during day light hours and when weather conditions permit visual observations. • Activities must be halted if any marine mammal is observed within the exclusion zone, and only resume once the animal has left the exclusion zone or has not been re-sighted for 30 minutes. • If monitoring indicates sound levels in excess of 160 dB at the edge of the marine mammal exclusion zone for any activity, the activity will cease and the Proponent will notify DFO. The activity will only resume after additional mitigation measures are implemented (in consultation with DFO). • If serious harm to fish or marine mammals is observed, you are required to report to DFO immediately through the DFO-Pacific Observe, Record and Report phone line (toll free) at 1-800- 465-4336.
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3.3 Concrete Works and Rock Drilling

Table 3.3 Concrete Works and Rock Drilling - Mitigation Measures

Category/Activity	Mitigation Measures
Concrete Base Removal	<ul style="list-style-type: none"> • Contractors where possible will position their water borne equipment in a manner that will minimize damage to identified fish habitat (e.g. eel grass). Where possible, alternative methods will be employed (e.g. use of anchors instead of spuds). • All debris deposited throughout the life of the aid should be removed from the site.
Rock Drilling and Excavation	<ul style="list-style-type: none"> • Rock drilling and excavation activities must be conducted conservatively so that physical changes to rock remain small and localized. • Reduce the entry of dust and fines into the water, where feasible. Archeological sites in remote locations are not likely to have been previously identified. Care should be taken to observe archaeological deposits while work is being completed. Work must be stopped if evidence shows a potential archaeological artifact or deposit. Refer to the DFO Archeological Chance Find Protocol (Appendix B). • Loose material at excavation sites should be managed to avoid excessive migration of silt and debris to nearby waters, especially during heavy rainfall events. • All excavation below Highest High Water should be completed by hand, as no vehicles should be operated in the intertidal zone. • Any blasting will follow the Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters.
Dust Management	<ul style="list-style-type: none"> • There is the potential for dust emissions to be generated from concrete works (demolishing, cutting) and by rock drilling. • If the work activity is consistently generating dust, employ methods to minimize or contain the dust emissions (i.e. water spray/ fog to capture airborne dust; dampen work site (i.e. concrete base); install tarps/hoarding; control equipment use to duration of dust emissions)

<p>Sediment Management</p>	<ul style="list-style-type: none">• There is the potential for loose sediments to be generated or accumulated from rock drilling and certain concrete work activities.• Where possible, employ methods to minimize the amount of sediment created from the work activity• Sediment levels that create a significant change in the water's turbidity may also impact the aquatic and terrestrial environments. Contain and control the sediments at the work site by the use of silt curtains or similar effective methods.
<p>Concrete Wash water Management</p>	<ul style="list-style-type: none">• Concrete mixing will occur and be contained within a CCG concrete mix truck that is established on the barge• Concrete is transferred from the mixing truck to the pad via concrete hopper and crane• The truck and hopper are washed and all wash water is contained and funneled into drums• Drums are left to allow sediment to settle• CO2 bubbler is used to neutralize the pH• Drums are left to allow sediment to settle again before water is disposed of

3.4 Waste Management

This Project will generate construction related waste. Improper handling, storage, transportation and disposal of construction waste all have the potential to cause adverse environmental effects. Follow waste disposal requirements as per the BC Environmental Management Act Waste Regulations and Canadian Environmental Protection Act Regulations.

Table 3.4 Waste Control Mitigation Measures

Category/ Activity	Mitigation Measures
Waste	<ul style="list-style-type: none"> • Waste or any miscellaneous unused materials will be recovered for either disposal or a designated facility or placed in storage. Under no circumstances will materials be deliberately thrown into the aquatic or terrestrial environment. • Onsite personnel will make reasonable efforts to prevent debris from re-entering the environment. • Any treated cut wood, chips, sawdust that enters the aquatic environment is to be promptly collected, contained and disposed. Disposal of spoils (e.g. removed broken piles, metal, screw/nail findings and similar materials) is prohibited in the aquatic environment. • Any wastes from metal hot work should be kept out of the aquatic environment including welding rods and tips, and scrap metal. Collect and contain wastes and dispose of appropriately. • Litter in the form of coffee cups, lunch wrappers, cigarette butts and other such items will be placed in covered trash containers. • Debris/ waste will be kept on the barge or an approved laydown area and disposed of appropriately. • Sewage from portable toilets will be disposed of in an approved sewage disposal facility on an as-needed basis.
Portable Toilets	<ul style="list-style-type: none"> • Place materials defined as hazardous or toxic waste in designated containers. Seal and store emptied containers separately from non-hazardous waste.
Hazardous Waste	<ul style="list-style-type: none"> • Store preservative treated wood waste (e.g. pile material, sawdust) in a separate sealed water-proof container if there is a risk of leaching. • Hazardous waste, such as sorbent pads, will be collected and disposed of appropriately offsite. • Do not dispose of preservative treated wood through incineration, or with other materials destined for recycling or reuse, or into the aquatic environment, onto the ground, or in other locations where they could pose a health or environmental hazard. • Dispose of treated wood, end pieces, wood scraps and sawdust at an approved offsite facility.

