


Draft Environmental Effects Evaluation/Application for an Environmental Assessment Certificate

Vopak Pacific Canada

Submitted by:

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November 2020

Draft Environmental Effects Evaluation/Application for an Environmental Assessment Certificate

Environmental Effects Evaluation Summary

November 2020

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E Environmental Effects Evaluation Summary

E.1 Project Identification

E.1.1 Project Overview

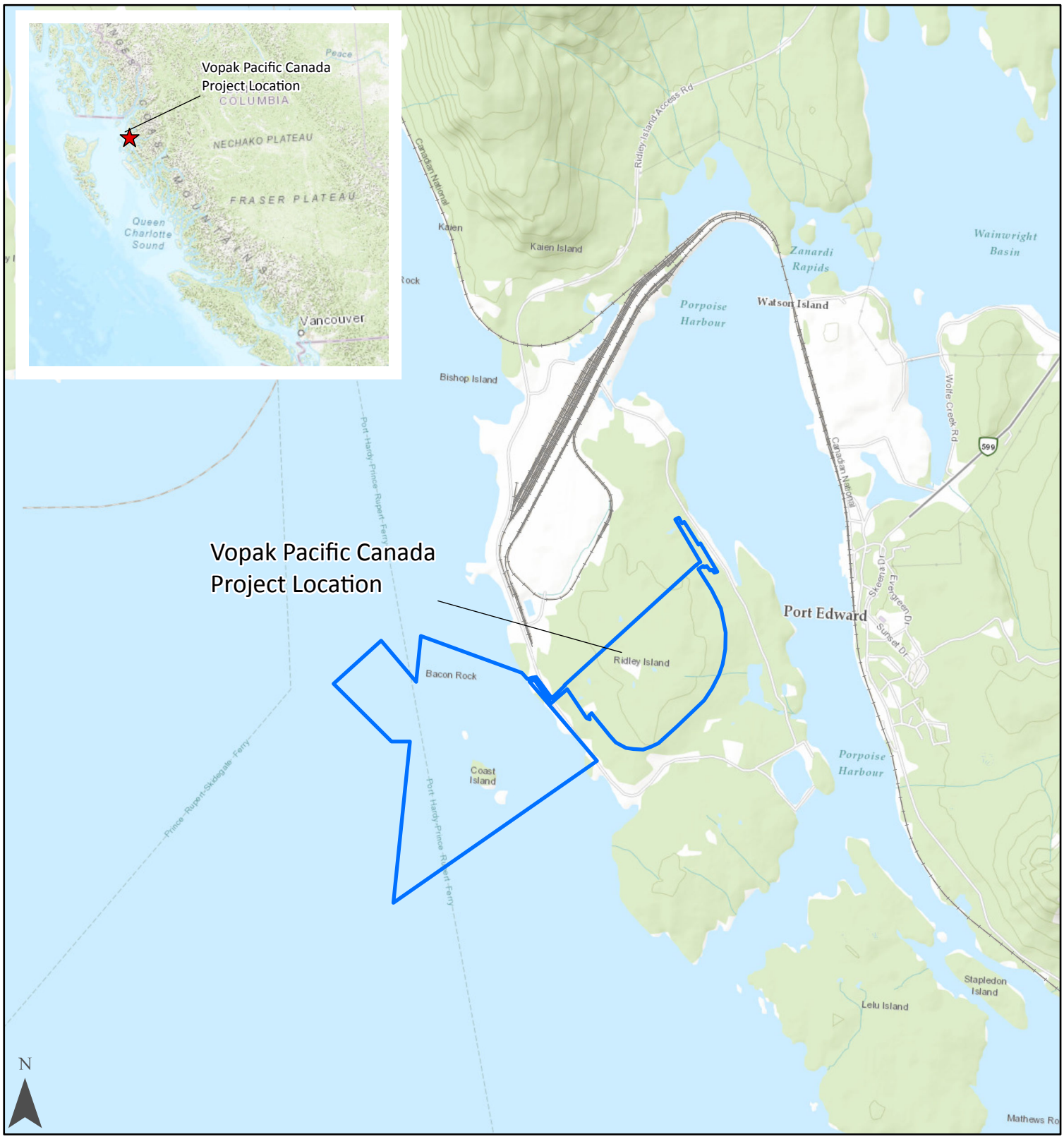
Vopak Development Canada Inc. (Vopak), a wholly owned subsidiary of Royal Vopak, is proposing to construct and operate the Vopak Pacific Canada Project (the Project), a new bulk liquids tank storage facility in Prince Rupert, BC. The Project is proposed to be located on Ridley Island within the lands and waters under the federal jurisdiction of the Prince Rupert Port Authority (PRPA) (**Figure E-1**). The Project will store Liquefied Petroleum Gas (LPG) (i.e., propane), Clean Petroleum Products (CPP) (i.e., diesel and/or gasoline), and methanol on behalf of Vopak's customers. Vopak will build the Project and manage the day-to-day operations of the bulk liquids tank storage facility. All products will be transported from various locations across Western Canada to the Project via the existing Canadian National Railway (CN) line. Customers of Vopak will schedule the transportation of the products to the facility and will ship the products from the Project's jetty to international markets.

E.1.2 Proponent

Vopak is the world's leading independent tank storage provider. Vopak operates a global network of terminals located at strategic locations along major trade routes. With a 400-year history and a strong focus on safety and sustainability, Vopak ensures efficient, safe, and clean storage and handling of bulk liquid products and gases for customers. The contact information for Vopak Pacific Canada is provided in **Table E-1**.

Table E-1: Proponent Contact Information

Project Name	Vopak Pacific Canada
Proponent	Vopak Development Canada Inc.
Address	444 5th Avenue SW, Suite 1460 Calgary, AB T2P 2T8 www.vopak.com Project website: https://www.vopak.com/vopak-pacific-canada Project email: vopakpacificcanada@vopak.com



Vopak Pacific Canada Project Location

Railway

Area of Interest

Project Location: **Ridley Island, Prince Rupert, BC**	SNC·LAVALIN
Client: **Vopak Development Canada Inc. (Vopak)**	

Figure E-1: Vopak Pacific Canada Project Location

Created by: AM	Checked by: MT/BL	Date: 2020/06/18
Coord. Sys.:	Scale: 1:36,091	Reference No: 656431-DAS TDR-001

0 0.4 0.8 1.6 2.4 3.2 Kilometers

MXD Path: P:\Current Projects\Vopak Development\656431 Env Assmt\40_Execution\45_GIS_Dwgs\GIS\656431_DAS_Analysis\656431_Dredge_Sed_Sampling_Report\656431_PRO_Dredge_Sediment_Sampling_Report\656431_PRO_Dredge_Sediment_Sampling_Report.aprx

E.1.3 Regulatory Context

The proposed Project is subject to review under the *BC Environmental Assessment Act* (*BCEAA* 2002) and the *Canadian Environmental Assessment Act, 2012 (CEAA 2012)* where:

- The Project is subject to review under *BCEAA 2002* because it exceeds the energy storage threshold of 3 PJ of stored energy as specified under Part 4, Table 8 of the *Reviewable Projects Regulation*.
- The Project is subject to review under Section 67 of *CEAA 2012* because it will be built on federal lands.

The draft Environmental Effects Evaluation/Application for an Environmental Assessment Certificate (EEE/Application) has been developed pursuant to the Terms of Reference (TOR)/Application Information Requirements (AIR) approved by the BC Environmental Assessment Office (BC EAO) and complies with relevant instructions provided in the BC EAO Section 11 Order and any other direction provided by the PRPA and the BC EAO.

The BC EAO and federal authorities have implemented a coordinated EA/EEE process with the objective of "one project, one assessment", meaning that both federal and provincial jurisdictions conduct their respective EA/EEE and make separate recommendations or determinations, while aligning their processes to the extent possible. The goal of the coordinated process is to streamline existing federal and provincial EA/EEE processes, create procedural certainty, and maintain the integrity and basic standards of the systems already in place in the respective jurisdictions. In instances where there are differences between the federal and provincial scope, the EEE/Application includes a summary of whether and how the EA differs as described in **Section 4.2.1.1**. The federal and provincial components under review are the same except for the addition of the marine shipping activities to the provincial scope, which extends beyond the PRPA administrative boundaries up to the pilot boarding location at or near Triple Island.

Table E-2 demonstrates applicable milestones, including, but not limited to, the issuance of Section 10 and Section 11 Orders by the BC EAO, Project Working Group meetings, public comment periods, open houses, and the issuance of the TOR/AIR, including the links to documents on the BC EAO's public website. The Project schedule related to construction, operation and decommissioning activities is presented in **Section 2.5 Schedule**.

Table E-2: Regulatory Milestones

Milestone	Date
Submission of the Project Description	June 26, 2018
Issuance of the Section 10 Order	July 26, 2018
Issuance of the Section 11 Order	November 2, 2018
Public Comment Period #1 on the Project Description and draft TOR/AIR, including open houses in Prince Rupert and Port Edward	September 6 to October 9, 2018
Working Group Consultation on the draft TOR/AIR Meeting #1 Meeting #2 Working Group Consultation on the revised jetty design Meeting #3	September 2018 to July 2019 September 25, 2018 January 23, 2019 April 1, 2020
Formal issuance of the TOR/AIR[1] to Vopak by BC EAO	July 25, 2019
Confirmation that the Environmental Assessment will continue under the provincial *Environmental Assessment Act*[2] (2002)	January 31, 2020

Milestone	Date
Amendment to the TOR/AIR[3] to Vopak by BC EAO	August 20, 2020
Submission of the Draft EEE/Application to federal and provincial authorities for screening	September 2020
Submission of the Draft EEE/Application to federal and provincial authorities for review	November 2020
Submission of the Final EEE to federal authorities	March 2020[4]
Public Comment Period #2 on the EEE/Application	Q4 2020[4]
Approval under the *Canadian Navigable Waters Act (CNWA*)	Q2 2021[4]
Authorization under the *Fisheries Act* (if required)	Q2 2021[4]
Section 73 permit under the *Species at Risk Act (SARA)* (if required)	Q2 2021[4]
Environmental Assessment Certificate	Q2 2021[4]
Environmental Effects Determinations	Q2 2021[4]

[1] Available at: https://projects.eao.gov.bc.ca/api/public/document/5d3a1bea2295f7002179314d/download/Vopak%20-%20Application%20Information%20Requirements%20-%202019-07-25.pdf
[2] Available at: https://www.projects.eao.gov.bc.ca/api/public/document/5e3b41693bf9020021ec9316/download/355513_Vopak_Final_EA%20Act%202002.pdf
[3] Available at: https://projects.eao.gov.bc.ca/api/public/document/5f3ea27af832870021a90ffc/download/Vopak%20-%20Application%20Information%20Requirements%20-%202020-08-20-clean.pdf
[4] Vopak forecasted dates

Documents related to the assessment of the Project can be found on the Electronic Project Information Centre (EPIC), the BC EAO's public website: https://projects.eao.gov.bc.ca/p/5b61e3726952ca0024cf687c/project-details.

Table E-3 lists of applicable licenses, permits and approvals that are required for the proposed Project, and the associated responsible regulatory body. Federal permitting authorities are required to make environmental effects determinations on the significance of the Project's effects prior to making any decisions on the below authorizations. Currently no provincial permits have been identified as required due to the Project's location within federal jurisdiction.

Table E-3: Applicable Authorizations

Permit, Notification or Approval	Regulator	Description
PRPA Lease Agreement under the *Canada Marine Act*	PRPA	Lease to occupy and use PRPA-administered lands.
Approval under the *Canadian Navigable Waters Act*	TC	Approval for the construction of Project components (e.g., marine) that would affect navigation.
Authorization under the *Fisheries Act*	DFO	Marine-based activities and infrastructure causing disturbance or loss of fish habitat in the marine environment require an Authorization from DFO. The requirement for this authorization is in the process of being determined.

Permit, Notification or Approval	Regulator	Description
Section 79 notification under the *Species at Risk Act*	The competent Minister (e.g., ECCC)	Vopak will notify the competent Minister without delay if any critical habitat or listed species are identified likely to be affected by the Project prior to the competent Minister making a determination on the Project under Section 67 of *CEAA 2012.*
Section 73 permit under the *Species at Risk Act*	The competent Minister (e.g., DFO, ECCC)	Permit authorizing activities affecting a threatened or endangered species, any part of its critical habitat or the residences of its individuals.
Environmental Assessment Certificate	BC EAO	Approval of a designated project pursuant to *BCEAA 2002.*
Environmental Effects Determinations	PRPA, TC, ECCC, DFO (if required)	Environmental Effects Determinations under Section 67 of *CEAA* 2012.

E.2 Project Description

E.2.1 Setting and Site Location

The physical works and activities of the Project are located entirely on federal lands and waters administered by PRPA. The Project is being built within an area designated for port-related activities within PRPA jurisdiction. Ridley Island falls under the Port of Prince Rupert 2020 Land Use Management Plan (AECOM 2011), which refers to the development of a liquid bulk terminal as being a long-term prospect in the port. The Project and associated activities fall within the traditional territories of the following six Indigenous Nations:

- Gitga'at First Nation.
- Gitxaała Nation.
- Kitselas First Nation.
- Kitsumkalum First Nation.
- Lax Kw'alaams Band.
- Metlakatla First Nation.

E.2.2 Project Components

The physical components of the Project (**Table E-4** and **Figure E-1**) can be broadly grouped into three major categories:

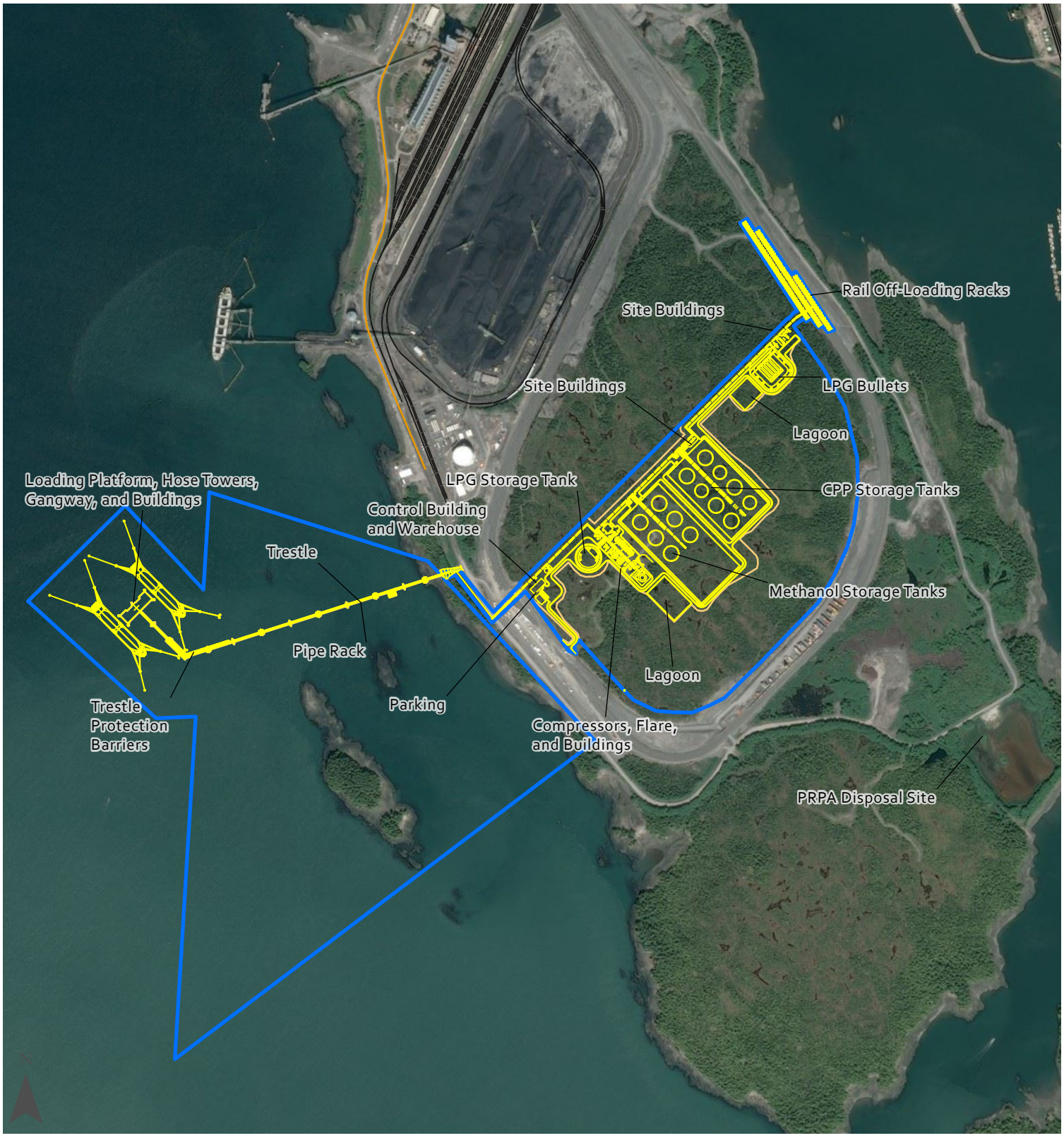
- **The bulk liquids tank storage facility** includes the infrastructure to receive the products from the railway line, propane cooling and bulk liquids tank storage.
- **The jetty** includes the infrastructure to support the loading and transferring of the products from the storage facility to a berthed ship.
- **Supporting infrastructure** required to operate and maintain the Project (e.g., roads, car parking, drainage and storm water systems, nitrogen, office, maintenance and utility buildings, and utilities).

The Project footprint, as shown in **Figure E-2**, will encompass all areas that may be disturbed by construction, operation, and decommissioning activities.

Table E-4: Physical Components of the Project

Component Category	Project Components
Bulk liquids tank storage facility	› Up to 50 rail car unloading racks along the PRPA Road Railway Utility Corridor (RRUC). › Five mounded pressurized liquefied petroleum gas (LPG) bullets of 1,600 cubic metres (m^3) each. › LPG cooling equipment and de-ethanizer. › One full containment LPG storage tank of 90,000 m^3. › Carbon steel storage tanks (clean petroleum products [CPP]: 2 tanks at 40,000 m^3 and 6 tanks at 30,000 m^3; methanol: 4 tanks at 40,000 m^3 and 2 tanks at 30,000 m^3). › Two gas turbines capable of producing up to 16.5 megawatts (MW) of electrical power for LPG cooling. › Emergency ground flare. › Process control and safety systems.
Jetty	› A pipe rack for the pipelines for products and utilities. › A 1,100 metre (m) long trestle with 95 m spans. › One platform for the firewater pumps near shore. › One loading platform and system serving both berths including all required equipment and systems and the spill boom. › Potentially protection barriers around the trestle and loading platform.[1] › Two parallel Multi Buoy Mooring berths for vessels up to 85,000 m^3 capacity (80,000 dead weight tonnes). › Process control and safety systems.
Supporting Infrastructure	› Roads and car parking. › Drainage and storm water system, including two storm water lagoons (125 m x 80 m and 80 m x 70 m). › Nitrogen for safety and maintenance purposes. › Office including central control room (CCR), and maintenance and utilities buildings. › Electrical substation and connection to the BC Hydro grid. › Natural gas connection to Pacific Northern Gas for gas turbines and heating of buildings.

Notes:
1. As engineering progresses, there is a high probability that the protection barriers will not be required. However, Vopak has conservatively chosen to include the protection barriers as part of the assessment of Project effects.



- Harbour Anchorage
- PRPA Jurisdiction
- Major Streets
- Railway
- Project Components
- Project Footprint
- Area of Interest

Project Location:
Ridley Island, Prince Rupert, BC

Client:
Vopak Development Canada Inc. (Vopak)

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Figure E2: Project Layout

Created by: ECH	Checked by: MB/EM	Date: 2020/09/30
Coord. Sys.:UTM Zone 9N NAD83	Scale: 1:17,000	Reference No: 655902-GEN-6

0 130 260 520 780 1,040
Meters

MXD Path: P:\Current Projects\Vopak Development\656431 Env. Assmt\40_Execution\45_GIS_Dwgs\GIS\Vopak_Pro_4\Vopak_Pro_4.aprx

E.2.3 Project Activities

The anticipated construction activities are expected to take two years and include:

- Site clearing and grading.
- Construction of Project facilities on land (civil, mechanical, electrical and instrumentation works).
- Construction of the marine jetty and berths.
- Disposal of surplus organics and waste rock, including transit to and from the PRPA disposal area.
- Post-construction clean-up and on-site ground reclamation.
- Commissioning.
- Construction accommodation and transportation to and from site.

The facility will operate 24 hours per day, 365 days per year. The operational lifespan of the Project is anticipated to be a minimum duration of 50 years. Activities during operation will include:

- Railway operation associated with Project inbound train unloading and outbound train staging within the Port of Prince Rupert.
- LPG cooling process.
- Product storage.
- Vessel berthing.
- Cargo loading.
- General terminal operation.
- Associated off-site shipping activities along the marine access route between the Project marine berths and the pilot boarding area near Triple Island. Associated off-site shipping and rail activities will be the responsibility of Vopak's customers and within the care of the infrastructure service providers.

Decommissioning and reclamation planning will be developed in accordance with the rules and legislations in place at the time of decommissioning, including the requirements of the PRPA. The overarching aim of decommissioning and reclamation will be to reclaim disturbed areas to a condition that is consistent with the surrounding environment to the greatest extent possible and to develop self-sustaining ecosystems and landforms that will not require long-term maintenance. Activities during decommissioning are expected to take 12 months and include:

- Cleaning of tanks and infrastructure.
- Removal of tanks and infrastructure.
- Removal of buildings and utilities infrastructure.
- Removal of jetty topside and mooring buoys (jetty structure itself is expected to remain).
- Soil sampling and soil remediation, if required.
- Backfilling of lagoons and other water management structures.

E.2.4 Schedule

Table E-5 provides a detailed schedule of activities during each phase of the Project.

Table E-5: Schedule of Activities During Each Phase of the Project

Project Activity	Approximate Duration	Anticipated Start Date
Pre-construction certificates and permits	N/A	Q2 2021
Detailed engineering design	6 months	Q3 2021
Site preparation (land based)	4 months	Q4 2021/Q1 2022
Onshore construction	20 months	Q1 2022
Marine construction	24 months	Q4 2021/Q1 2022
Commissioning	1 month	Q4 2023
Operation	Minimum 50 years	Q1 2024
Decommissioning	12 months	Q1 2074

E.2.5 Estimated Project Benefits

Vopak expects to spend about $885 million on the two-year construction phase, $500 million during operation from 2021-2037, and $5 to 10 million on decommissioning (after 2037, spending during operation is unknown). Vopak anticipates requiring 250 workers per year during each of the two years of construction, 39 full-time equivalent (FTE) workers annually during operation, and 125 workers during the 12 month decommissioning phase. Vopak anticipates that approximately 30% of construction workers, 77% of operations workers, and 50% of decommissioning workers will be from the region. The Project will make several types of payments to governments of all levels directly and there will also be revenues flowing to governments from indirect and induced economic activity associated with the Project. According to the Statistics Canada Inter-provincial Input-output Model (STCIPIOM) and Vopak's calculations, there will be a total of $141 million of revenues flowing to the federal government associated with the Project, excluding corporate income taxes. There will be a total of $137 million in revenues flowing to the BC and other provincial and territorial governments associated with the Project, excluding corporate income taxes. Local governments will receive payments for the use of lands, but also other revenue associated with indirect and induced economic activity associated with the Project.

E.3 Consultation and Engagement

E.3.1 Consultation Activities

Vopak's consultation and engagement on this Project are guided both by Vopak's commitment to the local communities and Indigenous Nations for meaningful opportunities to provide input on the Project, as well as by the requirements of the provincial and federal regulatory authorities. The British Columbia (BC) Environmental Assessment Office's (BC EAO) requirements are set out in the Project's Section 11 Order.

A Public Consultation Plan and an Indigenous Consultation Plan were developed in accordance with the Section 11 Order and Vopak's principles for consultation and engagement. The plans describe the approach, methods and activities Vopak has proposed to implement and share Project-related information

and seek input from the public, local communities, Indigenous Nations and other interested parties in the vicinity of the Project.

A Working Group involving representatives of Indigenous Nations identified in Schedule B of the Section 11 Order, as well as representatives of federal, provincial and local government agencies, was established for the Project. In accordance with the Section 11 Order, Vopak is consulting with the following six Indigenous Nations:

- Gitga'at First Nation.
- Gitxaała Nation.
- Kitselas First Nation.
- Kitsumkalum First Nation.
- Lax Kw'alaams Band.
- Metlakatla First Nation.

The full list of agencies is included in **Section 1.4.4 List of Reviewing Agencies** of the EEE/Application. The purpose of the Working Group is to provide input on aspects of the environmental assessment (EA), including information required for the EA, conclusions of the EEE/Application, potential mitigation measures and impacts on Aboriginal Interests and measures to mitigate such potential adverse effects.

Key consultation and engagement milestones are presented in **Table E-6** below.

Table E-6: Key Consultation and Engagement Milestones

Milestone[1]	Date
Public Comment Period #1 on the Project Description and draft TOR/AIR › Open house in Port Edward › Open house in Prince Rupert	September 6 to October 9, 2018 September 25, 2018 September 26, 2018
Working Group Consultation on the draft TOR/AIR › Working Group Meeting #1 › Working Group Meeting #2	September 2018 to June 2019 September 25, 2018 January 23, 2019
Final Public Consultation Plan	November 2018
Public Consultation Report #1	February 2019
Final Indigenous Consultation Plan	March 2019
Indigenous Consultation Report #1	November 2019
Working Group Meeting #3 (Consultation on the revised jetty design)	April 1, 2020
Working Group screening of the EEE/Application	September 10 to October 9, 2020
Public Consultation Report #2	September 2020
Indigenous Consultation Report #2	September 2020
Indigenous Nations Meetings (TK/TLU information incorporation to the EEE/Application)	October 19 to 26, 2020
Public Comment Period #2 on the EEE/Application › Virtual Open Houses	Q4 2020
Working Group Consultation on the EEE/Application, including Working Group meetings	Q4 2020 to Q2 2021
Public Consultation Report #3	Q1 2021 (Within 60 days of the public comment period)

Milestone[1]	Date
Indigenous Consultation Report #3	Q1 2021 (Within 100 days from the commencement of the EEE/Application review stage)
Public Consultation Period on the BC EAO draft Assessment Report	Q2 2021

Note: 1: Documents can be accessed on the BC EAO's public website by pressing CTRL + Click on the hyperlink of the underlined documents.

E.3.2 Summary of Key Issues Raised by Indigenous Nations

Key issues raised by each Indigenous Nations during the pre-application phase were discussed and documented. Although each Indigenous Nation identified concerns specific to each nation, the common key Aboriginal Interests which may experience adverse effects include:

- Harvesting rights.
- Sense of place and sense of attachment.
- Access and travel.
- Indigenous governance systems.
- Cultural identity.
- Indigenous health.
- Indigenous socio-economic conditions.
- Indigenous physical and cultural heritage.

This EEE/Application will be reviewed by the Indigenous Nations through the EEE/Application review phase. Vopak acknowledges that the information provided by the Indigenous Nations is a snapshot of use and is not necessarily inclusive of all activities or areas of importance that may interact with the Project. Vopak's assessment relies on information obtained through Project specific consultation activities and TK/TLU studies prepared by the Indigenous Nations. Characterization of residual effects on Aboriginal Interests presented here will be reviewed by the Indigenous Nations through the EEE/Application review phase. Vopak acknowledges that some issues raised by the Indigenous Nations during pre-EEE/Application engagement were not fully resolved prior to submission of the EEE/Application. Based on feedback provided by Indigenous Nations during the screening period, Vopak committed to providing each interested Indigenous Nation the opportunity to meet and review how their baseline information has been integrated into the EEE/Application prior to the EEE/Application review phase. These meetings occurred from October 19 to 26, 2020, and focused primarily on Part C. When possible, changes or updates to baseline information in Part B were made during the meetings with each Indigenous Nation, however the majority of the revisions to Part B occurred after these meetings. Vopak welcomed the opportunity to meet with the Indigenous Nations during the screening period to integrate the Nations' specific TK/TLU information, and remains committed to engaging with Indigenous Nations throughout the EA process and, if needed, working to develop mutually acceptable mitigation measures that will avoid or reduce residual Project and cumulative effects on the Aboriginal Interests. Vopak will record all comments and track how feedback and concerns provided by the Indigenous Nations are addressed. It is anticipated that further engagement will be reported in the third Indigenous Consultation Report to be submitted 100 days after the EEE/Application is filed.

E.3.3 Summary of Key Adverse Effects on Aboriginal Interests and Mitigation Measures

The following presents a summary of key adverse effects on Aboriginal interests and mitigations measures. Vopak acknowledges that some issues raised by the Indigenous Nations during pre-EEE/Application engagement were not fully resolved prior to submission of the EEE/Application. During the EEE/Application review stage Vopak will continue to address any issues that remain outstanding through continued engagement, as required.

Vopak will engage with Indigenous Nations on a management plan specific to Aboriginal Interests. The Aboriginal Interest Management Plan will outline mitigation measures to avoid, minimize, reduce, and/or offset potential effects to the Aboriginal Interests identified above.

E.3.3.1 Harvesting Rights

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful, will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests. **Table E-7** is a summary of relevant Part B mitigation in response to potential Project-related effects on harvesting rights and is applicable to all Project phases.

In addition to mitigation proposed in Part B, Vopak has identified the following measures, which are applicable to all Project phases, to mitigate potential adverse effects on harvesting rights:

- Vopak will work with the Indigenous Nations to develop a shared understanding of how the Project may affect Aboriginal Interests. Vopak will continue engaging with Indigenous Nations to discuss the Project and its effects, understand concerns that may arise, and respond to those concerns. Through ongoing efforts, Vopak will strive to maintain positive long-term relationships with Indigenous Nations. Vopak will continue to engage with Indigenous Nations for the life of the Project.
- Vopak will provide Project workers, with cross-cultural awareness training, which will be developed in collaboration with engaged Indigenous Nations. This is expected to build awareness and reduce potential adverse interactions with Indigenous peoples, including Indigenous employees (e.g., inform non-Indigenous people about the importance of: harvesting practices and Indigenous Rights; spiritual and sacred sites; access and travel routes, etc.). The cross-cultural training will be developed prior to construction of the Project and will be provided to Project workers during all phases of the Project. The effectiveness of this measure will depend on the training objectives developed through engagement with the participating Indigenous Nations. The effectiveness of the cross-cultural awareness training is not known at present because the content of the training has not been finalized. However, Vopak understands that cross-cultural awareness training has been effective for other projects.
- Vopak will consult with the Indigenous Nations on the development of its monitoring and follow-up plans. Engaging Indigenous Nations will allow Vopak to use Traditional Knowledge (TK) in verifying the effectiveness of mitigation measures. This mitigation measure will also allow Vopak to continue to understand and address specific concerns the Indigenous Nations may have regarding effects to their harvesting rights. Consultation will occur throughout the EEE/Application review process. The effectiveness of this measure depends on the plans developed, however, mitigation is expected to be effective.

- The opportunity to harvest plants by Indigenous Nations will be incorporated, where appropriate and technically feasible, into the Wetland Compensation Plan. This is expected to provide Indigenous Nations with the opportunity to continue to gather traditionally harvested species. A Wetland Compensation Plan will be developed by Vopak in consultation with PRPA, ECCC and Indigenous Nations, in accordance with the Federal Policy on Wetland Conservation prior to Project construction. The effectiveness is not known at present.
- Vopak will comply with government requirements associated with Aboriginal rights and title claims within areas potentially affected by the Project. This will continue to occur during all phases of the Project.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-12**.

Table E-7: Summary of Proposed Part B Mitigation Measures for Harvesting Rights

Potential Effect on Harvesting Rights	Proposed Mitigation	Potential Residual Effect? (Y/N)
Change in Quantity of Resource	› Design the Project to minimize the footprint area and reduce visual effects. › Limit site clearing, laydown and staging areas to the infrastructure footprint area and retain peripheral vegetation as much as possible to limit sight lines to the Project. › Prior to construction, prepare an amphibian salvage plan in consultation with PRPA (Prince Rupert Port Authority) and ECCC (Environment and Climate Change Canada). › If vegetation clearing is proposed during the bird nesting season, then pre-clearance bird nest surveys will be done to identify active bird nests and establish protective buffers around nests until the nest is no longer active. A pre-clearance nest survey plan will be developed, in consultation with PRPA and ECCC, to guide bird nest survey activities. › Prior to commencement of Project activities, develop and implement site-specific management plans, including: - Construction Environmental Management Plan (CEMP) including component Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Wildlife Management Plan (WMP), Vegetation Management Plan, Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Air Quality and Dust Control Management Plan (AQDCMP), Light Management Plan (LMP), Operation Environmental Management Plan (OEMP), Petrochemical Storage and	Y
Change in Quality of Resource		Y

Potential Effect on Harvesting Rights	Proposed Mitigation	Potential Residual Effect? (Y/N)
Change in Quality of Resource	Handling Plan (PSHP), Surface Water and Storm Water Management Plan (SWSWMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP). › Develop and implement a Site Restoration Plan (SRP) and Decommissioning Environmental Management Plan (DEMP) that includes measures for habitat/ vegetation recovery and restoration. › For loss of marine habitat, develop, and monitor the effectiveness of, a fish habitat offsetting plan that meets DFO approval; the plan will be discussed collaboratively with Indigenous Nations. › For loss of wetlands, a Wetland Compensation Plan will be developed in consultation with PRPA, ECCC, and Indigenous Nations, in accordance with the Federal Policy on Wetland Conservation. › Develop an energy management plan to reduce operational GHG emissions; report GHG emissions through the Greenhouse Gas Emissions Reporting Program. › Develop and implement an Underwater Acoustic Monitoring Program to prevent noise levels from exceeding accepted or approved levels. › Implement ongoing operation monitoring program to evaluate accuracy of effects assessment of disturbance from scouring action by mooring buoy chains on benthic communities. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP. › Develop and implement an engine idling policy and use efficient, lower-emission vehicles and equipment. › Conduct air quality monitoring. › Develop construction-activity specific Stop Work Protocols that allows for the temporary cessation of Project-related activities and account for site-specific species and observation conditions. Stop Work Protocols include, but are not limited to, SPL exceedances, observations of distressed fish, or observations of aggregations of Pacific Herring, salmon, or Eulachon. › Follow DFO guidelines regarding seasonal risk. › Participate in PRPA Marine Mammal Program (PRPA 2020), DFO or other agency whale disturbance reduction programs, as possible; monitoring crews will have marine mammal awareness training including DFO and Marine Mammal Regulation specified approach distances. › As a PRPA tenant, Vopak will participate in PRPA's Marine Environmental Water Quality Program.	Y

E.3.3.2 Sense of Place and Sense of Attachment

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests. **Table E-8** is a summary of relevant Part B mitigation in response to potential Project-related effects on sense of place and sense of attachment and is applicable to all Project phases.

In addition to mitigation proposed in Part B, Vopak has identified the following measures, which are applicable to all Project phases, to mitigate potential adverse effects on sense of place and sense of attachment.

- Vopak will work with the Indigenous Nations to develop a shared understanding of how the Project may affect Aboriginal Interests. Vopak will continue engaging with Indigenous Nations to discuss the Project and its effects, understand concerns that may arise, and respond to those concerns. Through ongoing efforts, Vopak will strive to maintain positive long-term relationships with Indigenous Nations. Vopak will continue to engage with Indigenous Nations for the life of the Project.
- Vopak will consult with the Gitga'at First Nation on the development of its monitoring and follow-up plans. Engaging Indigenous Nations will allow Vopak to utilize Traditional Knowledge (TK) in verifying the effectiveness of mitigation measures. This mitigation measure will also allow Vopak to continue to understand and address specific concerns the Indigenous Nations may have regarding effects to their sense of place and sense of attachment. Consultation will occur throughout the EEE/Application review process. The effectiveness of this measure depends on the plans developed, however, mitigation is expected to be effective.
- Vopak will provide Project workers, with cross-cultural awareness training, which will be developed in collaboration with engaged Indigenous Nations. This is expected to build awareness and reduce potential adverse interactions with Indigenous peoples, including Indigenous employees (e.g., inform non-Indigenous people about the importance of: harvesting practices and Indigenous Rights; spiritual and sacred sites; access and travel routes, etc.). The cross-cultural training will be developed prior to construction of the Project and will be provided to Project workers during all phases of the Project. The effectiveness of this measure will depend on the training objectives developed through engagement with the participating Indigenous Nations. The effectiveness of the cross-cultural awareness training is not known at present because the content of the training has not been finalized. However, Vopak understands that cross-cultural awareness training has been effective for other projects.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-8**.

Table E-8: Summary of Proposed Part B Mitigation Measures for Sense of Place and Sense of Attachment

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Change in Spiritual and Cultural Sites	› Design to minimize footprint; develop and implement a CEMP, including: limiting site clearing, laydown, and staging areas; use natural colours as possible; revegetate temporary cleared areas following construction. › Prior to commencement of Project activities, develop and implement site-specific management plans, including: › Construction Environmental Management Plan (CEMP) including Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Wildlife Management Plan (WMP), Vegetation Management Plan, Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Air Quality and Dust Control Management Plan (AQDCMP), Light Management Plan (LMP), Operation Environmental Management Plan (OEMP), Petrochemical Storage and Handling Plan (PSHP), Surface Water and Storm Water Management Plan (SWSWMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP). › Develop an energy management plan to reduce operational GHG emissions; report GHG emissions through the Greenhouse Gas Emissions Reporting Program. › Develop and implement a Site Restoration Plan (SRP) and Decommissioning Environmental Management Plan (DEMP) that includes measures for habitat/ vegetation recovery and restoration. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP. › Develop and implement an engine idling policy and use efficient, lower-emission vehicles and equipment. › Conduct air quality monitoring.	Y
Change in Quality of Experience		Y

E.3.3.3 Access and Travel

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests. **Table E-9** is a summary of relevant Part B mitigation in response to potential Project-related effects on access and travel and is applicable to all Project phases.

In addition to mitigation proposed by Part B, Vopak has identified the following measures, which are applicable to all Project phases, to mitigate potential adverse effects on access and travel:

› Vopak will work with the Indigenous Nations to develop a shared understanding of how the Project may affect Aboriginal Interests. Vopak will continue engaging with Indigenous Nations to discuss the Project and its effects, understand concerns that may arise, and respond to those concerns. Through ongoing efforts, Vopak will strive to maintain positive long-term relationships with Indigenous Nations. Vopak will continue to engage with Indigenous Nations for the life of the Project.

- Project-related marine traffic will use the Coast Guard Marine Communication and Traffic System (MCTS) to provide notice of planned arrivals and departures from the marine terminal. Vopak will consult with Indigenous Nations to determine if additional communication protocols are needed. The rationale for this measure is that public notice will help to reduce adverse effects of avoidance due to safety concerns, inconvenience, or reduced enjoyment. The measure is intended to reduce effects on access to and use of spiritual and cultural locations due to Project-related planned arrivals and departures. The effectiveness of this measure will depend on the need for and implementation of additional public notices.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-9**.

Table E-9: Summary of Proposed Part B Mitigation Measures for Access and Travel

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes in Access to and Use of Harvesting Locations	- Design the Project to minimize the footprint area and reduce the visual effects. - Design Project trestle spans to allow navigation around and under the trestle for some vessels (e.g., skiffs and canoes); height of trestle is 4.06 m. - Use natural colors on infrastructure as much as possible, while following marine and air navigation requirements, to help blend into the natural environment. - Establish marine safety zones; provide Notices to Shipping and Notices to Mariners where navigation restrictions and routing advisories will be in effect. - Prior to commencement of Project activities, develop and implement site-specific management plans, including: - Construction Environmental Management Plan (CEMP) including Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Wildlife Management Plan (WMP), Vegetation Management Plan, Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Air Quality and Dust Control Management Plan (AQDCMP), Construction Traffic Management Plan (CTMP), Light Management Plan (LMP), Operation Environmental Management Plan (OEMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP).	Y

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes in Access to and Use of Spiritual and Cultural Locations	› Develop an energy management plan to reduce operational GHG emissions report GHG emissions through the Greenhouse Gas Emissions Reporting Program. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP. › Develop and implement an engine idling policy and use efficient, lower-emission vehicles and equipment. › Conduct air quality monitoring. › Adherence to PRPA and Pacific Pilotage Authority (PPA) procedures (including mandatory piloting of carriers calling on the terminal and safety zones for other vessels). › Transit speed will be in accordance with the PRPA and Collision Regulations. › Navigational aids will be installed on jetty structures to enhance navigation safety, and will remain on jetty structures, where required, to enhance navigation safety. › Reduce personal and industrial traffic volumes to reduce potential traffic accidents. › Navigational charts will be updated to show the trestle and berth locations avoiding any potential collisions or impacts with jetty structure. › Escort vessels will be used to confirm the route is clear and safe and that other vessels do not intrude on safety zones. › Tugboats will be used for the safe transit and berthing of vessels calling on the terminal. › Limits on environmental conditions under which operations can be conducted safely (visibility, day-time operations, wind) will be set consistent with consultation with pilots, and practices throughout the industry.	Y

E.3.3.4 Indigenous Governance Systems

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests. **Table E-10** is a summary of relevant Part B mitigation in response to potential Project-related effects on Indigenous governance systems and is applicable to all Project phases.

In addition to mitigation proposed in Part B, Vopak will provide Project workers with cross-cultural awareness training, which will be developed in collaboration with engaged Indigenous Nations. This is expected to build awareness and reduce potential adverse interactions with Indigenous peoples, including Indigenous employees (e.g., inform non-Indigenous people about the importance of: harvesting practices and Indigenous Rights; spiritual and sacred sites; access and travel routes, etc.). The cross-cultural training will be developed prior to construction of the Project and will be provided to Project workers during all phases of the Project. The effectiveness of this measure will depend on the training objectives developed through engagement with the participating Indigenous Nations. The effectiveness of the cross-cultural awareness training is not known at present because the content of the training has not been finalized. However, Vopak understands that cross-cultural awareness training has been effective for other projects.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-10**.

Table E-10: Summary of Proposed Part B Mitigation Measures for Indigenous Governance Systems

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes to Management Objectives	› Design the Project to minimize the footprint area and reduce visual effects. › Limit site clearing, laydown and staging areas to the infrastructure footprint area and retain peripheral vegetation as much as possible to limit sight lines to the Project. › Vopak will use natural colours on infrastructure as much as possible, while following marine and air navigation requirements, to help blend into the natural environment. › Prior to commencement of Project activities, develop and implement site-specific management plans, including: - Construction Environmental Management Plan (CEMP) including Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Construction Traffic Management Plan (CTMP), Wildlife Management Plan (WMP), Vegetation Management Plan, Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Air Quality and Dust Control Management Plan (AQDCMP), Light Management Plan (LMP), Operation Environmental Management Plan (OEMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP). › Develop and implement a Site Restoration Plan and Decommissioning Environmental Management Plan (DEMP) that includes measures for habitat/ vegetation recovery and restoration. › For loss of marine habitat, develop and monitor the effectiveness of a fish habitat offsetting plan that meets DFO approval. › For loss of wetlands, a Wetland Compensation Plan will be developed in consultation with PRPA, ECCC, and Indigenous Nations, in accordance with the Federal Policy on Wetland Conservation. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP.	Y
Changes to Traditional Foods		Y
Changes to Ability to Teach and Share Traditions		Y

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
	› Develop construction-activity specific Stop Work Protocols that allow for the temporary cessation of Project-related activities and account for site-specific species and observation conditions. Stop Work Protocols include, but are not limited to, SPL exceedances, observations of distressed fish, or observations of aggregations of Pacific Herring, salmon, or Eulachon. › Engage with chambers of commerce in the region to address labour competition; participate in local employment, training, and labour market planning committees. › Implement a local content strategy to increase the potential of local Indigenous and local community businesses on the project. › Notify local indigenous employment entities on where to find employment and training opportunities related to the Project.	

E.3.3.5 Cultural Identity

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests. **Table E-11** is a summary of relevant Part B mitigation in response to potential Project-related effects on cultural identity and is applicable to all Project phases.

In addition to mitigation proposed in Part B, Vopak has identified the following measures, which are applicable to all Project phases, to mitigate potential adverse effects on cultural identity:

› Vopak will work with the Indigenous Nations to develop a shared understanding of how the Project may affect Aboriginal Interests. Vopak will continue engaging with Indigenous Nations to discuss the Project and its effects, understand concerns that may arise, and respond to those concerns. Through ongoing efforts, Vopak will strive to maintain positive long-term relationships with Indigenous Nations. Vopak will continue to engage with Indigenous Nations for the life of the Project.

› Vopak will provide Project workers with cross-cultural awareness training, which will be developed in collaboration with engaged Indigenous Nations. This is expected to build awareness and reduce potential adverse interactions with Indigenous peoples, including Indigenous employees (e.g., inform non-Indigenous people about the importance of: harvesting practices and Indigenous Rights; spiritual and sacred sites; access and travel routes, etc.). The cross-cultural training will be developed prior to construction of the Project and will be provided to Project workers during all phases of the Project. The effectiveness of this measure will depend on the training objectives developed through engagement with the participating Indigenous Nations. The effectiveness of the cross-cultural awareness training is not known at present because the content of the training has not been finalized. However, Vopak understands that cross-cultural awareness training has been effective for other projects.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-11**.