3.5 Spill Mitigation Measures

Measures will be implemented to prevent and control the introduction of hazardous material to the environment. Hazardous materials likely to be onsite during the Project may include but not limited to:

- Fuels (gasoline, diesel)
- Lubricants (hydraulic oil, engine oil, grease)
- Transmission fluid

Measures to prevent and control the release of spills are provided in Table 3-5-3. In the event that a spill occurs during the Project, Table 3-5-2 provides the spill response measures and reporting requirements.

Table 3-5-1 Spill Prevention, Control and Response

Category/ Activity	Mitigation Measures
Spill Coordinator	The Contractor will appoint a Spill Coordinator who has knowledge of spill mitigation, containment and reporting procedures. They will also know the inventory of hazardous materials on site.
Training	The Contractor will confirm that onsite personnel understand the nature of the hazardous materials located at the Project site, and know the location of spill kits, containment berms, and other spill control measures and that they are readily accessible.
Fuel	Storage of fuels and petroleum products will comply with safe operating procedures, including containment measures. Portable fuel tanks (jerry cans) will be stored with leak proof secondary containment. Fuel storage, including secondary containment, shall be kept free and clear of collected rainwater, snowfall and other equipment/ materials. While refueling, the operator must stay with the fuel nozzle. Use biodegradable lubricants and hydraulic fluids where possible. Vehicles and equipment must be shut off while refueling.
Equipment Maintenance and Servicing	Impervious materials, such as tarps, drip pans or spill trays must be placed underneath equipment and machinery during servicing when there is the potential for accidental drips or spills. Servicing and maintenance of equipment shall be conducted on the barge or at the Contractor's shop facilities. Servicing and maintenance of equipment is not permitted in aquatic or terrestrial environments unless are exceptional circumstances and approved by the EM.

<p>Equipment</p>	<p>Machinery (excluding barges and vessels) should not be operated in the water unless approved by the EM.</p> <p>Equipment will be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products (includes hydraulic fluid, diesel, gasoline and other petroleum products).</p> <p>Maintain equipment in good working condition and free of excess oil and grease to prevent leaking or spillage of deleterious substances into the aquatic environment. Containers, nozzles, hoses will all be free of leaks.</p> <p>At the discretion of the EM, drip trays capable of containing 150% of the fuel will be placed beneath the machinery, equipment and fuel storage facilities that are within 30m of the high water line or in vessels.</p> <p>Small machinery (e.g. generators) should be placed in secondary containment, such as drip trays.</p> <p>Couplings, connectors, hydraulics and hoses should be in good condition and inspected throughout each day whenever possible. The Contractor should conduct spot-checks during equipment operation to verify that couplings, connectors, hydraulics and hoses are not leaking.</p> <p>Containers not in use will be sealed with a proper fitting cap or lid.</p>
<p>Spills</p>	<p>In the event of a leak, all fueling/ filling operations will be stopped until the cause of the leak has been identified and it has been repaired.</p> <p>All spills must be reported to the EM without undue delay, regardless of volume.</p>

Table 3-5-2 Spill Response Mitigation Measures and Reporting

Category/ Activity	Mitigation Measures
Spill Response Materials	<p>Spill response materials are required to be readily available when working at the Project site. These materials include but not limited to;</p> <ul style="list-style-type: none"> • Spill kits • Personal protective equipment (e.g. nitrile gloves, safety glasses) • Fire extinguishers • Shovels
Spill Kits	<p>The Contractor will provide an appropriate number of spill kits on site. The suggested contents of the spill kits are;</p> <ul style="list-style-type: none"> • 100 sorbent pads, including universal pads suitable for water based fluids (coolant) • 25kg of dry oil sorbent • 2 x 10m sorbent floating booms • 1 roll of 25 x 4m polyethylene sheeting (for underlay) • 10 heavy-duty plastic garbage bags <p>In addition to the spill kits on site, each piece of mobile equipment is suggested to have spill kit with contents as;</p> <ul style="list-style-type: none"> • Round nose shovel or equivalent • Absorbent sock/roll • 10 sorbent pads • Heavy-duty plastic garbage bags • Personal protective equipment <p>Spill kits will be inspected on a regular basis and will be refilled without undue delay.</p>
Response	<p>In the event of a spill, the Spill Coordinator will direct on site personnel to the location and use of the spill kits.</p> <ul style="list-style-type: none"> • The initial response to the spill may include; • Stop work • Confirm your own safety and safety of others • On site personnel wear personal protective equipment • Identify the spilled materials and refer to the MSDS to determine if human health or ignition hazards exist • If possible, and safe to do so, contain the spill by any safe means possible (e.g. plug leak, close/ isolate leaking valve) • Obtain assistance from others • Begin containment of spill and stop it from spreading • Clean up the spilled substance using available supplies from onsite spill kits • If the spill kit is on the barge, dyke around the affected areas to prevent spill from entering the aquatic environment