Table E-11: Summary of Proposed Part B Mitigation Measures for Cultural Identity

Potential Effect on Cultural Identity	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes to Traditional Harvesting Activities	› Design the Project to minimize the footprint area and reduce the visual effects. › Limit site clearing, laydown and staging areas to the infrastructure footprint area and retain peripheral vegetation as much as possible to limit sight lines to the Project. › Use natural colours on infrastructure as much as possible, while following marine and air navigation requirements, to help blend into the natural environment. › Prior to commencement of Project activities, develop and implement site-specific management plans, including: - Construction Environmental Management Plan (CEMP) including Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Construction Traffic Management Plan (CTMP), Wildlife Management Plan (WMP), Vegetation Management Plan, Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Air Quality and Dust Control Management Plan (AQDCMP), Light Management Plan (LMP), Operation Environmental Management Plan (OEMP), Petrochemical Storage and Handling Plan (PSHP), Surface Water and Storm Water Management Plan (SWSWMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP). › Develop and implement a Site Restoration Plan (SRP) and Decommissioning Environmental Management Plan (DEMP) that includes measures for habitat/ vegetation recovery and restoration. › Develop an energy management plan to reduce operational GHG emissions; report GHG emissions through the Greenhouse Gas Emissions Reporting Program. › Develop and implement an Underwater Acoustic Monitoring Program. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP. › Develop and implement an engine idling policy and use efficient, lower-emission vehicles and equipment. › Conduct air quality monitoring.	Y
Changes to Culturally Important Species		Y
Changes to Feasting and Ceremonial Activities		Y
Changes to Spiritual and Cultural Locations		Y
Changes in Opportunities to Transmit Cultural Practices		Y

Potential Effect on Cultural Identity	Proposed Mitigation	Potential Residual Effect? (Y/N)
	› Develop construction-activity specific Stop Work Protocols that allows for the temporary cessation of Project-related activities and account for site-specific species and observation conditions. Stop Work Protocols include, but are not limited to, SPL exceedances, observations of distressed fish, or observations of aggregations of Pacific Herring, salmon, or Eulachon. › Follow DFO guidelines regarding seasonal risk. › Participate in PRPA Marine Mammal Program (PRPA 2020), DFO or other agency whale disturbance reduction programs, as possible; monitoring crews will have marine mammal awareness training including DFO and Marine Mammal Regulation specified approach distances.	

E.3.3.6 Indigenous Health

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests. On many well-being indicators Indigenous Nations are below Canadian averages and health conditions are already strained before the addition of the Project. This means that with respect to the Project, Vopak's proposed mitigation measures sought to keep changes to Indigenous health neutral.

Table E-12 is a summary of relevant Part B mitigation in response to potential Project-related effects on Indigenous health and is applicable to all Project phases.

In addition to mitigation proposed in Part B, Vopak will work with the Indigenous Nations to develop a shared understanding of how the Project may affect Aboriginal Interests. Vopak will continue engaging with Indigenous Nations to discuss the Project and its effects, understand concerns that may arise, and respond to those concerns. Through ongoing efforts, Vopak will strive to maintain positive long-term relationships with Indigenous Nations. Vopak will continue to engage with Indigenous Nations for the life of the Project.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-12**.

Table E-12: Summary of Proposed Part B Mitigation Measures for Indigenous Health

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes to Noise Levels	› Design the Project to minimize the footprint area and reduce visual effects. › Limit site clearing, laydown and staging areas to the infrastructure footprint area and retain peripheral vegetation as much as possible to limit sight lines to the Project. › Use natural colours on infrastructure as much as possible, while following marine and air navigation requirements, to help blend into the natural environment. › Prior to commencement of Project activities, develop and implement a site-specific management plans, including: - Construction Environmental Management Plan (CEMP) including Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Wildlife Management Plan (WMP), Vegetation Management Plan, Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Construction Traffic Management Plan (CTMP), Air Quality and Dust Control Management Plan (AQDCMP), Light Management Plan (LMP), Operation Environmental Management Plan (OEMP), Petrochemical Storage and Handling Plan (PSHP),Surface Water and Storm Water Management Plan (SWSWMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP). › Develop and implement a Site Restoration Plan (SRP) and Decommissioning Environmental Management Plan (DEMP) that includes measures for habitat/ vegetation recovery and restoration. › For loss of marine habitat, develop, and monitor the effectiveness of, a fish habitat offsetting plan that meets DFO approval; the plan will be discussed collaboratively with Indigenous Nations. › For loss of wetlands, a Wetland Compensation Plan will be developed in consultation with PRPA, ECCC, and Indigenous Nations, in accordance with the Federal Policy on Wetland Conservation.	Y
Changes to Light Levels		Y
Changes to Food Quantity and Quality		Y
Changes to Air Quality		Y

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes to Social Determinants of Health and Community Well-being	› Develop an energy management plan to reduce operational GHG emissions; report GHG emissions through the Greenhouse Gas Emissions Reporting Program. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP. › Develop and implement an engine idling policy and use efficient, lower-emission vehicles and equipment. › Conduct air quality monitoring. › Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct to avoid workplace accidents and associated pressure on the region's health care system. › Require work camp operators to adhere to health and safety practices, laws, and policy. › Establish a work schedule of 14 days on/7 days off to encourage construction workers to maintain their home bases in their home communities on their days off. › Provide health care in the work camp and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and other drugs. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Have an Indigenous liaison who will communicate with the Indigenous Nations on health concerns.	Y
Changes to Human Health		Y
Changes to Access to Healthcare		Y

E.3.3.7 Indigenous Socio-economic Conditions

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests. On many economic indicators Indigenous Nations are below Canadian averages and economic conditions are already strained before the addition of the Project. The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-13.**

Table E-13 is a summary of relevant Part B mitigation in response to potential Project-related effects on Indigenous socio-economic conditions and is applicable to all Project phases.

In addition to mitigation proposed in Part B, Vopak has identified measures applicable to all Project phases specifically to avoid or reduce adverse effects on Indigenous socio-economic conditions, as follows:

› Vopak will continue to consult with Indigenous Nations regarding economic opportunities related to the Project. The rationale for this measure is that continuous engagement regarding economic opportunities with Indigenous Nations will help to reduce adverse effects on community equity and equality. The effectiveness of this measure will depend on the efficacy of mitigations developed for economic conditions (**Section 5.8 Economic Conditions**) that are linked to economic opportunities related to the Project and solutions developed through Vopak's engagement with Indigenous Nations.

- Vopak will promote a hire-local first with all contractors and subcontractors. The rationale for this measure is striving for community equity and equality will help to reduce adverse effects on social cohesion. The effectiveness of this measure will depend on the efficacy of mitigations developed for economic conditions (**Section 5.8 Economic Conditions**) linked to promotion of hire-local first and solutions developed through Vopak's engagement with the Indigenous Nations.
- Vopak will develop a contracting and procurement strategy that recognizes and acknowledges local Indigenous businesses. The rationale for this measure is that recognizing local Indigenous businesses will help to reduce adverse effects on community services and infrastructure due to an increase in temporary and permanent populations associated with Project. The effectiveness of this contracting and procurement strategy is not known at present because the content of the strategy has not been finalized. However, this strategy has been partially effective for other projects.
- Vopak will notify Indigenous communities of employment and training opportunities on the Project. The rationale for this measure is changes to community equity and equality are dependent on changes to wealth disparity. The effectiveness of this measure will depend on the efficacy of mitigations developed for **Community Well-being** under **Section 5.9 Social Assessment** linked to Indigenous socio-economic conditions and solutions developed through Vopak's engagement with the Indigenous Nations. However, this approach has been partially effective for other projects.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-13**.

Table E-13: Summary of Proposed Part B Mitigation Measures for Indigenous Socio-Economic Conditions

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes to Community Services and Infrastructure	• Design the Project to minimize the footprint area and reduce the visual effects. • Design Project trestle spans to allow navigation around and under the trestle for some vessels (e.g., skiffs and canoes); height of trestle is 4.06 m. • Establish marine safety zones; provide Notices to Shipping and Notices to Mariners where navigation restrictions and routing advisories will be in effect. • Prior to commencement of Project activities, develop and implement site-specific management plans, including: - Construction Environmental Management Plan (CEMP) including Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Construction Traffic Management Plan (CTMP), Wildlife Management Plan (WMP), Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Air Quality and Dust Control Management Plan (AQDCMP), Light Management Plan	Y
Community Equity and Equality		Y
Changes to Access to Healthcare		Y
Changes to Core Housing Need		Y
Changes to Commercial Harvesting		Y
Changes to Personal Safety		Y

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
	(LMP), Operation Environmental Management Plan (OEMP), Petrochemical Storage and Handling Plan (PSHP), Surface Water and Storm Water Management Plan (SWSWMP), Environmental Management Plan (EMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP). › Develop and implement a Site Restoration Plan (SRP) and DEMP (Decommissioning Environmental Management Plan) that includes measures for habitat/ vegetation recovery and restoration › For loss of marine habitat, develop, and monitor the effectiveness of, a fish habitat offsetting plan that meets DFO approval; the plan will be discussed collaboratively with Indigenous Nations. › Develop an energy management plan to reduce operational GHG emissions; report GHG emissions through the Greenhouse Gas Emissions Reporting Program. › Develop and implement an Underwater Acoustic Monitoring Program. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP. › Develop and implement an engine idling policy and use efficient, lower-emission vehicles and equipment. › Conduct air quality monitoring. › Develop construction-activity specific Stop Work Protocols that allows for the temporary cessation of Project-related activities and account for site-specific species and observation conditions. Stop Work Protocols include, but are not limited to, SPL exceedances, observations of distressed fish, or observations of aggregations of Pacific Herring, salmon, or Eulachon. › Participate in PRPA Marine Mammal Program (PRPA 2020), DFO or other agency whale disturbance reduction programs, as possible; monitoring crews will have marine mammal awareness training including DFO and Marine Mammal Regulation specified approach distances. › Planning for Project demand on services and infrastructure will be completed. › Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct to avoid workplace accidents and associated pressure on the region's health care system. › Require work camp operators adhere to health and safety practices, laws, and policy. › Establish a work schedule of 14 days on/7 days off to encourage construction workers to maintain their home bases in their home communities on their days off. › Provide health care in the work camp and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and other drugs.	

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
	› Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Develop and implement an on- and off-site code of conduct, in consultation with Indigenous Nations, which will outline expectations regarding the safety of Indigenous people and specifically, Indigenous women. › Establish an Indigenous liaison who will communicate with the Indigenous Nations on health concerns. › Implement a training and employment program and undertake initiatives such as participation in existing career fairs, engagement with local employment services and providing cultural awareness training to employees. › Engage with chambers of commerce in the region to address labour competition and the issue of consumer access to goods and services.	

E.3.3.8 Indigenous Physical and Cultural Heritage

Mitigation measures in Part B are designed to avoid, manage, and mitigate potential Project-related effects to selected VCs, and if successful will also serve to avoid, manage, and mitigate potential Project-related effects on Aboriginal Interests.

Table E-14 is a summary of relevant Part B mitigation in response to potential Project-related effects on Indigenous physical and cultural heritage and is applicable to all Project phases.

In addition to mitigation proposed in Part B, Vopak will work with the Indigenous Nations to develop a shared understanding of how the Project may affect Aboriginal Interests. Vopak will continue engaging with Indigenous Nations to discuss the Project and its effects, understand concerns that may arise, and respond to those concerns. Through ongoing efforts, Vopak will strive to maintain positive long-term relationships with Indigenous Nations. Vopak will continue to engage with Indigenous Nations for the life of the Project.

The Lax Kw'alaams Band and the Metlakatla First Nation proposed mitigation measures which were taken into consideration by Vopak in the development of mitigation measures presented in **Table E-14**.

Table E-14: Summary of Proposed Part B Mitigation Measures for Indigenous Physical and Cultural Heritage

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Change in Spiritually and Culturally Important Species	› Design the Project to minimize the footprint area and reduce the visual effects. › Limit site clearing, laydown and staging areas to the infrastructure footprint area and retain peripheral vegetation as much as possible to limit sight lines to the Project.	Y
Changes to Spiritual and Cultural Sites		Y
Changes in Social and Community Networks		Y

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
Changes in Current Use of Lands and Resources for Traditional Purposes	› Use natural colours on infrastructure as much as possible, while following marine and air navigation requirements, to help blend into the natural environment. › Prior to construction, establish and maintain wind-firm buffers of 30 m around CMTs to avoid damage or blowdown. › Prior to commencement of Project activities, develop and implement a site-specific management plans, including: - Construction Environmental Management Plan (CEMP) including Water Quality Management Plan (WQMP), Construction Waste Management Plan (CWMP), Construction Blasting Management Plan (CBMP), Fish and Fish Habitat Management Plan (FFHMP), Environmental Awareness and Education Plan (EAEP), Erosion and Sediment Control Plan (ESCP), Surface Water and Storm Water Management Plan (SWSWMP), Marine Underwater Noise and Vibration Plan (MUNMP), Marine Access and Vessel Communications Plan (MAVCP), Wildlife Management Plan (WMP), Vegetation Management Plan, Spill Prevention and Emergency Response Management Plan (SPERMP), Soil Management Plan (SMP), Air Quality and Dust Control Management Plan (AQDCMP), Light Management Plan (LMP), Operation Environmental Management Plan (OEMP), Petrochemical Storage and Handling Plan (PSHP),Surface Water and Storm Water Management Plan (SWSWMP), Environmental Management Plan (EMP), Noise Management Plan (NMP), and Erosion and Sediment Control Plan (ESCP). › Develop and implement an Archaeological Resources Management Plan (ARMP), which will include a Chance Find Management Plan (CFMP), in collaboration with Indigenous Nations. › If avoidance of CMTs is not practical, Vopak will undertake stem round collection to obtain archaeological data for CMTs that will be removed. › Develop and implement a Site Restoration Plan (SRP) and Decommissioning Environmental Management Plan (DEMP) that includes measures for habitat/ vegetation recovery and restoration. › Develop an energy management plan to reduce operational GHG emissions; report GHG emissions through the Greenhouse Gas Emissions Reporting Program. › Monitor construction activities by a Qualified Environmental Professional (QEP), or Environmental Monitor (EM) under the supervision of a QEP. › Develop and implement an engine idling policy and use efficient, lower-emission vehicles and equipment. › Develop construction-activity specific Stop Work Protocols that allows for the temporary cessation of Project-related activities and account for site-specific species and observation conditions. Stop Work Protocols include, but are not limited to, SPL exceedances,	Y
Changes in Feasting or other Ceremonial Activities		Y
Changes in Opportunities to Use and Pass on Traditional Language and Place-based Knowledge		Y
Change in Spiritual and Cultural Landscape Features		Y

Potential Effect on Aboriginal Interest	Proposed Mitigation	Potential Residual Effect? (Y/N)
	observations of distressed fish, or observations of aggregations of Pacific Herring, salmon, or Eulachon. › Participate in PRPA Marine Mammal Program (PRPA 2020), DFO or other agency whale disturbance reduction programs, as possible; monitoring crews will have marine mammal awareness training including DFO and Marine Mammal Regulation specified approach distances. › Conduct air quality monitoring. › Vopak will continue to engage in discussions with Indigenous Nations regarding Project effects and Indigenous involvement in management of heritage sites.	

E.4 Environmental Effects Evaluation

Valued Components (VC) were selected in consideration of the likelihood of a particular component being affected by the Project and the sensitivity or vulnerability of that component to either disturbance or change. The process of VC selection reflects the issues and concerns raised by the public, Indigenous Nations, regulators, and other stakeholders, the findings of preliminary research and field investigations, the requirements of laws, regulations, and standards, and professional judgement of the effects assessment study team. Candidate VCs were selected using a three-step consisting of:

› Issues scoping and identification of candidate VCs drawn from the identified issues.
› Evaluation of candidate VCs.
› Selection of final VCs (from among the candidate VCs) and associated subcomponents, including identification of indicators for the assessment.

The results of the evaluation of candidate VCs were used to select the final VCs and their subcomponents. VCs were selected to be **relevant** to the Project, **representative** of the important features of the bio-physical and socio-economic environments likely to be affected by the Project, **responsive** to the potential effects of the Project, concise (so the nature of the Project-VC interaction can be understood, while avoiding overlapping or redundant analysis), and taken together, **complete** to enable a full understanding of the important potential environmental, economic, social, heritage, and health effects of a Project (EAO 2013). The selected final VCs and subcomponents included in the EA are:

› Air Quality
› Greenhouse Gases Emissions
› Noise
› Visual Quality including Ambient Light
  - Visual Quality
  - Ambient Light
› Marine Resources
  - Marine Habitats
  - Marine Water Quality
  - Marine Sediment Quality
  - Marine Fish and Invertebrates

  - Marine Mammals
  - Marine Birds (including migratory and Species at Risk)

- Terrestrial Resources
  - Wildlife and Wildlife Habitat (including non-marine birds, migratory birds and Species at Risk
  - Vegetation (including ecosystems, rare vascular plants, rare non-vascular plants, and rare lichens)
  - Wetlands and Wetland Function
- Soils and Terrain
  - Soil Quality
  - Terrain
- Freshwater Fish and Fish Habitat
  - Ground and Surface Water Quality
  - Freshwater Fish
- Economic Conditions
- Marine Use and Navigation
- Community Services and Infrastructure
- Community Well-being
- Heritage and Archaeology
- Human Health

Spatial boundaries defined for the scope of the assessment are based on the potential for the Project to have an effect on the VC and were determined through consultation with the Working Group. A Local Study Area (LSA) and Regional Study Area (RSA) are defined for each VC. The LSA comprises an area within which potential Project-related effects are expected to occur, often considered the Project's zone of influence where direct Project interactions with VCs are expected. The RSA is a study area that provides context to the VC at a regional level. The RSA boundary is used to define the scope of the cumulative effects assessment. The EEE/Application includes a map figure and description of the spatial assessment area for each VC.

The potential effects specific to the Project are based on the three main phases of the Project:

- Two years – Construction Phase.
- Minimum of 50 years – Operation Phase.
- 12 months – Decommissioning Phase.

The environmental effects evaluation for each VC/subcomponent included: establishment of existing conditions of the study areas as the baseline, description of potential interactions and effects, characterization of potential residual effects and determination of significance, assessment of cumulative effects, and development of a follow-up strategy where applicable. Potential Project-VC interactions were based on the project activities and physical works identified in **Section E.2.3**.

Vopak has incorporated non-confidential Traditional Ecological Knowledge (TEK) and Traditional Land Use (TLU) information received from Indigenous Nations through engagement. The potential effects assessment includes a discussion on how Indigenous knowledge and use information informed, shaped, or directed scientific understanding of potential effects on the VC.

A summary of the assessment of potential Project effects on Valued Components (VCs) is presented in **Table E-15**. A summary of the proposed mitigation measures for the Project to avoid, minimize, or offset potential adverse effects on the environment, social, economic, health and heritage values is presented in **Table E-16**.

Based on the results of this effects assessment, Vopak concludes that the Project is likely to cause no significant adverse environmental effects with the application of mitigation measures described in the **Section E.4.** Potential significant adverse residual cumulative effects on the quality of health care (Community Services and Infrastructure VC) were identified during the construction and decommissioning phase of the Project, which is the result of current conditions which are above threshold levels, but consistent with conditions in similar remote regions in Canada.

After consideration of the potential residual effects and taking into account the ecological context of the site, the engineering design, and mitigation measures, Vopak and its assessment team are confident that the Project can be constructed, operated, and decommissioned without significant adverse effects.

Vopak submits this EEE/Application as a request to the BC Ministry of Environment and Climate Change Strategy, BC Ministry of Energy, Mines and Petroleum Resources, PRPA and Transport Canada for a BCEAA Environmental Assessment Certificate and *CEAA 2012* Section 67 Environmental Effects Determination.

Table E-15: Summary Assessment of Potential Residual Effects

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Air Quality								
Change in air quality from Project-related dust due to clearing, grading, and traffic	AQ-C-1	C	› Site clearing including soil storage (approximately 38 hectares). › Construction road traffic. › Site grading, including blasting, and fill.	› Develop and implement management plans, including an AQDCMP and CTMP; transport workers via bus; spray overburden and soils with water prior to moving them if overly dry; use of water sprays to control dust on roads.	None identified.	Not applicable (N/A.).	None identified.	None identified.
Change in air quality from construction-related emissions of CACs	AQ-C-2	C	› Construction of Project facilities on land (civil, mechanical, and electrical & instrumental work). › Construction of marine jetty and berths.	› Develop and implement management plans, including an AQDCMP and CTMP; engine idling policy; use efficient, lower-emission vehicles and equipment where practical; and specify vehicle speeds.	None identified.	N/A.	None identified.	None identified.
Change in air quality specific to operation-related emissions of CACs and release of fugitive CACs	AQ-O-1	O	› Railway operations associated with inbound train unloading and outbound train staging. › LPG cooling process. › Product unloading and storage. › Vessel berthing. › Cargo loading. › General terminal operations (24-hours, 365 days) (power, lighting, security, heating, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes). › Routine maintenance and inspections. › Associated off-site rail and shipping activities.	› Engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds; use of vapour-tight connections during the unloading of rail cars and loading of the storage tanks; use of a Vapour Recovery Unit.	None identified.	N/A.	None identified.	None identified.
Change in air quality due to dust generation from the removal of buildings, tanks, and utilities	AQ-D-1	D	› Removal of buildings and utilities infrastructure. › Removal of tanks and infrastructure.	› Develop and implement management plans, including a DEMP and AQDCMP; avoid removal of tanks and infrastructure under overly dry conditions; use of water sprays to control dust; engine idling policy; use efficient, lower-emission vehicles and equipment where practical.	None identified.	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Change in air quality specific to Project decommissioning-related emissions of CACs	AQ-D-2	D	› Removal of buildings and utilities infrastructure › Removal of tanks and infrastructure. › Removal of jetty topside.	› Engine idling policy; use efficient, lower-emission vehicles and equipment where practical; and limiting vehicle speeds.	None identified.	N/A.	None identified.	None identified.
Greenhouse Gas Emissions								
Change in GHG emissions from all construction activities	GH-C-1	C	› Site clearing including soil storage (approximately 38 hectares). › Construction road traffic. › Site grading, including blasting, and fill. › Construction of Project facilities on land (civil, mechanical, and electrical & instrumental work). › Construction of marine jetty and berths.	› Develop and implement AQDCMP and CTMP; engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds.	None identified.	N/A.	None identified.	None identified.
Change in GHG emissions from all operation activities	GH-O-1	O	› Railway operations associated with inbound train unloading and outbound train staging. › LPG cooling process. › Vessel berthing. › Cargo loading. › General terminal operations (24 hours, 365 days) (power, lighting, security, heating, ancillary building operations, staffing, water requirements during operation, storm water management, flaring for maintenance and emergency purposes). › Routine maintenance and inspections. › Associated off-site rail and shipping activities.	› Develop and implement OEMP, engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds; develop Energy Management Plan.	None identified.	N/A.	None identified.	None identified.
Change in GHG emissions from the removal of tanks and infrastructure and jetty topside and from the removal of buildings and utilities	GH-D-1	D	› Removal of tanks and infrastructure. › Removal of buildings and utilities infrastructure. › Removal of jetty topside.	› Develop and implement DEMP; engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds.	None identified.	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Noise								
Change in ambient noise levels	NO-O-1	O	› Railway operations associated with inbound train unloading and outbound train staging. › LPG cooling process. › Product storage. › Vessel berthing. › Cargo loading. › General terminal operations (24-hours, 365-days) (power, lighting, heating, security, ancillary building operations, staffing, water requirements during operation, storm water management, flaring for maintenance, and emergency purposes). › Routine maintenance and inspections. › Associated off-site rail and shipping activities.	› Develop and implement management plans, including an OEMP and NMP; limit maintenance and inspection activities to daytime hours, when possible; use of noise abatement measures including screens, if necessary.	None identified.	N/A.	None identified.	None identified.
Visual Quality								
Change in visual quality due to alteration of the view scape, construction of new buildings on land, or from construction of new marine features	VQ-C-1	C	› Site clearing and site grading. › Construction of Project facilities on land (civil, mechanical, and electrical and instrumental work). › Construction of marine jetty and berths.	› Design to minimize footprint; develop and implement a CEMP, including: limiting site clearing, laydown, and staging areas; use natural colours as possible; revegetate temporary cleared areas following construction.	Change in visual quality due to alteration of the view scape, construction of new buildings on land, or from construction of new marine features. There is a high likelihood of occurrence but the effect is below the significance threshold with high confidence in the determination.	Not Significant.	Change in visual quality due to alteration of the view scape, construction of new buildings on land, or from construction of new marine features.	Change in visual quality due to alteration of the view scape, construction of new buildings on land, or from construction of new marine features. There is a high likelihood of occurrence but the effect is below the significance threshold with moderate confidence in the determination. No specific residual cumulative effect management strategies are proposed.
Change in visual quality at the facility due to railway operations, product storage tanks, vessel berthing, or from marine shipping	VQ-O-1	O	› Railway operations associated with inbound train unloading and outbound train staging. › Product storage. › Vessel berthing. › Associated off-site shipping activities.	› Construction mitigation is anticipated to continue to reduce the effect of alteration of the visual landscape during operation.	Change in visual quality at the facility due to railway operations, product storage tanks, vessel berthing, or from marine shipping. There is a high likelihood of occurrence but the effect is below the significance threshold with high confidence in the determination.	Not Significant.	Change in visual quality at the facility due to railway operations, product storage tanks, vessel berthing, or from marine shipping.	Change in visual quality at the facility due to railway operations, product storage tanks, vessel berthing, or from marine shipping. There is a high likelihood of occurrence but the effect is below significance threshold with moderate confidence in the determination. No specific residual cumulative effect management strategies are proposed.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Change in visual quality due to removal of facility and marine infrastructure	VQ-D-1	D	› Removal of buildings and utilities infrastructure. › Removal of tanks and infrastructure. › Removal of jetty topside.	› Develop and implement DEMP to restore and revegetate as necessary. › Remove most land-based structures and the jetty topside.	Change in visual quality due to removal of facility and marine infrastructure. There is a high likelihood of occurrence but the effect is below the significance threshold with high confidence in the determination.	Not Significant.	Change in visual quality due to removal of facility and marine infrastructure.	Change in visual quality due to removal of facility and marine infrastructure. There is a high likelihood of occurrence but the effect is below significance threshold with moderate confidence in the determination. No specific residual cumulative effect management strategies are proposed.
Ambient Light								
Changes to ambient light due to construction	AI-C-1	C	› Construction of Project facilities on land; Construction of marine jetty and berths.	› No mitigation measures proposed.	Detectable change in ambient light during construction may occur. There is a moderate likelihood of occurrence but the effect is below the significance threshold with moderate confidence in the determination.	Not Significant.	Potential cumulative effects from temporary change to sky glow, light trespass and glare with existing Projects and operations.	Changes to ambient light due to construction. There is a moderate likelihood of occurrence but the effect is below the significance threshold with moderate confidence in the determination. No specific residual cumulative effect management strategies are proposed.
Changes to ambient light due to operation	AI-O-1	O	› General terminal operations (24-hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operation, storm water management, and flaring for maintenance and emergency purposes). › Associated off-site rail and shipping activities.	› Develop LMP. › Minimize light use. › Minimize light trespass and sky glow in the LSA. › Employ light controls on equipment	Measurable residual effect of sky glow or light trespass. There is a moderate likelihood of occurrence but the effect is below the significance threshold with moderate confidence in the determination.	Not Significant.	Lighting at the facility during operation either emit light at the development source or from vessels, vehicles or trains which may result in cumulative interactions with other Projects and operations.	Changes to ambient light due to operation. There is a high likelihood of occurrence but the effect is below the significance threshold with moderate confidence in the determination. No specific residual cumulative effect management strategies are proposed.
Marine Sediment Quality								
Change in marine sediment quality associated with the potential release of deleterious substances (contaminants), and increased turbidity and total suspended solids (TSS)	MS-C-1	C	› Construction of marine jetty and berths (mooring anchors and piles)	› Develop and implement management plans, including a SPERMP and SWSWMP. › Follow work windows to reduce seasonal risk during pile and anchor installations. These include Marine/Estuarine Timing Windows for the Protection of Fish and Fish Habitat (Area 4 – Lower Skeena). The timing windows are open November 30 to February 15.	None identified.	N/A.	None identified.	None identified.
Change in marine sediment quality resulting in increased TSS or result in the	MS-O-1	O	› Cargo loading and mooring chain movement	› Develop and implement management plans, including a PSHP, SPERMP, and SWSWMP.	None identified.	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
resuspension of contaminants in the marine environment			› General terminal operations (24 hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes)	› PRPA conducts periodic sediment quality monitoring through Port Stewardship programs. › Anchor chain will be supported with a subsurface buoy and a surface mooring buoy, minimizing drag and scour on the seabed floor.				
Marine Water Quality								
Change in marine water quality associated with the potential release of deleterious or contaminated substances from resuspended sediment, and an increase in turbidity, both from marine works (e.g., pile and mooring anchor works) and upland terrestrial works (i.e., run-off)	MW-C-1	C	› Site clearing including, soil storage (approximately 38 hectares) › Site grading, including blasting, and fill › Construction of marine jetty and berths › Reclamation and clean up › Commissioning, systems testing, including hydrotesting	› Develop and implement management plans, including a PSHP, SPERMP and SWSWMP. › Follow work windows to reduce seasonal risk during pile and anchor installations. These include Marine/Estuarine Timing Windows for the Protection of Fish and Fish Habitat (Area 4 – Lower Skeena). The timing windows are open November 30 to February 15. › Follow DFO guidelines regarding seasonal risk.	None identified.	N/A.	None identified.	None identified.
Change in marine sediment quality from the movement of anchor chains associated with the mooring buoys, storm water inputs that drain the Project upland area during general terminal operations, potential release of deleterious substances from storm water discharge or spills during cargo loading	MW-O-1	O	› Cargo loading and mooring chain movement › General terminal operations (24 hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes)	› Develop and implement management plans, including SPERMP, and SWSWMP. › PRPA conducts periodic sediment quality monitoring through Port Stewardship programs. › During cargo loading, the anchor chain will be supported with both a subsurface floating buoy, and a surface mooring buoy, minimizing drag and scour on the seabed floor.	None identified.	N/A.	None identified.	None identified.
Marine Habitats								
Alteration or loss of marine habitats from effects associated with changes in marine sediment quality and marine water quality or due to construction-related Project activities that result in the direct physical alteration or loss of existing habitats	MH-C-1	C	› Site clearing including, soil storage (approximately 38 hectares). › Site grading, including blasting, and fill. › Construction of marine jetty and berths.	› Develop and implement the CEMP and site-specific management plans prior to commencement of Project activities. › Schedule construction activities in and around water to occur during a DFO-approved least-risk work window. › Review with the Contractor in advance of construction the mitigation to be implemented. › Where possible, avoid placing vertical spuds or other anchors into valued and sensitive habitat areas.	Alteration of marine habitats from the construction of the marine jetty and berths as it relates to the installation of the suction anchors. Loss of marine habitats will occur within the pile footprints of the trestle, firewater pump platform, loading platform, potential protection barriers, and the anchor block footprints of the twin MBM berths. Although the loss of marine habitats will occur within the pile footprints of the	Not Significant.	Direct loss of up to 304 m^2 of marine habitat from the construction of the marine jetty (pile installation: ~160 m^2) and installation of the twin MBM berths (guardian anchor blocks: 144 m^2).	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
				› Flag or identify site-specific valued and sensitive habitat areas adjacent to the Project component areas. › Monitor construction activities by a QEP, or EM under the supervision of a QEP. › If a *Fisheries Act* authorization is required, develop an offsetting plan that meets DFO requirements and approval for the loss of marine habitat. › If a *Fisheries Act* authorization is required, monitor the effectiveness of habitat offsetting measures and, if warranted, implement remedial measures.	trestle, firewater pump platform, loading platform, protection barriers, and the anchor block footprints of the twin MBM berths, the residual effect is determined to be not significant. This is primarily due to the low magnitude of the effect. If offsetting is required, the loss of marine habitats is of a temporal nature due to the time required for establishment of the offsetting habitat or the need to remediate the offsetting habitat based on the results of effectiveness monitoring.			
Alteration or loss of marine habitats attributed to general terminal operations (i.e., presence of infrastructure over marine habitats) and vessel berthing (i.e., presence of vessels over marine habitats)	MH-O-1	O	› General terminal operations (24 hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes).	› Implementation of mitigation for minimizing the effects from storm water-related effects in the Surface Water and Storm Water Management Plan **(Section 10)** during general operations will avoid alteration of nearshore marine habitats.	None identified.	N/A.	None identified.	None identified.
Marine Fish and Invertebrates								
Injury, direct mortality or displacement of marine fish and invertebrates attributed to changes in marine habitats Injury, direct mortality or displacement of marine fish and invertebrates from indirect effects on other fish and invertebrate species in the food web	MF-C-1	C	› Site clearing including, soil storage (approximately 38 hectares). › Site grading, including blasting, and fill. › Construction of marine jetty and berths.	› Develop and implement a site-specific CEMP including component SWSWMP, and ESCP, and SPERMP prior to commencement of Project activities. › Monitor construction activities by a QEP or EM under the supervision of a QEP. › Schedule construction activities within water to occur during a DFO-approved least-risk work window. › Vopak's MUNMP will include mitigation to manage transmission of underwater noise and vibration during marine construction activities. This will include the development and implementation of an Underwater Acoustic Monitoring Program that synergistically includes the Marine Mammals subcomponent. › Appropriate BMPs, including the BMPs for Pile Driving and Related Operations (BC Marine and Pile Driving Contractors Association 2003), DFO BMP for Pile Driving and Related Operations (DFO undated) and Guidelines for the Use of	Injury, direct mortality or displacement of marine fish and invertebrates from underwater noise generated by the construction of the marine jetty and berths. The residual effect concerning injury, direct mortality or displacement of marine fish and invertebrates due to underwater noise generated from construction is determined to be not significant, primarily due to the low magnitude of the effect (moderate for impact pile driving), if it occurs, and the short term reversibility of the effect at the cessation of noise generation. The residual effect concerning displacement (behavioral disturbance) of marine fish due to underwater noise generated from construction, although highly likely to occur, is determined to be not significant, primarily due to the low to moderate magnitude of the effect and the short term reversibility of the effect at the cessation of noise generation.	Not Significant.	Interaction of underwater noise generated from the Project with that generated by other Projects could overlap spatially (e.g., Ridley Terminals Inc. Berth Expansion Project, which is in closest proximity to the Project (0.5 km to the north) resulting in injury, direct mortality or displacement of marine fish and invertebrates.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
				Explosives in or Near Canadian Fisheries Waters (Wright and Hopky 1998). › Implement exclusion zones with distance from the sound source determined based on underwater acoustic monitoring and comparison of measured sound levels to the currently accepted thresholds of 206 dB re 1 µPa for Peak SPL, and 187 dB re 1 µPa2s for Cumulative Sound Exposure Level (unless otherwise directed by DFO). › Avoid concurrent in-water noise-producing construction activities, as possible. › Use soft-starts and ramp-ups, as possible. › Develop construction-activity specific Stop Work Protocols that allows for the temporary cessation of Project-related activities and account for site-specific species and observation conditions. Stop Work Protocols include, but are not limited to, SPL exceedances, observations of distressed fish, or observations of aggregations of Pacific Herring, salmon, or Eulachon.				
Injury, direct mortality or displacement of marine fish and invertebrates from benthic scouring	MF-O-1	O	› Vessel berthing.	› Reduce area of potential benthic scouring to the extent practical (i.e., minimize chain lay (radius) on the seabed and set guardian anchor blocks to limit the range of motion of the chains).	Potential residual effects from injury, direct mortality, or displacement of marine fish and infaunal and sessile epifaunal marine invertebrate species potentially caused by benthic scouring from mooring buoy chains associated with vessel berthing. The residual effect although highly likely to occur is determined to be not significant, primarily due to the low magnitude of the effect and the medium term reversibility of the effect upon removal of the twin MBM systems during decommissioning of the Project.	Not Significant.	Mooring buoy chains have the potential to cause episodic disturbance to the soft bottom benthic community from scouring, which may result in injury, direct mortality, or displacement of marine fish and infaunal and sessile epifaunal invertebrate species.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Displacement of marine fish and invertebrates from overwater lighting	MF-O-2	O	› General terminal operations (24-hours, 365-days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes).	› Avoid lighting shallow nearshore areas, where practical. › Avoid overwater down-casting lights, where practical. › Use an industrial low-profile light fixture that sidecasts light. › Use smart, low consumption light-emitting diode (LED) lighting. › Illuminate those parts of the marine terminal that need lighting, when they need lighting (i.e., restrict continuous lighting to human and navigational safety). › Several types of sensors will be connected to the LED lights to facilitate lighting requirements, allowing for light shut-off at appropriate times. Vopak will schedule the illumination through motion and occupancy sensors for both indoor and outdoor applications at the Project, thereby reducing the amount of light trespass. › Specifications for emergency lighting (floodlights) that will only be used during accidents or malfunctions, or in case of unauthorized vessel trespass. › Schedule illumination through motion and occupancy sensors for both indoor and outdoor applications, thereby reducing the amount of light trespass. › Develop and implement an integrated lighting design for the Project.	Potential residual effects from displacement of marine fish and invertebrates from overwater lighting effects of general terminal operations. The residual effect although moderately likely to occur is determined to be not significant, primarily due to the low magnitude of the effect and the short term reversibility of the effect at the cessation of the requirement for lighting in work and operation areas.	Not Significant.	There are potential cumulative effects of overwater lighting from jetty structures of other Projects which could displace marine fish and invertebrates.	Potential residual cumulative effect related to the displacement of marine fish and invertebrates due to overwater lighting from the general terminal operations (marine jetty). Out-migrating juvenile salmon are expected to move through the nearshore areas outside the LSA and will likely pass through other Project marine infrastructure with overwater lighting (e.g., all existing and new Projects along the west side of Ridley Island and Kaien Island). There is a moderate likelihood of occurrence but the effect is below the significance threshold with high confidence in the determination. The development and implementation of a coordinated marine mammal and marine fish underwater acoustic monitoring program will support the assessment and adaptive management of these effects.
Displacement of marine fish from underwater noise	MF-O-3	O	› Vessel berthing and associated off-site rail and shipping activities.	› The initial approach speed will be slow at approximately six to seven knots, followed by a reduction to about three to four knots after the completion of the turn to the centre line. › This will be followed by a further speed reduction and upon entering the berth, the vessel speed will be approximately one knot with the overall control of the vessel conducted through the tug vessel assist. › Speed reduction protocols will be followed in the reversed direction upon departure from the vessel berths.	Potential residual effects from short-term behavioural effects displacement of marine fish from underwater noise generated from vessel berthing and shipping activities. The residual effect although highly likely to occur is determined to be not significant, primarily due to the moderate magnitude of the effect and the short term reversibility of the effect at the cessation of noise generation.	Not Significant.	Other Projects whose residual effects have potential to interact cumulatively with the Project's residual effects related to displacement of marine fish due to underwater noise generated from vessel berthing and/or shipping/ vessel activities are those that are located within the marine fish RSA that have a shipping/vessel component.	Potential residual cumulative effects on marine fish behaviour (including displacement) from underwater noise associated with vessel berthing and shipping may occur. There is a moderate-high likelihood of occurrence but the effect is below the significance threshold with low moderate confidence in the determination. The development and implementation of a coordinated marine mammal and marine fish underwater acoustic monitoring program will support the assessment and adaptive management of these effects.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Marine Mammals								
Alteration or loss of marine mammal habitat due to site preparation or construction of the marine jetty and berths	MM-C-1	C	› Site clearing including soil storage (approximately 38 hectares) › Site grading, including blasting, and fill Construction of marine jetty and berths	› Develop and implement management plans, including a CEMP, CWMP, ESCP, SWSWMP, FFHMP, and MAVCP. › Mitigations for marine mammals will be synergistic with mitigations for marine fish and invertebrates. › Monitor construction activities by a QEP, or EM under the supervision of a QEP.	None identified.	N/A.	None identified	None identified.
Disturbance or displacement of marine mammals due to site preparation or construction of the marine jetty and berths	MM-C-2	C	› Site grading, including blasting. Construction of marine jetty and berths	› Develop and implement management plans, including CEMP, CBMP, FFHMP, MUNVP, MAVCP, EAEP. › Follow best management practices (BC Marine and Pile Driving Contractors Association 2003), (DFO undated) and (Wright and Hopky 1998). › Component management plans will include marine mammal-specific details, such as safety zones and visual monitoring by qualified MMOs, underwater acoustic thresholds, underwater acoustic monitoring, and construction related vessel operations. › Monitor construction activities by a QEP, or EM under the supervision of a QEP. › Use of bubble curtains or other noise-attenuating devices; development of activity-specific Stop Work Protocols. › Prioritization of lower sound emission equipment. › Avoid concurrent in-water noise-producing construction activities, as possible. › Mitigations for marine mammals will be synergistic with mitigations for the Marine Fish and Invertebrates subcomponent.	None identified.	N/A.	None identified.	None identified.
Injury or mortality to marine mammals due to site preparation or construction of the marine jetty and berths	MM-C-3	C	› Site grading, including blasting, and fill Construction of marine jetty and berths	› Mitigative actions to avoid the potential effect of injury or mortality of marine mammals during the in-water construction from underwater noise and vessel strike risk are the same as those for the effects mentioned for MM-C-2.	None identified.	N/A.	None identified	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Alteration or loss of marine mammal habitat due to vessel berthing or associated off-site shipping activities	MM-O-1	O	› Vessel berthing › Associated off-site rail and shipping activities	› Develop and implement management plans including an OEMP. › Adhere to the Port Information Guide. › Minimise carrier time in the berths. › Avoid discharge of any deleterious substance into the marine environment. › Mitigations for marine mammals will be synergistic with mitigations for the Marine Fish and Invertebrates subcomponent. › Participation in the PRPA Marine Mammal Program (PRPA 2020). › Vopak vessels for marine terminal operations will adhere to the Be Whale Wise guidance.	There are potential residual effects to marine mammal habitat due to vessel berthing and associated off-site shipping related to behaviour, habitat selection, and fine-scale nearshore habitat use of some marine mammals such as harbour porpoise. The potential residual effects concerning the alteration or loss of marine mammal habitat due to the physical presence of vessels during vessel berthing and associated off-site shipping activity is determined to be not significant primarily because any alteration or loss of habitat is unlikely to cause harm to species listed as endangered or threatened, the low magnitude of the effect, the small footprint of the MBM berthing areas (compared to distributional ranges), marine mammals are highly mobile, and the species that are expected in the PRPA and Project area have prior experience with slow-moving large vessels, vessel berthing activities and vessel transiting Chatham Sound.	Not Significant.	Alteration or loss of marine mammal habitat that could occur through interactions between other Projects, such as the physical presence of vessels and the associated berths or marine infrastructure within the RSA.	Alteration or loss of marine mammal habitat due to the physical presence of vessels, berths and associated marine infrastructure. The likelihood of occurrence is determined to be moderate as the habitats of most marine mammal species are unlikely to be affected by the vessel berthing activities, but that the potential residual cumulative effect cannot be quantified or effectively predicted based on current knowledge. Confidence in these rankings is low/moderate as it is difficult to predict future behavioural responses, coastal habitat loss or degradation, which are identified risk factors by the COSEWIC for the marine mammal species most likely to occur. Follow-up is required. Vopak will support multi-stakeholder initiatives such as the Marine Mammal Program of the PRPA, as well as other regionally relevant research initiatives that relate to marine mammals and ocean noise.
Disturbance or displacement of marine mammals due to vessel berthing or associated off-site shipping activities	MM-O-2	O	› Vessel berthing › Associated off-site rail and shipping activities		Potential residual effects from disturbance or displacement of marine mammals such as harbour porpoise and humpback whales due to vessel berthing or associated off-site shipping activities. The potential residual effects concerning the disturbance or displacement of marine mammals during vessel berthing and associated off-site shipping activities is related to the physical presence of vessels and the associated underwater noise. This is determined to be not significant primarily due to the low magnitude of the effect, that the noise generated during these operations is unlikely to cause harm to marine mammal species	Not Significant.	Disturbance or displacement of marine mammals within the RSA due to the physical presence of vessels and the underwater noise generated from off-site shipping activities and vessel berthing.	Disturbance or displacement of marine mammals due to the physical presence of vessels and the underwater noise emitted into the marine environment during vessel berthing and associated off-site shipping activities. The likelihood of occurrence is determined to be moderate as the potential residual cumulative effect cannot be quantified or effectively predicted based on current knowledge. Confidence in these rankings is low/moderate as it is difficult to predict future behavioural responses, and that acoustic