Reporting	<ul style="list-style-type: none"> • The CCG or DFO on site representative is responsible for notifying regulatory agencies or authorizing notification on their behalf to regulatory agencies of hazardous spills and to verify the spill meets provincial and federal requirements. • The Spill Regulation under the BC Environmental Management Act identifies externally reportable quantities for certain substances. All spills to water will be reported by the CCG (or delegate) to the Provincial Emergency Program • The EM will prepare an Environment Incident/Non-Compliance Report in the event of a spill. The following information should be collected as it may be required when reporting a spill to regulatory agencies and may be included in the Environment Incident/Non-Compliance Report; <ul style="list-style-type: none"> • Reporting person’s name and telephone number • Name of the owner of the product spilled and phone number • Date and time of the spill or leak • Location of the spill or leak • Providing a description of the environment • Type of material spilled and quantity • Source of leak or spill • If the spill or leaked product is contained. If not, what is flow direction • Description of the spill response and when it occurred • Percent of material recovered • Details of further action required • Recommendations for preventative/ mitigation measures • Names of other persons or agencies advised concerning the spill
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3.6 Wildlife and Habitat management

Table 3-6 Wildlife and Habitat Management

Category/ Activity	Mitigation Measures
Fish (Aquatic Species at Risk)	<ul style="list-style-type: none"> • It is illegal to harm, harass, capture, kill or take a species at risk or any part of it (i.e. shell). • The nav-aid footprint and barge landing areas will be inspected by the EM or designate for aquatic species at risk and/or their habitat prior to construction. • If aquatic species at risk and/or their habitat is present at a proposed landing site, the location or method for barge landing should be reassessed and modified to prevent harm to the species.

	<ul style="list-style-type: none"> • If aquatic species at risk are present within the proposed nav-aid footprint, work will stop and the project/site manager will be notified to determine the next course of action (e.g. reposition the structure, obtain a SARA permit)
Birds-Vessel Traffic	<ul style="list-style-type: none"> • When travelling near seabird colonies, travel parallel to shore rather than approach the colony directly. • Avoid travelling through areas where concentrations of seabirds are observed on water
Birds-Noise	<ul style="list-style-type: none"> • Avoid sharp loud noises, blowing whistles/ horns and maintain constant engine noise when within 300m of seabird colonies.
Birds	<ul style="list-style-type: none"> • critical habitat may potentially occur within the work sites. If clearing activities are planned, a site inspection would be required to determine if the area is suitable for nesting habitat and if so, clearing should be completed in consultation with Environment Canada (ECCC).
Bird Nest Interaction (Permits may be required)	<ul style="list-style-type: none"> • If a nest is discovered, notify the EM and refer to the CCG Protocol for Sensitive Bird Habitat at Navigation Aids. • If a nest must be removed (i.e. health and safety), use a removal method that will keep the nest integrated (in one piece) when lifting it from the nest platform on the nav-aid. Create a temporary nest platform to secure the nest during its removal • Place a removed nest in a location where it will not be damaged. • Bird nests may contain organic materials, fish carcasses and guano. Use PPE when handling the nest. • If eggs are found in the nest prior to removal, and work is occurring outside of the breeding season and have been abandoned, leave the eggs on site. Notify EM • If a bird is observed approaching a nest or the site and appears distressed, notify the EM directly and stop work. • If the nest incurs damage during or after it is removed, notify the EM.
Rockfish Conservation Areas	<ul style="list-style-type: none"> • FFHPP recommendations for mitigation
SARA Species	<ul style="list-style-type: none"> • In the event that SARA species are identified on site, work shall cease until appropriate permits are acquired and/or mitigation measures applied.

<p>Avoiding Disturbance to Seabird, Shorebirds and Colonies</p>	<ul style="list-style-type: none"> • For reconnaissance and assessment (i.e., photographing), complete as much work as possible from a vessel stationed >300 m from the colony, using binoculars and a telegraphic camera lens, to minimize time spent on a colony.
	<ul style="list-style-type: none"> • If colonies are occupied, the reconnaissance scheduled should allow you to determine whether they are active. However, recognize some birds may initiate nesting after this period.
	<ul style="list-style-type: none"> • For smaller colonies that cannot be accessed outside of the breeding window, a qualified Environmental Monitor should be present to assess disturbance and recommend changes to activities that are disrupting nesting behavior.
	<ul style="list-style-type: none"> • For larger colonies (i.e., >1,000 birds), access during the breeding window should be avoided altogether