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					listed as endangered or threatened, these operations are not expected to affect the population viability of the species that occur in the region, the small footprint of the MBM berthing areas (compared to distributional ranges) underwater noise levels are anticipated to be relatively low due to the slow speeds of the vessels and will not exceed levels that are understood to result in harm or change the behaviour to marine mammals, and the species that are expected in the PRPA, LSA and RSA have prior experience with slow-moving large vessels transiting Chatham Sound.			disturbance and vessel traffic are identified risk factors by the COSEWIC for the marine mammal species most likely to occur. Follow-up is required. Vopak will support multi-stakeholder initiatives such as the Marine Mammal Program of the PRPA, as well as other regionally relevant research initiatives that relate to marine mammals and ocean noise.
Injury or mortality to marine mammals due to vessel berthing or associated off-site shipping activities	MM-O-3	O	› Vessel berthing › Associated off-site rail and shipping activities	› As for MM-O-1 and MM-O-2 with the addition of the following. › Develop and implement MBM berth entanglement protocol.	None identified.	N/A.	None identified.	None identified.
Disturbance or displacement of marine mammals due to removal of jetty topside	MM-D-1	D	› Removal of jetty topside	› Participation in the PRPA Marine Mammal Program (PRPA 2020) or other such programs. › Decommissioning vessels will adhere to the Be Whale Wise guidance. › Decommissioning plans will include marine mammal specific details such as safety zones and visual monitoring by qualified MMOs, underwater acoustic thresholds, underwater acoustic monitoring, and vessel operations.	None identified.	N/A.	None identified.	None identified.
Injury or mortality to marine mammals due to removal of topside jetty	MM-D-2	D	› Removal of jetty topside		None identified.	N/A.	None identified.	None identified.
Marine Birds								
Alteration or loss of marine bird habitat from clearing and grading of shoreline and general construction of the jetty and associated infrastructure; accidental releases of deleterious substances	MB-C-1	C	› Site clearing including soil storage (approximately 38 hectares). › Site grading, including blasting and fill. › Construction of marine jetty and berths.	› Develop and implement management plans, including a CEMP, SWSWMP, and WMP; establish setbacks; conduct progressive reclamation and re-vegetation of shoreline and riparian areas.	Loss or disturbance of up to 2 m^2 of vegetated rocky intertidal habitat that could provide foraging opportunities for some marine birds and up to 206 m^2 of non-vegetated soft bottom subtidal habitat that could also provide some additional foraging habitat. The alteration or loss of marine bird habitat residual effect is predicted to be not significant because the threshold is not exceeded. The confidence in this determination is high.	Not Significant.	Habitat alteration or loss from past, existing, and reasonably foreseeable future Projects and activities are expected to act cumulatively with Project residual effects on marine bird habitat during construction for species which utilize shoreline habitat such as shorebirds, dabbling ducks and some gulls.	Direct loss of marine bird habitat. The potential cumulative effect is expected to be permanent and irreversible. However, the habitats affected are concentrated in specific areas of the RSA, while many other areas remain with relatively low cumulative effects. In addition, the Project's contribution to cumulative effects is minor. As such, cumulative effects on marine bird habitats are assessed as not significant as they are not expected to exceed the resilience and adaptability limits of marine birds in the RSA.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Clearing and grading of shoreline and general construction of the jetty and associated infrastructure may result in disturbance and displacement of marine birds in areas within and directly adjacent to these activities	MB-C-2	C	› Site clearing including soil storage (approximately 38 hectares). › Site grading, including blasting and fill. › Construction of marine jetty and berths.	› Develop and implement management plans, including a CEMP and WMP; establish setbacks. › Avoid beginning construction during bird nesting season. › If vegetation clearing is proposed during the bird nesting season, then pre-clearance bird nest surveys will be done to identify active bird nests and establish protective buffers around nests until the nest is no longer active. A pre-clearance nest survey plan will be developed, in consultation with PRPA and ECCC, to guide bird nest survey activities. › Wildlife feeding will be prohibited. › Maintain clean worksites and collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	Construction activities are expected to disturb or displace some marine bird individuals from a localized area in proximity to these activities, with effects expected to be somewhat greater for species that are more susceptible to disturbance, such as some species of gulls, terns, shorebirds, and seabirds. Marine bird populations in the LSA are expected to be somewhat adapted to anthropogenic disturbances already present, and therefore expected to be resilient to additional anthropogenic activities from the Project. In addition, the greatest disturbance and displacement effects will be short-term in nature (during construction). Overall, residual effects as a consequence of disturbance and displacement are expected to be not significant as they will not exceed the resilience and adaptability limits of marine bird populations in the RSA.	Not Significant.	Anthropogenic facilities concentrated along portions of the shoreline have potential to disturb or displace marine birds, particularly those species that are less tolerant of ongoing human activities.	Disturbance or displacement of marine birds during construction activities. As the cumulative effects of disturbance and displacement of marine birds are expected to remain below a level of effect that would pose a threat to the sustainability of marine bird populations in the RSA, it is predicted that these effects will not exceed the resilience of marine birds in the RSA, and thus are assessed as not significant.
Alteration or loss of marine bird habitat as a result of overwater lighting	MB-O-1	O	› General terminal operations (24 hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes).	› Apply mitigations associated with marine water quality (**Section 5.4.2.8 Mitigation Measures**) and marine fish and invertebrates (**Section 5.4.4.8 Mitigation Measures**).	Operation related habitat effects are primarily related to localized changes in prey populations due to overwater lighting at the jetty. The alteration or loss of marine bird habitat residual effect is predicted to be not significant because the threshold is not exceeded. The confidence in this determination is high.	Not Significant.	Habitat alteration or loss from past, existing, and reasonably foreseeable future Projects and activities are expected to act cumulatively with Project residual effects on marine bird habitat during operation for species which utilize shoreline habitat such as shorebirds, dabbling ducks and some gulls.	Direct loss of marine bird habitat. The potential cumulative effect is expected to be permanent and irreversible. However, the habitats affected are concentrated in specific areas of the RSA, while many other areas remain with relatively low cumulative effects. In addition, the Project's contribution to cumulative effects is minor. As such, cumulative effects on marine bird habitats are assessed as not significant as they are not expected to exceed the resilience and adaptability limits of marine birds in the RSA.
Potential collision-related mortality as a result of nighttime lighting, change in mortality risk to marine birds	MB-O-2	O	› General terminal operations (24 hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes).	› Develop and implement LMP. › Wildlife feeding will be prohibited. › Collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	None identified.	Not Significant.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Artificial lighting, noise, and physical disturbance from vessel traffic may have an effect on disturbance and displacement of marine birds	MB-O-3	O	› General terminal operations (24 hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes). › Associated off-site rail and shipping activities.	› Develop and implement an NMP and WMP. › Noise mitigation management measures on equipment and machinery controls. › Schedule expected noisy activities during daytime hours. › Wildlife feeding will be prohibited. › Maintain clean worksites and collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	Shipping traffic may cause some limited changes to baseline levels of disturbance. Marine bird populations in the LSA are expected to be somewhat adapted to anthropogenic disturbances already present, and therefore expected to be resilient to additional anthropogenic activities from the Project. The residual effects as a consequence of disturbance and displacement are expected to be not significant as they will not exceed the resilience and adaptability limits of marine bird populations in the RSA.	Not Significant.	Anthropogenic facilities concentrated along portions of the shoreline have potential to disturb or displace marine birds, particularly those species that are less tolerant of ongoing human activities. Regular vessel traffic associated with Projects and activities is expected to disturb or displace some marine bird individuals for short periods of time when vessels pass, particularly along the existing shipping corridor.	Disturbance and displacement of marine birds from vessel traffic. As the cumulative effects of disturbance and displacement of marine birds are expected to remain below a level of effect that would pose a threat to the sustainability of marine bird populations in the RSA, it is predicted that these effects will not exceed the resilience of marine birds in the RSA, and thus are assessed as not significant.
Alteration or loss of marine bird habitat: Removal of anthropogenic features that marine birds may have adapted to use for roosting, foraging and possibly nesting	MB-D-1	D	› Removal of jetty topside.	› No specific mitigations proposed.	Roosting and nesting habitat on the jetty topside will be removed resulting in loss or alteration of marine bird habitat. The alteration or loss of marine bird habitat residual effect is predicted to be not significant because the threshold is not exceeded. The confidence in this determination is high.	Not Significant.	Habitat alteration or loss from past, existing, and reasonably foreseeable future Projects and activities are expected to act cumulatively with Project residual effects on marine bird habitat during decommissioning for species which utilize shoreline habitat such as shorebirds, dabbling ducks and some gulls.	Direct loss of marine bird habitat. The potential cumulative effect is expected to be permanent and irreversible. However, the habitats affected are concentrated in specific areas of the RSA, while many other areas remain with relatively low cumulative effects. In addition, the Project's contribution to cumulative effects is minor. As such, cumulative effects on marine bird habitats are assessed as not significant as they are not expected to exceed the resilience and adaptability limits of marine birds in the RSA.
Change in mortality risk to marine birds: potential for destruction of occupied marine bird nests that may be present in or on facility infrastructure during decommissioning	MB-D-2	D	› Removal of jetty topside.	› Develop and implement a WMP. › Schedule removal of jetty topside outside of breeding bird season or conduct a bird nesting survey before beginning jetty removal. › Wildlife feeding will be prohibited. › Collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	None identified.	Not Significant.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Disturbance and displacement of marine birds: noise, artificial lighting, and visual disturbance from people and equipment Presence of artificial food supplies (e.g. from unsecured garbage or Project workers deliberately feeding wildlife) could cause marine birds to congregate in the vicinity of the Project, altering their natural movement patterns	MB-D-3	D	› Removal of jetty topside.	› Develop and implement a WMP. › Schedule removal of jetty topside outside of breeding bird season or conduct a bird nesting survey before beginning jetty removal. › Wildlife feeding will be prohibited. › Collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	Decommissioning activities are expected to disturb or displace marine birds to some degree, with the effects predicted to be greatest for activities taking place within marine habitat (e.g., removal of the jetty topside) or adjacent to marine habitat. Marine bird populations in the LSA are expected to be somewhat adapted to anthropogenic disturbances already present, and therefore expected to be resilient to additional anthropogenic activities from the Project. The residual effects as a consequence of disturbance and displacement are expected to be not significant as they will not exceed the resilience and adaptability limits of marine bird populations in the RSA.	Not Significant.	The decommissioning of anthropogenic facilities concentrated along portions of the shoreline have potential to disturb or displace marine birds, particularly those species that are less tolerant of ongoing human activities.	Disturbance and displacement of marine birds from the removal of marine infrastructure and presence of decommissioning-related activities. As the cumulative effects of disturbance and displacement of marine birds are expected to remain below a level of effect that would pose a threat to the sustainability of marine bird populations in the RSA, it is predicted that these effects will not exceed the resilience of marine birds in the RSA, and thus are assessed as not significant.
Soil Quality								
Change in soil function, including reduced permeability as a result of soil removal, from site clearing, soil storage, site grading, blasting, and fill	SQ-C-1	C	› Site clearing including soil storage. Site grading, including blasting and fill.	› Design to minimize footprint; develop and implement management plans, including a CEMP, SMP, AQDCMP, SWSWMP, ESCP and CBMP; importation of contaminant-free engineered fill; use of blasting mats; protocols to prevent additional soil loss to surrounding areas; restoration of disturbed areas; implementation of an SRP.	None identified.	N/A.	None identified.	None identified.
Indirect change in soil quality due to loss of soil function in the RSA from construction activities in the LSA causing surface erosion and hydrological changes	SQ-SC-2	C	› Site clearing, grading, blasting, fill, construction of Project facilities on land and reclamation and clean up.	› Design to minimize footprint; develop and implement management plans, including a CBMP, AQDCMP, CEMP, ESCP, SMP, SRP, SWSWMP, and VMP; use of blasting mats; protocols to prevent soil loss to surrounding areas; soil erosion controls for winds and water; limit temporary infrastructure; limit vehicle and heavy equipment access routes; and undertake restoration of disturbed areas.	None identified.	N/A.	None identified.	None identified.
Terrain								
Potential localized effect of reduced terrain stability at excavation sites	TE-C-1	C	› Site grading, including blasting and fill.	› Design to minimize footprint; develop and implement management plans, including a CBMP, CEMP, SMP, and SWSWMP; inspect and evaluate rock cuts and excavations; use blasting mats to reduce transmission of vibration; mitigate water movement using ditches and berms.	None identified.	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Wildlife and Wildlife Habitat								
Alteration or Loss of Wildlife Habitat	WW-C-1	C	› Site clearing including, soil storage (approximately 38 hectares). › Construction road traffic.	› Create and implement a VMP, SMP, CWMP, AQDCMP, SWSWMP, and ESCP. › Reduce the size of Project footprints during design and use existing infrastructure where feasible. › Restrict construction activity to the flagged footprint area and previously-disturbed areas. › Confirm all construction vehicles and machinery arrive on-site in a clean condition. › Confirm imported fill is free of contaminants and weed seeds. › Maintain clean worksites and collect and dispose of waste appropriately. › Confirm that all equipment and vehicles used during construction have appropriate catalytic converters, mufflers and exhaust systems, and water non-surfaced access roads as needed for dust control. › Re-grade and revegetated disturbed areas. › Create a Wetland Compensation Plan.	Construction will result in a one-time direct habitat loss in the Project footprint of approximately 38 ha (11.6% of the LSA) with a loss of 29% of all wetland wildlife habitat within the LSA. The alteration or loss of wildlife habitat residual effect is predicted to be not significant because the significance threshold is not exceeded. Due to the abundance of alternative wetland and other wildlife habitats in the region in comparison to the quantity being affected by the Project, residual effects to wildlife habitat will be not significant as they will not exceed the resilience and adaptability limits of wildlife populations in the RSA. Habitat alteration and loss is certain to occur as wildlife habitat will be replaced by Project infrastructure, and confidence is high as the habitat loss is quantifiable by area.	Not Significant.	Incremental disturbance of 38 ha, which accounts for 1.1% of the cumulative change in habitat from past, present, and reasonably foreseeable Projects and activities in the RSA, including 27.66 ha of wetland habitats lost (0.01% of the RSA) and alteration or loss of 2.38 ha of mature, low-productivity forest (0.005% of the RSA).	Permanent alteration or loss of wildlife habitat, accounting for 1.1% of the RSA. The alteration or loss of wildlife habitat residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.
Change in Mortality Risk to Wildlife	WW-C-2	C	› Site clearing including, soil storage (approximately 38 hectares). › Construction road traffic. › Site grading, including blasting, and fill.	› Develop and implement a CBMP, CTMP, CWMP, and WMP. › Avoid clearing vegetation during the sensitive timing window for bird nesting (April 4 to August 17) where practical. If not, conduct an active bird nest survey and protect active nests with no-disturbance buffers. › Avoid clearing vegetation within little brown myotis roosting habitat during the sensitive timing window for little brown myotis roosting (early April to early November). › Amphibian salvage will be conducted prior to vegetation removal, draining, clearing and grading of wetlands, following methods outlined in Best Management Practices for Amphibian and Reptile Salvage (BC MFLNRO 2016). › Prohibit wildlife feeding. › Conduct pre-construction wildlife surveys. › Employ blasting mats to contain fly rock, and visually check for the presence of wildlife before blasting. › Adhere to existing PRPA speed limits (30 km/hr) and instruct drivers on wildlife awareness.	Change in mortality risk to wildlife during construction related to site-specific, incidental mortality of small wildlife (mammals and amphibians, e.g., western toads) hidden in vegetated areas of the Project footprint during site preparation. Residual effects to the change in mortality risk to wildlife are expected be short-term, returning to baseline levels following construction, and then returning to baseline levels again following decommissioning, with the implementation of mitigation. As a result, this effect is not predicted to exceed the resilience and adaptability of wildlife affected by changes in mortality risk, and the residual effect will be not significant.	Not Significant	Mortality risk to wildlife is expected to be a result of site-specific, incidental mortality during vegetation clearing, stripping, and other site preparation activities during the construction phase. Past, present, and reasonably foreseeable Projects and activities have led to cumulative effects of this nature across the RSA.	Site-specific, incidental mortality during vegetation clearing, stripping, and other site preparation activities. Cumulative effects due to the change in mortality risk to wildlife are assessed as not significant as they are not expected to exceed the resilience and adaptability limits of wildlife populations in the RSA.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Disturbance and Displacement of Wildlife	WW-C-3	C	› Site clearing including, soil storage (approximately 38 hectares). › Construction road traffic. › Site grading, including blasting, and fill. › Construction of Project facilities on land (civil, mechanical and electrical & instrumental work). › Construction of marine jetty and berths	› Develop and implement a CBMP and WMP. › Avoid clearing vegetation during the sensitive timing window for bird nesting (April 4 to August 17) where practical. If not, conduct an active bird nest survey and protect active nests with no-disturbance buffers. › Avoid clearing vegetation within little brown myotis roosting habitat during the sensitive timing window for little brown myotis roosting (early April to early November). › Employ blasting mats to contain flyrock and reduce vibration, and visually check for the presence of wildlife before blasting.	Anthropogenic activities during construction will cause some reductions in the abundance of some wildlife species (particularly migratory songbirds), with those reductions likely to be more pronounced in closer proximity to the Project footprint and activities. The disturbance and displacement of wildlife residual effect is predicted to be not significant because the significance threshold is not exceeded. Overall, residual effects as a consequence of disturbance and displacement are expected to be not significant as they will not exceed the resilience and adaptability limits of wildlife populations in the RSA. The likelihood is moderate because ongoing alterations in habitat are expected to reduce the value of wildlife habitats in the vicinity of the Project and therefore fewer individuals will be present, and those individuals are expected to develop some degree of habituation or tolerance to disturbance. Confidence is high because anthropogenic noise and the presence of people are well-known to be inherently disturbing to wildlife, even though specific thresholds for individual species are not well documented and are expected to be variable.	Not Significant	The Project, present and reasonably foreseeable future Projects are expected to act cumulatively to disturb and displace wildlife in the RSA.	Present, ongoing Projects and activities are expected to primarily disturb or displace wildlife near those Projects and activities, with potential for spatial overlap in areas where multiple activities are ongoing. The disturbance and displacement of wildlife residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.
Alteration or Loss of Wildlife Habitat	WW-O-1	O	› General terminal operations (24-hours, 365-days) (power, lighting, security, ancillary building operations, staffing, water requirements during operation, storm water management, flaring for maintenance and emergency purposes). › Associated off-site rail and shipping activities.	› Create and implement VMP and ESCP for the operation phase. › Clean Project vehicles of dirt and mud prior to initial arrival at the site. › Treat any infestations of invasive plants that are identified. › Maintain cleanliness of the Project area and ensure that all solid waste is collected, stored, and removed off-site.	Direct habitat loss in the Project footprint of approximately 38 ha (11.6% of the LSA) with a loss of 29% of all wetland wildlife habitat within the LSA. Introduction and/or spread of invasive plant species. The alteration or loss of wildlife habitat residual effect is predicted to be not significant because the significance threshold is not exceeded. Due to the abundance of alternative wetland and other wildlife habitats in the region in comparison to the quantity being affected by the Project, residual effects to wildlife habitat will be not significant as they will not exceed the resilience and adaptability limits of wildlife populations in the RSA. Habitat	Not Significant.	Permanent loss of 38 ha of wildlife habitat as identified in WW-C-1.	Permanent alteration or loss of wildlife habitat, accounting for 1.1% of the RSA. The alteration or loss of wildlife habitat residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					alteration and loss is certain to occur as wildlife habitat will be replaced by Project infrastructure, and confidence is high as the habitat loss is quantifiable by area.			
Change in Mortality Risk to Wildlife	WW-O-2	O	› Railway operations associated with inbound train unloading and outbound train staging. › General terminal operations (24-hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operation, storm water management, flaring for maintenance and emergency purposes). › Routine maintenance and inspections. › Associated off-site rail and shipping activities.	› Develop and implement WMP and LMP. › Check for wildlife occurrence (e.g., bird nests) before conducting routine maintenance of the flare. › Maintain a clean Project site, free of potential wildlife attractants, and prohibit wildlife feeding. › Maintain PRPA speed limits and report wildlife roadkills to the site manager. › Do not disturb or remove active bird nests within the facility. › Install perimeter fencing to deter access by large wildlife. › Develop and implement LMP.	Potential for increase in wildlife mortality rates during the operation phase of the Project is mainly due to the potential for wildlife collisions with vehicles and trains. The change in mortality risk to wildlife residual effect is predicted to be not significant because the significance threshold is not exceeded. The likelihood is moderate because ongoing alterations in habitat are expected to reduce the value of wildlife habitats in the vicinity of the Project and therefore fewer individuals will be present.	Not Significant.	Potential for increase in wildlife mortality rates during the operation phase of the Project is mainly due to the potential for wildlife collisions with vehicles and trains.	Some large mammal populations may be observably affected by collision-related mortality in some areas associated with rail and road corridors. Cumulative effects due to change in mortality risk to wildlife are assessed as not significant as they are not expected to exceed the resilience and adaptability limits of wildlife populations in the RSA.
Disturbance and Displacement of Wildlife	WW-O-3	O	› Railway operations associated with inbound train unloading and outbound train staging. › Vessel berthing. › General terminal operations (24-hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operation, storm water management, flaring for maintenance and emergency purposes). › Routine maintenance and inspections. › Associated off-site rail and shipping activities.	› Develop and implement LMP for the operation phase to meet regulatory commitments and achieve industry accepted practices.	Anthropogenic activities during operation will cause some reductions in the abundance of some wildlife species (particularly migratory songbirds), with those reductions likely to be more pronounced in closer proximity to the Project footprint and activities. The disturbance and displacement of wildlife residual effect is predicted to be not significant because the significance threshold is not exceeded. Overall, residual effects as a consequence of disturbance and displacement are expected to be not significant as they will not exceed the resilience and adaptability limits of wildlife populations in the RSA. The likelihood is moderate because ongoing alterations in habitat are expected to reduce the value of wildlife habitats in the vicinity of the Project and therefore fewer individuals will be present, and those individuals are expected to develop some degree of habituation or tolerance to disturbance. Confidence is high	Not Significant.	The Project, present and reasonably foreseeable future Projects are expected to act cumulatively to disturb and displace wildlife in the RSA.	Present, ongoing Projects and activities are expected to primarily disturb or displace wildlife near those Projects and activities, with potential for spatial overlap in areas where multiple activities are ongoing. The disturbance and displacement of wildlife residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					because anthropogenic noise and the presence of people are well-known to be inherently disturbing to wildlife, even though specific thresholds for individual species are not well documented and are expected to be variable.			
Alteration or Loss of Wildlife Habitat	WW-D-1	D	› Removal of tanks and infrastructure. › Removal of buildings and utilities infrastructure.	› Develop a DEMP that includes measures for habitat recovery and restoration, reduces risk to wildlife mortality, and reduces wildlife disturbance or displacement, to the greatest extent practicable within future management plans of PRPA.	Direct habitat loss in the Project footprint of approximately 38 ha (11.6% of the LSA) with a loss of 29% of all wetland wildlife habitat within the LSA. Introduction and/or spread of invasive plant species. The alteration or loss of wildlife habitat residual effect is predicted to be not significant because the significance threshold is not exceeded. Due to the abundance of alternative wetland and other wildlife habitats in the region in comparison to the quantity being affected by the Project, residual effects to wildlife habitat will be not significant as they will not exceed the resilience and adaptability limits of wildlife populations in the RSA. Habitat alteration and loss is certain to occur as wildlife habitat will be replaced by Project infrastructure, and confidence is high as the habitat loss is quantifiable by area. Introduction and/or spread of invasive plant species.	Not Significant.	Permanent loss of 38 ha of wildlife habitat as identified in WW-C-1.	Permanent alteration or loss of wildlife habitat, accounting for 7% of the RSA. The alteration or loss of wildlife habitat residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.
Change in Mortality Risk to Wildlife	WW-D-2	D	› Removal of tanks and infrastructure. › Removal of buildings and utilities infrastructure.	› Develop a DEMP that includes measures for habitat recovery and restoration, reduces risk to wildlife mortality, and reduces wildlife disturbance or displacement, to the greatest extent practicable within future management plans of PRPA.	Change in mortality risk to wildlife during decommissioning related to site-specific, incidental mortality of small wildlife (mammals and amphibians, e.g., western toads) hidden in vegetated areas where decommissioning activities may be occurring. The change in mortality risk to wildlife residual effect is predicted to be not significant because the significance threshold is not exceeded. The likelihood is moderate because ongoing alterations in habitat are expected to reduce the value of wildlife habitats in the vicinity of the Project and therefore fewer individuals will be present.	Not Significant.	Effects of Project decommissioning on the potential for increase in wildlife mortality is linked to the possibility of inadvertent harm to small wildlife roosting or nesting within the infrastructure being removed.	Incidental mortality of wildlife during decommissioning activities. Cumulative effects due to change in mortality risk to wildlife are assessed as not significant as they are not expected to exceed the resilience and adaptability limits of wildlife populations in the RSA.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Disturbance and Displacement of Wildlife	WW-D-3	D	› Cleaning of tanks and infrastructure. › Removal of tanks and infrastructure. › Removal of buildings and utilities infrastructure. › Removal of jetty topside.	› Develop a DEMP that includes measures for habitat recovery and restoration, reduces risk to wildlife mortality, and reduces wildlife disturbance or displacement, to the greatest extent practicable within future management plans of PRPA.	Anthropogenic activities during decommissioning will cause some reductions in the abundance of some wildlife species (particularly migratory songbirds), with those reductions likely to be more pronounced in closer proximity to the Project footprint and activities. The disturbance and displacement of wildlife residual effect is predicted to be not significant because the significance threshold is not exceeded. Overall, residual effects as a consequence of disturbance and displacement are expected to be not significant as they will not exceed the resilience and adaptability limits of wildlife populations in the RSA. The likelihood is moderate because ongoing alterations in habitat are expected to reduce the value of wildlife habitats in the vicinity of the Project and therefore fewer individuals will be present, and those individuals are expected to develop some degree of habituation or tolerance to disturbance. Confidence is high because anthropogenic noise and the presence of people are well-known to be inherently disturbing to wildlife, even though specific thresholds for individual species are not well documented and are expected to be variable.	Not Significant.	The Project, present and reasonably foreseeable future Projects are expected to act cumulatively to disturb and displace wildlife in the RSA.	Present, ongoing Projects and activities are expected to primarily disturb or displace wildlife near those Projects and activities, with potential for spatial overlap in areas where multiple activities are ongoing. The disturbance and displacement of wildlife residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.
Vegetation								
Alteration or Loss of Vegetation	VE-C-1	C	› Site clearing including, soil storage (approximately 38 hectares). › Construction road traffic.	› Develop and implement a VMP, SMP, CWMP, SWSWMP, and ESCP. › Reduce the size of Project footprints during design and use existing infrastructure where feasible. › Restrict vehicles, workers, laydown areas and fill to the footprint, existing roads, and previously-disturbed areas. › Confirm that all construction machinery and vehicles arrive on the site in a clean condition. › Monitor the construction area for any occurrences of invasive weed species and treat any occurrences.	Construction will result in a one-time loss of approximately 38 ha. Approximately 27 ha of the vegetated ecosystems lost will consist of wetland habitat. The remaining 2.37 ha consists of non-wetland vegetated ecosystems or 2.7% of non-wetland vegetated ecosystems present in the LSA. The alteration or loss of vegetation residual effects is predicted to be not significant because the significance threshold is not exceeded. Residual effects of the Project on vegetation will not be significant because they will not result in a terrestrial ecosystem,	Not Significant.	Permanent loss of 38 ha of vegetation. Construction of the Project is expected to result in an additional incremental disturbance of 38 ha or 1.1% of the cumulative change in ecosystems from past, present, and reasonably foreseeable Projects and activities in the RSA.	Construction of the Project is expected to result in an additional incremental disturbance of 38 ha or 1.1% of the cumulative change in ecosystems from past, present, and reasonably foreseeable Projects and activities in the RSA. The potential cumulative contribution from Project construction on non-wetland vegetated ecosystems is 2.7 ha lost (< 0.01% of the RSA). Cumulative effects to vegetation are assessed as not significant

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
				› Confirm imported fill is free of contaminants, including weed seeds. › Maintain clean worksites and collect and appropriately dispose of all construction waste. › Conduct periodic inspection of all vehicles and equipment for leaks, store all fuels and petrochemicals in approved containers in secondary containment, and use designated fueling areas for construction equipment. › Use erosion prevention materials and structures such as drainage ditches, dams, silt fences and settling ponds as required. › Restore temporarily disturbed areas, as appropriate, as soon as practicable. › Develop a Wetland Compensation Plan.	ecological community at risk or vegetation species at risk to no longer be self-sustaining in the RSA. The likelihood is high because the effects on vegetation will occur because of Project construction and vegetation clearing, and confidence in the nature of the effect is also high because the effects of clearing for development are well-known.			as they are not expected to result in a terrestrial ecosystem, ecological community at risk or vegetation species at risk to no longer be self-sustaining in the RSA.
Alteration or Loss of Vegetation	VE-O-1	O	› General terminal operations (24-hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes). › Associated off-site rail and shipping activities.	› Develop and implement VMP, SWSWMP, and ESCP. › Maintain cleanliness of vehicles and the Project area and confirm that all solid waste is collected, stored, and removed offsite. › Employ water and wind erosion prevention measures such as ditches and vegetation.	The effects of the Project on vegetation during operation is expected to be negligible compared to effects on vegetation of clearing during the construction phase. The alteration or loss of vegetation residual effects is predicted to be not significant because the significance threshold is not exceeded. Residual effects of the Project on vegetation will not be significant because they will not result in a terrestrial ecosystem, ecological community at risk or vegetation species at risk to no longer be self-sustaining in the RSA. The likelihood is high because the effects on vegetation will occur because of Project construction and vegetation clearing, and confidence in the nature of the effect is also high because the effects of clearing for development are well-known.	Not Significant.	The Project is expected to result in an additional incremental disturbance of 38 ha or 1.1% of the cumulative change in ecosystems from past, present, and reasonably foreseeable Projects and activities in the RSA.	The potential cumulative contribution from Project construction on non-wetland vegetated ecosystems is 2.7 ha lost (< 0.01% of the RSA). Cumulative effects to vegetation are assessed as not significant as they are not expected to result in a terrestrial ecosystem, ecological community at risk or vegetation species at risk to no longer be self-sustaining in the RSA.
Alteration or Loss of Vegetation	VE-D-1	D	› Removal of tanks and infrastructure. › Removal of buildings and utilities infrastructure.	› Develop a DEMP that includes measures for habitat/ vegetation recovery and restoration.	The effects of the Project on vegetation during decommissioning is expected to be negligible compared to effects on vegetation of clearing during the construction phase. The alteration or loss of vegetation residual effects is predicted to be not significant because the significance threshold is not exceeded. Residual	Not Significant.	The Project is expected to result in an additional incremental disturbance of 38 ha or 1.1% of the cumulative change in ecosystems from past, present, and reasonably	The potential cumulative contribution from Project construction on non-wetland vegetated ecosystems is 2.7 ha lost (< 0.01% of the RSA). Cumulative effects to vegetation are assessed as not significant as they are not expected to result in a terrestrial ecosystem,

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					effects of the Project on vegetation will not be significant because they will not result in a terrestrial ecosystem, ecological community at risk or vegetation species at risk to no longer be self-sustaining in the RSA. The likelihood is high because the effects on vegetation will occur because of Project construction and vegetation clearing, and confidence in the nature of the effect is also high because the effects of clearing for development are well-known.		foreseeable Projects and activities in the RSA.	ecological community at risk or vegetation species at risk to no longer be self-sustaining in the RSA.
Wetlands and Wetland Function								
Alteration or Loss of Wetlands and Wetland Function	WF-C-1	C	› Site clearing including, soil storage (approximately 38 hectares). › Construction road traffic.	› Develop and implement VMP, SMP, CWMP, SWSWMP, and ESCP. › Reduce the size of Project footprint during design and use existing infrastructure where feasible. › Restrict vehicles, workers, laydown areas and fill to the footprint, existing roads, and previously-disturbed areas. › Confirm that all construction machinery and vehicles arrive on the site in a clean condition. › Monitor the construction area for any occurrences of invasive weed species and treat any occurrences. › Confirm that imported fill is free of contaminants, including weed seeds. › Maintain clean worksites and collect and appropriately dispose of all construction waste. › Use erosion prevention materials and structures such as drainage ditches, dams, silt fences and settling ponds as required. › Restore temporarily disturbed areas as soon as practicable. › Develop a Wetland Compensation Plan.	Construction will result in a one-time loss of 27.66 ha of vegetated wetlands, or 24% of wetlands in the LSA. The alteration or loss of wetlands and wetland function residual effect is predicted to be not significant because the significance threshold is not exceeded. The effect has a high likelihood because wetlands will be removed and replaced with Project infrastructure. Confidence is moderate because the successfulness of mitigating the compensation for lost wetland function is currently unknown.	Not significant.	Loss of 27.66 ha of wetland or 0.01% of existing wetlands in the RSA.	Loss of <0.01% of wetlands in the RSA. The potential cumulative effect is expected to be permanent and irreversible. However, the total habitat affected is a relatively small proportion of wetlands in the RSA.
Alteration or Loss of Wetlands and Wetland Function	WF-O-1	O	› Railway operations associated with inbound train unloading and outbound train staging. › General terminal operations (24-hours, 365 days) (power, lighting, security, ancillary building operations, staffing,	› Develop and implement VMP, SWSWMP, and ESCP. › Promptly treat any infestations of invasive plants that are identified. › Maintain cleanliness of the Project area and ensure that all solid waste is collected, stored, and removed off-site.	Loss of 27.66 ha of vegetated wetlands, or 24% of wetlands in the LSA. The alteration or loss of wetlands and wetland function residual effect is predicted to be not significant because the significance threshold is not exceeded. The effect has a high likelihood because wetlands will be	Not Significant.	Loss of 27.66 ha of wetland or 0.01% of existing wetlands in the RSA.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
			water requirements during operations, storm water management, flaring for maintenance and emergency purposes).		removed and replaced with Project infrastructure. Confidence is moderate because the successfulness of mitigating the compensation for lost wetland function is currently unknown.			
Alteration or Loss of Wetlands and Wetland Function	WF-D-1	D	› Removal of tanks and infrastructure. › Removal of buildings and utilities infrastructure.	› Develop a DEMP that includes measures for ecosystem and wetland recovery and restoration, where practicable within the context of future land use management plans.	Loss of 27.66 ha of vegetated wetlands, or 24% of wetlands in the LSA. The alteration or loss of wetlands and wetland function residual effect is predicted to be not significant because the significance threshold is not exceeded. The effect has a high likelihood because wetlands will be removed and replaced with Project infrastructure. Confidence is moderate because the successfulness of mitigating the compensation for lost wetland function is currently unknown.	Not Significant.	Loss of 27.66 ha of wetland or 0.01% of existing wetlands in the RSA.	None identified.
Ground and Surface Water Quality								
Change to groundwater and surface water quality and increased risk of erosion and sedimentation from site clearing, site grading, blasting, fill and construction of Project facilities	GS-C-1	C	› Site clearing including soil storage (approximately 38 hectares). › Construction road traffic. › Site grading, including blasting, and fill. › Construction of Project facilities on land (civil, mechanical, and electrical & instrumental work).	› Design to avoid water bodies; place soils offsite; develop and implement management plans, including AQDCMP, CBMP, ESCP, SMP, and SWSWMP. › Establish setbacks around water bodies; limit the extent of temporary disturbance; employ dust control measures. › Employ erosion controls. › Use PRPA's existing organics storage area for overburden storage and employ storm water management system. › Conduct progressive reclamation where possible and re-vegetation of disturbed areas.	None identified.	N/A.	None identified.	None identified.
Change in groundwater and surface water quality from general terminal operations	GS-O-1	O	› General terminal operations (24-hours, 365-days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes).	› Design and construct chemical storage, transport, and containment facilities to minimize leakage and contamination. › Construct storage facilities and pipelines to meet appropriate standards and regulations. › Develop and implement management plans, including SWSWMP.	None identified.	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Change to groundwater and surface water quality from removal of infrastructure	GS-D-1	D	› Removal of tanks and infrastructure. › Removal of buildings utilities infrastructure.	› Develop and implement an ESCP and SWSWMP for decommissioning. › Employ erosion controls to reduce the potential for transport of sediments to water bodies during decommissioning activities. › Use ditches and storm water lagoons, as available, to manage storm water during decommissioning. › Restore surface drainage conditions to a state congruent with the surrounding environment.	None identified.	N/A.	None identified.	None identified.
Freshwater Fish and Fish Habitat								
Harmful alteration, disruption or destruction of freshwater fish and fish habitat	FF-C-1	C	› Site clearing including, soil storage › (approximately 38 ha). › Site grading, including blasting, and fill. › Construction of Project facilities on land (civil, mechanical and electrical & instrumental work).	› Design to avoid water bodies; place soils offsite; develop and implement management plans, including a CEMP, ESCP, SPERP, and SWSWMP. › Establish setbacks around water bodies; conduct water quality monitoring; employ dust control measures; limit the extent of temporary disturbance. Do not store hazardous materials within 30 m of a freshwater body; conduct progressive reclamation where possible and re-vegetation of disturbed areas.	None identified.	N/A.	None identified.	None identified.
Change in freshwater fish and fish habitat quality from general terminal operations	FF-O-1	O	› General terminal operations (24-hours, 365 days) (power, lighting, security, ancillary building operations, staffing, water requirements during operations, storm water management, flaring for maintenance and emergency purposes).	› Design and construct chemical storage, transport, and containment facilities to minimize leakage and contamination. › Construct storage facilities and pipelines to meet appropriate standards and regulations, and develop and implement management plans, including a SWSWMP.	None identified.	N/A.	None identified.	None identified.
Changes to fish habitat quality from the removal of infrastructure	FF-D-1	D	› Removal of tanks and infrastructure. Removal of buildings and utilities infrastructure.	› Develop and implement an ESCP and SWSWMP for decommissioning. › Restore surface drainage conditions to a state congruent with the surrounding environment.	None identified.	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Economic Conditions								
Effects on employers financial well-being as a result of potential labour competition	EC-C-1	C	› All construction activities for the Project.	› Engage with chambers of commerce.	Construction may have an adverse effect on the financial well-being of businesses. The residual effect on the financial well-being of businesses is determined to be not significant. The Project will contribute positively and negatively to the factors underlying the financial well-being of businesses, but the limited evidence available suggests that the adverse effects of the Project (labour competition) would not overwhelm the positive effects of the Project. Therefore, there is no substantial indication that the Project will change the VC receptor's condition from "at threshold". However, the likelihood of the Project's net effects on the financial well-being of businesses is considered "as likely as not", signifying the uncertainty of the net effect. Likewise, due to the limited available evidence, confidence in this judgment is low.	Not Significant.	Cumulative effects on the financial well-being of businesses may still occur in the future due to the combined effects of the Project and other proposed future developments.	Potential residual cumulative effects on the financial well-being of businesses may still occur in the future due to the combined effects of the Project and other proposed future developments. The financial well-being of businesses in the region residual cumulative effect is predicted to be not significant because the significance threshold is not expected to be exceeded.
Construction effects on consumer access to goods and services	EC-C-2	C	› All construction activities for the Project.	› Engage with chambers of commerce.	Potential adverse effect of construction on consumer access to goods and services. The effect on consumer access to goods and services is determined to be not significant. While the magnitude of the effect is undetermined, no evidence indicates a seriously adverse effect of existing major Project development, and therefore, the Project is not expected to push the VC receptor's condition to "beyond threshold". However, the likelihood determination of the effect is considered "as likely as not", and confidence in this judgment is low.	Not Significant.	Cumulative effects on consumer access to goods and services may still occur in the future due to the combined effects of the Project and other proposed future development.	Potential residual cumulative effects on consumer access to goods and services may still occur in the future due to the combined effects of the Project and other proposed future development. The consumer access to goods and services residual cumulative effect is predicted to be not significant because the significance threshold is not expected to be exceeded.
Project operation may contribute to labour competition which could adversely affect businesses	EC-O-1	O	› All operation activities for the Project.	› Engage with chambers of commerce; participate in local employment, training, and labour market planning committees.	Operation may have an adverse effect on the financial well-being of businesses. The residual effect on the financial well-being of businesses is determined to be not significant. The Project will contribute positively and negatively to the factors underlying the financial well-being of businesses, but the limited evidence available suggests that the adverse effects of the Project (labour	Not Significant.	Cumulative effects on the financial well-being of businesses may still occur in the future due to the combined effects of the Project and other proposed future developments.	Potential cumulative effects on the financial well-being of businesses may still occur in the future due to the combined effects of the Project and other proposed future developments. The financial well-being of businesses in the region residual cumulative effect is predicted to be not significant because the

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					competition) would not overwhelm the positive effects of the Project. Therefore, there is no substantial indication that the Project will change the VC receptor's condition from "at threshold". However, the likelihood of the Project's net effects on the financial well-being of businesses is considered "as likely as not", signifying the uncertainty of the net effect. Likewise, due to the limited available evidence, confidence in this judgment is low.			significance threshold is not expected to be exceeded.
Effect of operation on consumer access to goods and services	EC-O-2	O	› All operation activities for the Project.	› Engage with chambers of commerce.	Operation may have an adverse effect on consumer access to goods and services. The effect on consumer access to goods and services is determined to be not significant. While the magnitude of the effect is undetermined, no evidence indicates a seriously adverse effect of existing major Project development, and therefore, the Project is not expected to push the VC receptor's condition to "beyond threshold". However, the likelihood determination of the effect is considered "as likely as not", and confidence in this judgment is low.	Not Significant.	Cumulative effects on consumer access to goods and services may still occur in the future due to the combined effects of the Project and other proposed future development.	Cumulative effects on consumer access to goods and services may still occur in the future due to the combined effects of the Project and other proposed future development. The consumer access to goods and services residual cumulative effect is predicted to be not significant because the significance threshold is not expected to be exceeded.
Project decommissioning will lead to an eventual loss of employment after many years of operation-related employment	EC-D-1	D	› All decommissioning activities.	› Communicate timing of decommissioning.	None identified.	N/A.	None identified.	None identified.
Project decommissioning will lead to an eventual loss of business activity after many years of operation-related activity	EC-D-2	D	› All decommissioning activities.	› Communicate timing of decommissioning.	None identified.	N/A.	None identified.	None identified.
Project decommissioning will lead to an eventual loss of economic activity after many years of operation-related activity	EC-D-3	D	› All decommissioning activities.	› Communicate timing of decommissioning.	None identified.	N/A.	None identified.	None identified.
Project decommissioning may lead to contraction in the region's business community, with associated effects on consumers and their access to goods and services, but possibly also redirection of local businesses to consumers	EC-D-4	D	› All decommissioning activities.	› Engage with chambers of commerce.	Decommissioning may have an adverse effect on consumer access to goods and services. The effect on consumer access to goods and services is determined to be not significant. While the magnitude of the effect is undetermined, no evidence indicates a seriously adverse effect of existing major Project development, and therefore, the Project is not expected to push the VC receptor's condition to "beyond threshold". However, the likelihood determination of the effect is considered "as likely as not", and confidence in this judgment is low.	Not Significant.	Cumulative effects on consumer access to goods and services may still occur in the future due to the combined effects of the Project and other proposed future development.	Cumulative effects on consumer access to goods and services may still occur in the future due to the combined effects of the Project and other proposed future development. The consumer access to goods and services residual cumulative effect is predicted to be not significant because the significance threshold is not expected to be exceeded.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Marine Use and Navigation								
Change in marine use	MU-C-1	C	› Construction of marine jetty and berths.	› A Marine Access and Vessel Communications Plan will be developed and implemented. › Authorizations will be required for any construction, works, demolition or development by PRPA. › Marine safety zones, under the jurisdiction of the PRPA will be used during construction.	Vessel passage between the terminal and Triple Island during Project construction may cause effects on navigation and marine use. It is predicted the Project residual effects to fishing, recreation and marine use will be not significant. The Project will not represent a permanent impediment to all marine resource use. Likelihood of a residual effect on fishing, recreation and marine resource use is moderate. The safety areas around the marine terminal will prevent individuals from using a relatively small area for recreational boating, fishing, and other marine purposes. The potential residual effect will affect a limited number of users in the LSA. Although experience may be affected, users will be able to continue to fish, crab, catch shrimp, kayak, camp, and conduct other marine activities currently taking place. Permanent impediment to fishing, recreation and marine use in areas of high importance is unlikely, since a very small percentage of the area will be affected.	Not Significant.	Vessel passage between the terminal and Triple Island during Project construction may cause effects on navigation and marine use.	Vessel passage between the terminal and Triple Island during Project construction may cause effects on navigation and marine use. The change in marine use and navigation residual cumulative effects is predicted to be not significant because there is no exceedance of the significance threshold. Likelihood is low and confidence high.
Change in navigation	MU-C-2	C	› Construction of marine jetty and berths.	› A Marine Access and Vessel Communications Plan will be developed and implemented. › Authorizations will be required for any construction, works, demolition or development by PRPA. › Marine safety zones, under the jurisdiction of the PRPA will be used during construction.	Vessel passage between the terminal and Triple Island during Project construction may cause effects on navigation and marine use. Project residual effects related to shipping are anticipated to be not significant. The Project will cause some impediment to navigation. Likelihood of a residual effect on navigation is moderate since the potential for restricted areas around the marine terminal will be an impediment for some users. Mitigation will reduce the potential for a residual effect. Mitigation described above will allow vessels to continue to travel from Prince Rupert and Port Edward into Chatham Sound in areas such as Kitson Island and Flora Bank and towards Triple Island. Any levels of impediment will be minimal, and areas of high importance will still be accessible. Effects are reversible and not permanent.	Not Significant.	Vessel passage between the terminal and Triple Island during Project construction may cause effects on navigation and marine use.	Vessel passage between the terminal and Triple Island during Project construction may cause effects on navigation and marine use. The change in marine use and navigation residual cumulative effects is predicted to be not significant because there is no exceedance of the significance threshold. Likelihood is low and confidence high.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Change in marine use	MU-O-1	O	› Vessel berthing. › Cargo loading. › Associated off-site rail and shipping activities.	› A Marine Access and Vessel Communications Plan and a Light Management Plan will be developed and implemented. › Clearance under trestle spans sufficient to allow continued navigation of some vessels (e.g., kayaks), if the safety zones do not apply when vessels are not at berth. › Liaising with CCG to provide Notices to Shipping and Notices to Mariners. › Adherence to PRPA and PPA procedures (including mandatory piloting of carriers calling on the terminal and safety zones for other vessels). › Transit speed will be in accordance with the PRPA and Collision Regulations. › Mitigation included in Ambient Light **Section 5.3.2.8 Mitigation Measures**. › Navigational aids will be installed on jetty structures, where required, to enhance navigation safety. › Submitting information about the trestle and berth locations to the CHS so that navigational charts may be updated to minimize the potential for vessel collisions or impacts with the jetty structure. › Escort vessels will be used to confirm the route is clear and safe and that other vessels do not intrude on safety zones. › Tugboats will be used for the safe transit and berthing of vessels calling on the terminal. › Abiding with the applicable limits set by the PRPA on environmental conditions under which operation can be conducted safely. › Compliance with the Navigable Waters Act approval conditions.	Change in marine use as a result of increased vessel traffic along the shipping lane through PRPA waters and between Triple Island and the terminal (up to 171 vessels per year). It is predicted the Project residual effects to fishing, recreation and marine use will be not significant. The Project will not represent a permanent impediment to all marine resource use. Likelihood of a residual effect on fishing, recreation and marine resource use is moderate. Increased shipping and potential for safety areas around the marine terminal will prevent individuals from using a relatively small area for recreational boating, fishing, and other marine purposes. The potential residual effect will affect a limited number of users in the LSA. Although experience may be affected, users will be able to continue to fish, crab, catch shrimp, kayak, camp, and conduct other marine activities currently taking place. Permanent impediment to fishing, recreation and marine use in areas of high importance is unlikely, since a very small percentage of the area will be affected.	Not Significant.	Change in marine use because of increased vessel traffic along the shipping lane through PRPA waters and between Triple Island and the terminal (up to 171 vessels per year).	Change in marine use as a result of increased vessel traffic along the shipping lane through PRPA waters and between Triple Island and the terminal (up to 171 vessels per year). The change in marine use and navigation residual cumulative effects is predicted to be not significant because there is no exceedance of the significance threshold. Likelihood is low and confidence high.
Change in navigation	MU-O-2	O	› Vessel berthing. › Cargo loading. › Associated off-site rail and shipping activities.	› Same as listed above (MU-O-1). › Vessels will be required to establish and maintain radio communications with the Canadian Coast Guard's Marine Communications and Traffic Services, as required by CCG. › Vessel vetting by Vopak.	Change in navigation as a result of increased vessel traffic along the shipping lane through PRPA waters and between Triple Island and the terminal (up to 171 vessels per year). The Project will cause some impediment to navigation. Likelihood of a residual effect on navigation is moderate since increased shipping and potential for restricted areas around the marine terminal will be an impediment for some	Not Significant.	Change in navigation because of increased vessel traffic along the shipping lane through PRPA waters and between Triple Island and the terminal (up to 171 vessels per year).	Change in navigation as a result of increased vessel traffic along the shipping lane through PRPA waters and between Triple Island and the terminal (up to 171 vessels per year). The change in navigation residual cumulative effects is predicted to be not significant because there is no exceedance of the significance threshold.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					users. Mitigation will reduce the potential for a residual effect. Mitigation described above will allow vessels to continue to travel from Prince Rupert and Port Edward into Chatham Sound in areas such as Kitson Island and Flora Bank and towards Triple Island. Any levels of impediment will be minimal, and areas of high importance will still be accessible. Effects are reversible and not permanent.			Likelihood is low and confidence high.
Change in marine use	MU-D-1	D	› Removal of jetty topside.	› Liaise with CCG to provide Notices to Shipping and Notices to Mariners. › Navigational aids will remain on jetty structures, where required, to enhance navigation safety. › Clearance around trestle spans sufficient for navigation of some vessels (e.g., kayaks) following decommissioning.	Vessel passage between the terminal and Triple Island during Project decommissioning may cause effects on navigation and marine use. It is predicted the Project residual effects to fishing, recreation and marine use will be not significant. The Project will not represent a permanent impediment to all marine resource use. Likelihood of a residual effect on fishing, recreation and marine resource use is moderate. Increased shipping and potential for safety areas around the marine terminal will prevent individuals from using a relatively small area for recreational boating, fishing, and other marine purposes. The potential residual effect will affect a limited number of users in the LSA. Although experience may be affected, users will be able to continue to fish, crab, catch shrimp, kayak, camp, and conduct other marine activities currently taking place. Permanent impediment to fishing, recreation and marine use in areas of high importance is unlikely, since a very small percentage of the area will be affected.	Not Significant.	Vessel passage between the terminal and Triple Island during Project decommissioning may cause effects on navigation and marine use.	Vessel passage between the terminal and Triple Island during Project decommissioning may cause effects on navigation and marine use. The change in marine use and navigation residual cumulative effects is predicted to be not significant because there is no exceedance of the significance threshold. Likelihood is low and confidence high.
Change in navigation	MU-D-2		› Removal of jetty topside.	› Liaise with CCG to provide Notices to Shipping and Notices to Mariners. › Navigational aids will remain on jetty structures, where required, to enhance navigation safety. › Clearance around trestle spans sufficient for navigation of some vessels (e.g., kayaks) following decommissioning.	Vessel passage between the terminal and Triple Island during Project decommissioning may cause effects on navigation and marine use. The Project will cause some impediment to navigation. Likelihood of a residual effect on navigation is moderate since the potential for restricted areas around the marine terminal will be an impediment for some users. Mitigation will reduce the potential for a residual effect. Mitigation described above will allow vessels to	Not Significant.	Vessel passage between the terminal and Triple Island during Project decommissioning may cause effects on navigation and marine use.	Vessel passage between the terminal and Triple Island during Project decommissioning may cause effects on navigation and marine use. The change in marine use and navigation residual cumulative effects is predicted to be not significant because there is no exceedance of the significance threshold. Likelihood is low and confidence high.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					continue to travel from Prince Rupert and Port Edward into Chatham Sound in areas such as Kitson Island and Flora Bank and towards Triple Island. Any levels of impediment will be minimal, and areas of high importance will still be accessible. Effects are reversible and not permanent.			
Community Services and Infrastructure								
Effect of Project Construction on Rental Housing	CI-C-1	C	› All construction activities	› Use of work camp. › 14/7 work schedule. › Engagement with government and housing stakeholders. › Financial support for social housing.	Project construction is predicted to have a negligible effect on rental housing. Since the residual effect is negligible, it is not carried forward in the assessment, however due to the context being beyond threshold, Vopak has committed to a follow-up strategy to monitor the effectiveness of the mitigation.	Not Significant.	None identified.	None identified.
Effect of Project Construction on Quality of Health Care	CI-C-2	C	› All construction activities	› Meet or exceed WorkSafeBC requirements. › Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct to avoid workplace accidents and associated pressure on the region's health care system. › Require work camp operators' adherence to health-related laws and policy. › Support the work camp operator's standard health and safety practices. › 14/7 work schedule. › Provide health care in the work camp and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and other drugs. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Reduce personal and industrial traffic volumes to reduce potential traffic accidents. › Opioid overdose management. › Additional traffic safety measures.	Increase of up to 180 non-locals (plus shadow populations) to the region when funding for the region's health care system is based solely on the resident population. The effects of the Project on the region's health care system during construction is determined to be not significant. These effects are expected to be regional in geographic extent because of the role of the Terrace hospital, which is the referral centre in the region when patient needs extend beyond the capacities of local community facilities. Potential effects will be short-term because they will only occur during the time periods of the construction phase of two years. Potential effects will be infrequent in nature because non-local workers' health care needs may occur more than a few times during construction but will not be regular or continuous in nature; effects will occur at the frequency with which health issues and accidents arise. The effects will be fully reversible; once non-local workers leave upon the completion of the construction, the pressure they place on the region's health care system will cease. The context is beyond threshold due to existing strains on the region's health	Significant cumulative residual effect based on existing conditions being over threshold.	Potential cumulative effects on health care during the construction phase combining with other effects on health care.	Effect of in-migrants to the region places stressors on the health care system due to inadequate health care funding to accommodate additional individuals in the community. Continue to increase traffic volumes and increased potential for accidents placing stressors on the health care system. The residual cumulative effect on quality of health care is predicted to be significant because of exceedance of significance threshold.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
					care system, including worse health outcomes in the region and lower levels of health care resources compared to the province and country, although it is similar to other rural areas in Canada.			
Effect of Project Construction on Traffic Volume and Safety	CI-C-3	C	› All construction activities	› Construction Traffic Management Plan (CTMP). › Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Use of shuttle buses to and from the work camp. › Use of barges and rail to transport materials and equipment used during construction. › Supporting the work camp operator's use of work camp policies relevant to reducing Project-related traffic volume and maximizing safety. › Additional traffic safety measures. › Prohibition of alcohol and other drugs. › Additional health care measures	Net adverse effect on traffic volumes and safety because of construction and the increase in personal traffic associated with the Project work force. The effects of the Project on the traffic receptor are determined to be not significant. As the context for these effects is within threshold, the minor adverse effects of the Project on traffic will cause little change from the perspective of the significance threshold. Each Project phase is expected to have a net adverse effect on traffic volumes and safety because of each phase's traffic but also the increase in personal traffic associated with the Project work force. The context for these effects is "within threshold" as traffic and accident rates are below provincial levels and there are no substantial concerns of local police.	Not Significant.	Effect on traffic volume and safety will add cumulatively with existing and reasonably foreseeable Projects and activities.	Effect on traffic volume and safety will add cumulatively with existing and reasonably foreseeable Projects and activities. The residual cumulative effect on traffic is predicted to be not significant because it is expected the significance threshold will not be exceeded.
Effect of Project Operation on Traffic Volume and Safety	CI-O-1	O	› All operation activities	› Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Additional traffic safety measures.	Net adverse effect on traffic volumes and safety because of operation and the increase in personal traffic associated with the Project work force. The effects of the Project on the traffic receptor are determined to be not significant. As the context for these effects is within threshold, the minor adverse effects of the Project on traffic will cause little change from the perspective of the significance threshold. Each Project phase is expected to have a net adverse effect on traffic volumes and safety because of each phase's traffic but also the increase in personal traffic associated with the Project work force. The context for these effects is "within threshold" as traffic and accident rates are below provincial levels and there are no substantial concerns of local police.	Not Significant.	Effect on traffic volume and safety will add cumulatively with existing and reasonably foreseeable Projects and activities.	Effect on traffic volume and safety will add cumulatively with existing and reasonably foreseeable Projects and activities. The residual cumulative effect on traffic is predicted to be not significant because it is expected the significance threshold will not be exceeded.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Effect of Project Decommissioning on Quality of Health Care	CI-D-1	D	› All decommissioning activities	› Meet or exceed WorkSafeBC requirements. › Require work camp operators to not permit workers to leave work camp unless there is an emergency (if work camp is being used for decommissioning). › Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct to avoid workplace accidents and associated pressure on the region's health care system. › Require work camp operator's adherence to health-related laws and policy (if work camp used for decommissioning). › Support the work camp operator's standard health and safety practices (if work camp used for decommissioning). › Provide health care in the work camp (if work camp used for decommissioning) and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and drugs. › Reduce personal and industrial traffic volumes to reduce potential traffic accidents. › Opioid overdose management.	Increase of up to 180 non-locals (plus shadow population) to the region when funding for the region's health care system is based solely on the resident population. The effects of the Project on the region's health care system during decommissioning is determined to be not significant. These effects are expected to be regional in geographic extent because of the role of the Terrace hospital, which is the referral centre in the region when patient needs extend beyond the capacities of local community facilities. Potential effects will be short-term because they will only occur during the time periods of the decommissioning phase of 12 months. Potential effects will be infrequent in nature because non-local workers' health care needs may occur more than a few times during decommissioning but will not be regular or continuous in nature; effects will occur at the frequency with which health issues and accidents arise. The effects will be fully reversible; once non-local workers leave upon the completion of the decommissioning phase, the pressure they place on the region's health care system will cease. The context is beyond threshold due to existing strains on the region's health care system, including worse health outcomes in the region and lower levels of health care resources compared to the province and country, although it is similar to other rural areas Canada.	Significant cumulative residual effect based on existing conditions being over threshold.	Potential cumulative effects on health care during the decommissioning phase combining with other effects on health care.	Effect of in-migrants to the region places stressors on the health care system due to inadequate health care funding to accommodate additional individuals in the community. Continue to increase traffic volumes and increased potential for accidents placing stressors on the health care system. The residual cumulative effect on quality of health care is predicted to be significant because of exceedance of significance threshold.
Effect of Project Decommissioning on Traffic Volume and Safety	CI-D-2	D	› All decommissioning activities	› Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Use of shuttle buses to and from the work camp. › Require work camp operators to not permit workers to leave work camp unless there is an emergency.	Net adverse effect on traffic volumes and safety because of decommissioning and the increase in personal traffic associated with the Project work force. The effects of the Project on the traffic receptor are determined to be not significant. As the context for these effects is within threshold, the minor adverse effects of the Project on traffic will cause little change from the perspective of the significance threshold. Each Project phase is expected to have a net adverse effect on traffic volumes	Not Significant.	Effect on traffic volume and safety will add cumulatively with existing and reasonably foreseeable Projects and activities.	Effect on traffic volume and safety will add cumulatively with existing and reasonably foreseeable Projects and activities. The residual cumulative effect on traffic is predicted to be not significant because it is expected the significance threshold will not be exceeded.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
				› Use of barges and rail to transport materials and equipment used during decommissioning. › Supporting the work camp operator's use of work camp policies (if work camp being used during decommissioning) relevant to reducing Project-related traffic volume and maximizing safety. › Prohibition of alcohol and drugs.	and safety because of each phase's traffic but also the increase in personal traffic associated with the Project work force. The context for these effects is "within threshold" as traffic and accident rates are below provincial levels and there are no substantial concerns of local police.			
Community Well-being								
Effect on well-being outcomes	CW-C-1	C	› All construction activities	› Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct. › Indigenous liaison. › Use of work camp. › 14/7 work schedule. › Engage with governments and housing stakeholders. › Financial Support social housing. › Meet or exceed WorkSafeBC requirements. › Require work camp operators' adherence to health-related laws and policy. › Support the work camp operator's standard health and safety practices. › Provide health care in the work camp and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and other drugs. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Opioid overdose management. › Construction Traffic Management Plan (CTMP). › Use of shuttle buses to and from the work camp. › Use of barges and rail to transport materials and equipment used during construction. › Supporting the work camp operator's use of work camp policies relevant to reducing Project-related traffic volume and maximizing safety. › Additional traffic safety measures. › Additional health care measures	Project construction is expected to have a positive effect on well-being outcomes via economic pathways. Net adverse effects on well-being outcomes with the normal range of variability resulting from social, environmental and cultural factors. Construction is expected to have positive effects on economic factors of well-being, and adverse effects on social, environmental and cultural factors of well-being. Mitigation for the Project will reduce the likelihood of any residual effects becoming significant. The baseline context is expected to remain 'within threshold'. Well-being outcomes are expected to remain below threshold except for vulnerable populations relative to the province and country. Insufficient evidence is available to determine the likelihood of the effect; therefore, it is considered as likely as not, and confidence in the significance determination is low.	Not Significant.	The Project will have effects on all factors of well-being and therefore cumulative effects are possible for community well-being.	Positive effects on economic factors of well-being and adverse effects on social, environmental and cultural factors of well-being are expected during construction. The effect of Project construction and operation on well-being outcomes residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Effect on well-being outcomes	CW-O-1	O	› All operation activities	› Employee code of conduct. › Indigenous liaison. › Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Additional traffic safety measures.	Project construction is expected to have a positive effect on well-being outcomes via economic pathways such as increased tax revenue to all levels of government would provide the means to enhance health services and social programs that are designed to improve mental and physical health in the community. Net adverse effects on well-being outcomes with the normal range of variability resulting from social, environmental and cultural factors. Operation are expected to have beneficial effects on economic factors of well-being but adverse effects on social, environmental, and cultural factors of well-being. The baseline context is expected to remain 'within threshold'. Well-being outcomes are expected to remain below threshold except for vulnerable populations relative to the province and country. However, insufficient evidence is available to determine the likelihood of the effect, therefore it is considered as likely as not, and confidence in the significance judgment is therefore low.	Not Significant.	The Project will have effects on all factors of well-being and therefore cumulative effects are possible for community well-being.	Positive effects on economic factors of well-being and adverse effects on social, environmental and cultural factors of well-being are expected during operation. The effect of Project construction and operation on well-being outcomes residual cumulative effect is predicted to be not significant because the significance threshold is not exceeded.
Effect on well-being outcomes	CW-D-1	D	› All decommissioning activities	› Mitigation to avoid effects has not been proposed.	None identified.	N/A.	None identified.	None identified.
Heritage and Archaeology								
Loss of or damage to CMTs from site clearing, including soil storage	HA-C-1	C	› Site clearing including soil storage (approximately 38 hectares)	› Avoidance of CMT sites. › Collection of stem round samples from all CMTs that are removed. › Creation of a wind-firm buffer to protect indirectly affected CMTs from potential blowdown. › ARMP. › On-site personnel receiving CFMP training prior to conducting any ground-disturbing activities.	None identified.	N/A.	None identified.	None identified.
Loss of or damage to heritage and archaeological resources from site grading, including blasting, and deposition of fill	HA-C-2	C	› Site grading, including blasting and fill	› Avoidance of AOPs. › Monitoring of AOPs during construction to identify archaeological deposits, if present. › ARMP. › On-site personnel receiving CFMP training prior to conducting any ground-disturbing activities.	None identified.	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Loss of or damage to heritage and archaeological resources from construction of marine jetty and berths	HA-C-3	C	› Construction of marine jetty and berths	› Avoidance of AOPs. › ARMP. › On-site personnel receiving CFMP training prior to conducting any ground-disturbing activities.	None identified.	N/A.	None identified.	None identified.
Human Health								
Change in human health through discharge of Project Water	N/A.	C	› Commissioning, systems testing, hydrotesting (**Section 5.7 Freshwater Fish and Fish Habitat, Section 5.4.2 Marine Water Quality**)	› Refer to proposed mitigations identified under Freshwater Fish and Fish Habitat and Marine Water Quality.	None Identified	N/A.	None identified.	None identified.
Change in human health through increased Project emissions (Criteria Air Contaminants or CACs) resulting in decreased air quality	N/A.	C	› Potential for dust generation, affecting ambient particulate matter concentrations and release of CACs due to the consumption of diesel fuel (**Section 5.1 Air Quality**)	› Refer to proposed mitigations identified under Air Quality.	None Identified	N/A.	None identified.	None identified.
Change in ambient light from the construction of Project facilities on land, the marine jetty and berths	N/A.	C	› Lighting for safety and construction during low light or night time hours (**Section 5.3 Visual Quality – Including Ambient Light**)	› Mitigation, including avoidance or reduction measures, is not considered feasible during construction as the construction lighting must be in place for safe work, security, and marine navigation.	None Identified	N/A.	None identified.	None identified.
Decreased country food quality through increased Project emissions	N/A.	C	› Dust generation during Project construction (**Section 5.5 Soils and Terrain**)	› Refer to proposed mitigations identified under Freshwater Fish and Fish Habitat and Marine Water Quality, Wildlife and Wildlife Habitat, Vegetation and Wetlands and Wetland Function.	None Identified	N/A.	None identified.	None identified.
Change in human health from increased ambient sound levels	N/A.	C	› Refer to **Section 5.2.5.2 Construction Potential Interactions and Effects**	› Refer to proposed mitigations identified under Noise.	None Identified	N/A.	None identified.	None identified.
Change in human health from increased CACs from operation activities	N/A.	O	› Railway operations, equipment usage (e.g., vessels, LPG cooling process, general terminal operations, and storage tank venting) (**Section 5.1 Air Quality**)	› Refer to proposed mitigations identified under Air Quality.	None Identified	N/A.	None identified.	None identified.
Change in human health through Project emissions resulting in decreased food quality	N/A.	O	› Dust generation during Project operation (**Section 5.5 Soils and Terrain**)	› Refer to proposed mitigations identified under Freshwater Fish and Fish Habitat and Marine Water Quality, Wildlife and Wildlife Habitat, Vegetation and Wetlands and Wetland Function.	None Identified	N/A.	None identified.	None identified.

Potential Effect	Reference Number	Phase	Project Activity	Proposed Mitigation	Potential Residual Effects	Determination of Significance	Potential Cumulative Effects	Potential Residual Cumulative Effects
Change in visual quality, including ambient light, affecting human health as a result of Project operations	N/A.	O	› Railway operations, equipment usage (e.g., vessel berthing, general terminal operations) and off-site rail and shipping activities (**Section 5.3 Visual Quality – Including Ambient Light**)	› An Operation Environmental Management Plan (OEMP) will be developed and implemented and will include a Light Management Plan (LMP) to address effects from ambient light.	None Identified	N/A.	None identified.	None identified.
Change in ambient noise levels affecting human health because of Project operations	N/A.	O	› Railway operations, equipment usage (e.g., vessel berthing, LPG cooling operations, cargo loading, general terminal operations) and off-site rail and shipping activities (**Section 5.2 Noise**)	› Refer to proposed mitigations identified under Noise.	None Identified	N/A.	None identified.	None identified.
Change in human health through increased CACs resulting in decreased air quality	N/A.	D	› Use of equipment to remove tanks, buildings, and utilities infrastructure, removal of the jetty topside, and dust generation during Project decommissioning (**Section 5.1 Air Quality**)	› Refer to proposed mitigations identified under Air Quality.	None Identified	N/A.	None identified.	None identified.
Change in ambient noise levels affecting human health as a result of decommissioning activities	N/A.	D	› Refer to **Section 5.2.5.4 Decommissioning Potential Interactions and Effects**	› Refer to proposed mitigations identified under Noise.	None Identified	N/A.	None identified.	None identified.

C – Construction
O – Operation
D – Decommissioning

Table E-16: Summary of Proposed Mitigation Measures

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
Air Quality					
AQ-C-1	Change in air quality from Project-related dust due to clearing, grading, and traffic	› Develop and implement management plans, including an AQDCMP and CTMP; transport workers via bus; spray overburden and soils with water prior to moving them if overly dry; use of water sprays to control dust on roads.	Construction		
AQ-C-2	Change in air quality from construction-related emissions of CACs	› Develop and implement management plans, including an AQDCMP and CTMP; engine idling policy; use efficient, lower-emission vehicles and equipment where practical; and specify vehicle speeds.	Construction		
AQ-O-1	Change in air quality specific to operation-related emissions of CACs and release of fugitive CACs	› Engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds; use of vapour-tight connections during the unloading of rail cars and loading of the storage tanks; use of a Vapour Recovery Unit.	Operation		
AQ-D-1	Change in air quality due to dust generation from the removal of buildings, tanks, and utilities	› Develop and implement management plans, including a DEMP and AQDCMP; avoid removal of tanks and infrastructure under overly dry conditions; use of water sprays to control dust; engine idling policy; use efficient, lower-emission vehicles and equipment where practical.	Decommissioning		
AQ-D-2	Change in air quality specific to Project decommissioning-related emissions of CACs	› Engine idling policy; use efficient, lower-emission vehicles and equipment where practical; and limiting vehicle speeds.	Decommissioning		
Greenhouse Gas Emissions					
GH-C-1	Change in GHG emissions from all construction activities	› Develop and implement AQDCMP and CTMP; engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds.	Construction		
GH-O-1	Change in GHG emissions from all operation activities	› Develop and implement OEMP, engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds; develop Energy Management Plan.	Operation		
GH-D-1	Change in GHG emissions from the removal of tanks and infrastructure and jetty topside and from the removal of buildings and utilities	› Develop and implement DEMP; engine idling policy; use efficient, lower-emission vehicles and equipment where practical; limiting vehicle speeds.	Decommissioning		
Noise					
NO-O-1	Change in ambient noise levels	› Develop and implement management plans, including an OEMP and NMP; limit maintenance and inspection activities to daytime hours, when possible; use of noise abatement measures including screens, if necessary.	Operation		
Visual Quality					
VQ-C-1	Change in visual quality due to alteration of the view scape, construction of new buildings on land, or from construction of new marine features	› Design to minimize footprint; develop and implement a CEMP, including: limiting site clearing, laydown, and staging areas; use natural colours as possible; revegetate temporary cleared areas following construction.	Construction		
VQ-O-1	Change in visual quality at the facility due to railway operations, product storage tanks, vessel berthing, or from marine shipping	› Construction mitigation is anticipated to continue to reduce the effect of alteration of the visual landscape during operation.	Operation		
VQ-D-1	Change in visual quality due to removal of facility and marine infrastructure	› Develop and implement DEMP to restore and revegetate as necessary. › Remove most land-based structures and the jetty topside.	Decommissioning		
Ambient Light					
AI-C-1	Changes to ambient light due to construction	› No mitigation measures proposed.	Construction		
AI-O-1	Changes to ambient light due to operation	› Develop LMP. › Minimize light use. › Minimize light trespass and sky glow in the LSA. › Employ light controls on equipment	Operation		

[1] Timing refers to the phase in which the proposed mitigation measure will be finalized and implemented.

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
Marine Sediment Quality					
MS-C-1	Change in marine sediment quality	› Develop and implement management plans, including a SPERMP and SWSWMP. › Follow work windows to reduce seasonal risk during pile and anchor installations. These include Marine/Estuarine Timing Windows for the Protection of Fish and Fish Habitat (Area 4 – Lower Skeena). The timing windows are open November 30 to February 15.	Construction	*Fisheries Act*	Fisheries and Oceans Canada
MS-O-1	Change in marine sediment quality	› Develop and implement management plans, including an PSHP, SPERMP, and SWSWMP. › PRPA conducts periodic sediment quality monitoring through Port Stewardship programs. › Anchor chain will be supported with a subsurface buoy and a surface mooring buoy, minimizing drag and scour on the seabed floor.	Operation	*Fisheries Act*	Fisheries and Oceans Canada
Marine Water Quality					
MW-C-1	Change in marine water quality	› Develop and implement management plans, including a PSHP, SPERMP and SWSWMP. › Re-designed the marine terminal to improve marine water quality by eliminating the need for both a causeway and berth dredging, › Follow work windows to reduce seasonal risk during pile and anchor installations. These include Marine/Estuarine Timing Windows for the Protection of Fish and Fish Habitat (Area 4 – Lower Skeena). The timing windows are open November 30 to February 15. › Follow DFO guidelines regarding seasonal risk.	Construction	*Fisheries Act*	Fisheries and Oceans Canada
MW-O-1	Change in marine water quality	› Develop and implement management plans, including SPERMP, and SWSWMP. › PRPA conducts periodic sediment quality monitoring through Port Stewardship programs. › During cargo loading, the anchor chain will be supported with both a subsurface floating buoy, and a surface mooring buoy, minimizing drag and scour on the seabed floor.	Operation	*Fisheries Act*	Fisheries and Oceans Canada
Marine Habitats					
MH-C-1	Alteration or loss of marine habitats	› Develop and implement the CEMP and site-specific management plans prior to commencement of Project activities. › Schedule construction activities in and around water to occur during a DFO-approved least-risk work window. › Review with the Contractor in advance of construction the mitigation to be implemented. › Where possible, avoid placing vertical spuds or other anchors into valued and sensitive habitat areas. › Flag or identify site-specific valued and sensitive habitat areas adjacent to the Project component areas. › Monitor construction activities by a QEP, or EM under the supervision of a QEP. › If a *Fisheries Act* authorization is required, develop an offsetting plan that meets DFO requirements and approval for the loss of marine habitat. › If a *Fisheries Act* authorization is required, monitor the effectiveness of habitat offsetting measures and, if warranted, implement remedial measures.	Construction	*Fisheries Act*	Fisheries and Oceans Canada
MH-O-1	Alteration or loss of marine habitats	› Implementation of mitigation for minimizing the effects from storm water-related effects in the Surface Water and Storm Water Management Plan **(Section 10)** during general operations will avoid alteration of nearshore marine habitats.	Operation	*Fisheries Act*	Fisheries and Oceans Canada
Marine Fish and Invertebrates					
MF-C-1	Injury, direct mortality or displacement of marine fish and invertebrates	› Develop and implement a site-specific CEMP including component SWSWMP, and ESCP, and SPERMP prior to commencement of Project activities. › Monitor construction activities by a QEP or EM under the supervision of a QEP. › Schedule construction activities within water to occur during a DFO-approved least-risk work window. › Vopak's MUNMP will include mitigation to manage transmission of underwater noise and vibration during marine construction activities. This will include the development and implementation of an Underwater Acoustic Monitoring Program that synergistically includes the Marine Mammals subcomponent.	Construction	*Fisheries Act*	Fisheries and Oceans Canada

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
		› Appropriate BMPs, including the BMPs for Pile Driving and Related Operations (BC Marine and Pile Driving Contractors Association 2003), DFO BMP for Pile Driving and Related Operations (DFO undated) and Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters (Wright and Hopky 1998). › Implement exclusion zones with distance from the sound source determined based on underwater acoustic monitoring and comparison of measured sound levels to the currently accepted thresholds of 206 dB re 1 µPa for Peak SPL, and 187 dB re 1 µPa2s for Cumulative Sound Exposure Level (unless otherwise directed by DFO). › Avoid concurrent in-water noise-producing construction activities, as possible. › Use soft-starts and ramp-ups, as possible. › Develop construction-activity specific Stop Work Protocols that allows for the temporary cessation of Project-related activities and account for site-specific species and observation conditions. Stop Work Protocols include, but are not limited to, SPL exceedances, observations of distressed fish, or observations of aggregations of Pacific Herring, salmon, or Eulachon.			
MF-O-1	Injury, direct mortality or displacement of marine fish and invertebrates from benthic scouring	› Reduce area of potential benthic scouring to the extent practical (i.e., minimize chain lay (radius) on the seabed and set guardian anchor blocks to limit the range of motion of the chains).	Operation	*Fisheries Act*	Fisheries and Oceans Canada
MF-O-2	Displacement of marine fish and invertebrates from overwater lighting	› Avoid lighting shallow nearshore areas, where practical. › Avoid overwater down-casting lights, where practical. › Use an industrial low-profile light fixture that sidecasts light. › Use smart, low consumption light-emitting diode (LED) lighting. › Illuminate those parts of the marine terminal that need lighting, when they need lighting (i.e., restrict continuous lighting to human and navigational safety). › Several types of sensors will be connected to the LED lights to facilitate lighting requirements, allowing for light shut-off at appropriate times. Vopak will schedule the illumination through motion and occupancy sensors for both indoor and outdoor applications at the Project, thereby reducing the amount of light trespass. › Specifications for emergency lighting (floodlights) that will only be used during accidents or malfunctions, or in case of unauthorized vessel trespass. › Schedule illumination through motion and occupancy sensors for both indoor and outdoor applications, thereby reducing the amount of light trespass. › Develop and implement an integrated lighting design for the Project.	Operation	*Fisheries Act*	Fisheries and Oceans Canada
MF-O-3	Displacement of marine fish from underwater noise	› The initial approach speed will be slow at approximately six to seven knots, followed by a reduction to about three to four knots after the completion of the turn to the centre line. › This will be followed by a further speed reduction and upon entering the berth, the vessel speed will be approximately one knot with the overall control of the vessel conducted through the tug vessel assist. › Speed reduction protocols will be followed in the reversed direction upon departure from the vessel berths..	Operation	*Fisheries Act*	Fisheries and Oceans Canada
Marine Mammals					
MM-C-1	Alteration or loss of marine mammal habitat due to site preparation or construction of the marine jetty and berths	› Develop and implement management plans, including a CEMP, CWMP, ESCP, SWSWMP, FFHMP, and MAVCP. › Mitigations for marine mammals will be synergistic with mitigations for marine fish and invertebrates. › Monitor construction activities by a QEP, or EM under the supervision of a QEP.	Construction	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada
MM-C-2	Disturbance or displacement of marine mammals due to site preparation or construction of the marine jetty and berths	› Develop and implement management plans, including CEMP, CBMP, FFHMP, MUNVP, MAVCP, EAEP. › Follow best management practices (BC Marine and Pile Driving Contractors Association 2003), (DFO undated) and (Wright and Hopky 1998). › Component management plans will include marine mammal-specific details, such as safety zones and visual monitoring by qualified MMOs, underwater acoustic thresholds, underwater acoustic monitoring, and construction related vessel operations.	Construction	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
		› Monitor construction activities by a QEP, or EM under the supervision of a QEP. › Use of bubble curtains or other noise-attenuating devices; development of activity-specific Stop Work Protocols. › Prioritization of lower sound emission equipment. › Avoid concurrent in-water noise-producing construction activities, as possible. › Mitigations for marine mammals will be synergistic with mitigations for the Marine Fish and Invertebrates subcomponent.			
MM-C-3	Injury or mortality to marine mammals due to site preparation or construction of the marine jetty and berths	› Mitigative actions to avoid the potential effect of injury or mortality of marine mammals during the in-water construction from underwater noise and vessel strike risk are the same as those for the effects mentioned for MM-C-2	Construction	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada
MM-O-1	Alteration or loss of marine mammal habitat due to vessel berthing or associated off-site shipping activities	› Develop and implement management plans including an OEMP. › Adhere to the Port Information Guide. › Minimise carrier time in the berths. › Avoid discharge of any deleterious substance into the marine environment. › Mitigations for marine mammals will be synergistic with mitigations for the Marine Fish and Invertebrates subcomponent. › Participation in the PRPA Marine Mammal Program (PRPA 2020). › Vopak vessels for marine terminal operations will adhere to the Be Whale Wise guidance.	Operation	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada
MM-O-2	Disturbance or displacement of marine mammals due to vessel berthing or associated off-site shipping activities		Operation	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada
MM-O-3	Injury or mortality to marine mammals due to vessel berthing or associated off-site shipping activities	› As for MM-O-1 and MM-O-2 with the addition of the following. › Develop and implement MBM berth entanglement protocol.	Operation	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada
MM-D-1	Disturbance or displacement of marine mammals due to removal of jetty topside	› Participation in the PRPA Marine Mammal Program (PRPA 2020) or other such programs. › Decommissioning vessels will adhere to the Be Whale Wise guidance. › Decommissioning plans will include marine mammal specific details such as safety zones and visual monitoring by qualified MMOs, underwater acoustic thresholds, underwater acoustic monitoring, and vessel operations.	Decommissioning	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada
MM-D-2	Injury or mortality to marine mammals due to removal of topside jetty		Decommissioning	*Species at Risk Act*	Fisheries and Oceans Canada Environment and Climate Change Canada
Marine Birds					
MB-C-1	Alteration or loss of marine bird habitat	› Develop and implement management plans, including a CEMP, SWSWMP, and WMP; establish setbacks; conduct progressive reclamation and re-vegetation of shoreline and riparian areas.	Construction	*Migratory Birds Convention Act*	Environment and Climate Change Canada
MB-C-2	Disturbance and displacement of marine birds	› Develop and implement management plans, including a CEMP and WMP; establish setbacks. › Avoid beginning construction during bird nesting season. › If vegetation clearing is proposed during the bird nesting season, then pre-clearance bird nest surveys will be done to identify active bird nests and establish protective buffers around nests until the nest is no longer active. A pre-clearance nest survey plan will be developed, in consultation with PRPA and ECCC, to guide bird nest survey activities. › Wildlife feeding will be prohibited.	Construction	*Migratory Birds Convention Act*	Environment and Climate Change Canada

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
		› Maintain clean worksites and collect all waste materials (including food scraps) in appropriate containers for disposal off-site.			
MB-O-1	Alteration or loss of marine bird habitat	› Apply mitigations associated with marine water quality (**Subsection 5.4.2.8 Mitigation Measures**) and marine fish and invertebrates (**Subsection 5.4.4.8 Mitigation Measures**).	Operation	*Migratory Birds Convention Act*	Environment and Climate Change Canada
MB-O-2	Change in mortality risk to marine birds	› Develop and implement LMP. › Wildlife feeding will be prohibited. › Collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	Operation	*Migratory Birds Convention Act*	Environment and Climate Change Canada
MB-O-3	Disturbance and displacement of marine birds	› Develop and implement an NMP and WMP. › Noise mitigation management measures on equipment and machinery controls. › Schedule expected noisy activities during daytime hours. › Wildlife feeding will be prohibited. › Maintain clean worksites and collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	Operation	*Migratory Birds Convention Act*	Environment and Climate Change Canada
MB-D-1	Alteration or loss of marine bird habitat	› No specific mitigations proposed.	Decommissioning	*Migratory Birds Convention Act*	Environment and Climate Change Canada
MB-D-2	Change in mortality risk to marine birds	› Develop and implement a WMP. › Schedule removal of jetty topside outside of breeding bird season or conduct a bird nesting survey before beginning jetty removal. › Wildlife feeding will be prohibited. › Collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	Decommissioning	*Migratory Birds Convention Act*	Environment and Climate Change Canada
MB-D-3	Disturbance and displacement of marine birds	› Develop and implement a WMP. › Schedule removal of jetty topside outside of breeding bird season or conduct a bird nesting survey before beginning jetty removal. › Wildlife feeding will be prohibited. › Collect all waste materials (including food scraps) in appropriate containers for disposal off-site.	Decommissioning	*Migratory Birds Convention Act*	Environment and Climate Change Canada
Soil Quality					
SQ-C-1	Change in soil function, including reduced permeability as a result of soil removal, from site clearing, soil storage, site grading, blasting, and fill	› Design to minimize footprint; develop and implement management plans, including a CEMP, SMP, AQDCMP, SWSWMP, ESCP and CBMP; importation of contaminant-free engineered fill; use of blasting mats; protocols to prevent additional soil loss to surrounding areas; restoration of disturbed areas; implementation of an SRP.	Construction		
SQ-C-2	Indirect change in soil quality due to loss of soil function in the RSA from construction activities in the LSA causing surface erosion and hydrological changes	› Design to minimize footprint; develop and implement management plans, including a CBMP, AQDCMP, CEMP, ESCP, SMP, SRP, SWSWMP, and VMP; use of blasting mats; protocols to prevent soil loss to surrounding areas; soil erosion controls for winds and water; limit temporary infrastructure; limit vehicle and heavy equipment access routes; and undertake restoration of disturbed areas.	Construction		
Terrain					
TE-C-1	Potential localized effect of reduced terrain stability at excavation sites	› Design to minimize footprint; develop and implement management plans, including a CBMP, CEMP, SMP, and SWSWMP; inspect and evaluate rock cuts and excavations; use blasting mats to reduce transmission of vibration; mitigate water movement using ditches and berms.	Construction		

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
Wildlife and Wildlife Habitat					
WW-C-1	Alteration or Loss of Wildlife habitat	› Create and implement a VMP, SMP, CWMP, AQDCMP, SWSWMP, and ESCP. › Reduce the size of Project footprints during design and use existing infrastructure where feasible. › Restrict construction activity to the flagged footprint area and previously-disturbed areas. › Confirm all construction vehicles and machinery arrive on-site in a clean condition. › Confirm imported fill is free of contaminants and weed seeds. › Maintain clean worksites and collect and dispose of waste appropriately. › Confirm that all equipment and vehicles used during construction have appropriate catalytic converters, mufflers and exhaust systems, and water non-surfaced access roads as needed for dust control. › Re-grade and revegetated disturbed areas. › Create a Wetland Compensation Plan.	Construction	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
WW-C-2	Change in Mortality Risk to Wildlife	› Develop and implement a CBMP, CTMP, CWMP, and WMP. › Avoid clearing vegetation during the sensitive timing window for bird nesting (April 4 to August 17) where practical. If not, conduct an active bird nest survey and protect active nests with no-disturbance buffers. › Avoid clearing vegetation within little brown myotis roosting habitat during the sensitive timing window for little brown myotis roosting (early April to early November). › Amphibian salvage will be conducted prior to vegetation removal, draining, clearing and grading of wetlands, following methods outlined in Best Management Practices for Amphibian and Reptile Salvage (BC MFLNRO 2016). › Prohibit wildlife feeding. › Conduct pre-construction wildlife surveys. › Employ blasting mats to contain fly rock, and visually check for the presence of wildlife before blasting. › Adhere to existing PRPA speed limits (30 km/hr) and instruct drivers on wildlife awareness.	Construction	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
WW-C-3	Disturbance and Displacement of Wildlife	› Develop and implement a CBMP and WMP. › Avoid clearing vegetation during the sensitive timing window for bird nesting (April 4 to August 17) where practical. If not, conduct an active bird nest survey and protect active nests with no-disturbance buffers. › Avoid clearing vegetation within little brown myotis roosting habitat during the sensitive timing window for little brown myotis roosting (early April to early November). › Employ blasting mats to contain flyrock and reduce vibration, and visually check for the presence of wildlife before blasting.	Construction	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
WW-O-1	Alteration or Loss of Wildlife habitat	› Create and implement VMP and ESCP for the operation phase. › Clean Project vehicles of dirt and mud prior to initial arrival at the site. › Treat any infestations of invasive plants that are identified. › Maintain cleanliness of the Project area and ensure that all solid waste is collected, stored, and removed offsite.	Operation	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
WW-O-2	Change in Mortality Risk to Wildlife	› Develop and implement WMP and LMP. › Check for wildlife occurrence (e.g., bird nests) before conducting routine maintenance of the flare. › Maintain a clean Project site, free of potential wildlife attractants, and prohibit wildlife feeding. › Maintain PRPA speed limits and report wildlife roadkills to the site manager. › Do not disturb or remove active bird nests within the facility. › Install perimeter fencing to deter access by large wildlife. › Develop and implement LMP.	Operation	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
WW-O-3	Disturbance and Displacement of Wildlife	› Develop and implement LMP for the operation phase to meet regulatory commitments and achieve industry accepted practices.	Operation	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
WW-D-1	Alteration or Loss of Wildlife habitat	› Develop a DEMP that includes measures for habitat recovery and restoration, reduces risk to wildlife mortality, and reduces wildlife disturbance or displacement, to the greatest extent practicable within future management plans of PRPA.	Decommissioning	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
WW-D-2	Change in Mortality Risk to Wildlife		Decommissioning	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
WW-D-3	Disturbance and Displacement of Wildlife		Decommissioning	*Migratory Birds Convention Act* *Species at Risk Act*	Environment and Climate Change Canada
Vegetation					
VE-C-1	Alteration or Loss of vegetation	› Develop and implement a VMP, SMP, CWMP, SWSWMP, and ESCP. › Reduce the size of Project footprints during design and use existing infrastructure where feasible. › Restrict vehicles, workers, laydown areas and fill to the footprint, existing roads, and previously-disturbed areas. › Confirm that all construction machinery and vehicles arrive on the site in a clean condition. › Monitor the construction area for any occurrences of invasive weed species and treat any occurrences. › Confirm imported fill is free of contaminants, including weed seeds. › Maintain clean worksites and collect and appropriately dispose of all construction waste. › Conduct periodic inspection of all vehicles and equipment for leaks, store all fuels and petrochemicals in approved containers in secondary containment, and use designated fueling areas for construction equipment. › Use erosion prevention materials and structures such as drainage ditches, dams, silt fences and settling ponds as required. › Restore temporarily disturbed areas, as appropriate, as soon as practicable. › Develop a Wetland Compensation Plan.	Construction		
VE-O-1	Alteration or Loss of vegetation	› Develop and implement VMP, SWSWMP, and ESCP. › Maintain cleanliness of vehicles and the Project area and confirm that all solid waste is collected, stored, and removed offsite. › Employ water and wind erosion prevention measures such as ditches and vegetation.	Operation		
VE-D-1	Alteration or Loss of Vegetation	› Develop a DEMP that includes measures for habitat/ vegetation recovery and restoration.	Decommissioning		
Vegetation (Wetlands and Wetland Function)					
WF-C-1	Alteration or Loss of Wetlands and Wetland Function	› Develop and implement VMP, SMP, CWMP, SWSWMP, and ESCP. › Reduce the size of Project footprint during design and use existing infrastructure where feasible. › Restrict vehicles, workers, laydown areas and fill to the footprint, existing roads, and previously-disturbed areas. › Confirm that all construction machinery and vehicles arrive on the site in a clean condition. › Monitor the construction area for any occurrences of invasive weed species and treat any occurrences. › Confirm that imported fill is free of contaminants, including weed seeds. › Maintain clean worksites and collect and appropriately dispose of all construction waste. › Use erosion prevention materials and structures such as drainage ditches, dams, silt fences and settling ponds as required. › Restore temporarily disturbed areas as soon as practicable. › Develop a Wetland Compensation Plan.	Construction		
WF-O-1	Alteration or Loss of Wetlands and Wetland Function	› Develop and implement VMP, SWSWMP, and ESCP. › Promptly treat any infestations of invasive plants that are identified. › Maintain cleanliness of the Project area and ensure that all solid waste is collected, stored, and removed offsite.	Operation		
WF-D-1	Alteration or Loss of Wetlands and Wetland Function	› Develop a DEMP that includes measures for ecosystem and wetland recovery and restoration, where practicable within the context of future land use management plans.	Decommissioning		

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
Groundwater and Surface Water Quality					
GS-C-1	Change to groundwater and surface water quality and increased risk of erosion and sedimentation from site clearing, site grading, blasting, fill and construction of Project facilities	› Design to avoid water bodies; place soils offsite; develop and implement management plans, including AQDCMP, CBMP, ESCP, SMP, and SWSWMP. › Establish setbacks around water bodies; limit the extent of temporary disturbance; employ dust control measures. › Employ erosion controls. › Use PRPA's existing organics storage area for overburden storage and employ storm water management system. › Conduct progressive reclamation where possible and re-vegetation of disturbed areas.	Construction		
GS-O-1	Change in groundwater and surface water quality from general terminal operations	› Design and construct chemical storage, transport, and containment facilities to minimize leakage and contamination. › Construct storage facilities and pipelines to meet appropriate standards and regulations. › Develop and implement management plans, including SWSWMP.	Operation		
GS-D-1	Change to groundwater and surface water quality from removal of infrastructure	› Develop and implement an ESCP and SWSWMP for decommissioning. › Employ erosion controls to reduce the potential for transport of sediments to water bodies during decommissioning activities. › Use ditches and storm water lagoons, as available, to manage storm water during decommissioning. › Restore surface drainage conditions to a state congruent with the surrounding environment.	Decommissioning		
Freshwater Fish and Fish Habitat					
FF-C-1	Harmful alteration, disruption or destruction of freshwater fish and fish habitat	› Design to avoid water bodies; place soils offsite; develop and implement management plans, including a CEMP, ESCP, SPERP, and SWSWMP. › Establish setbacks around water bodies; conduct water quality monitoring; employ dust control measures; limit the extent of temporary disturbance. Do not store hazardous materials within 30 m of a freshwater body; conduct progressive reclamation where possible and re-vegetation of disturbed areas	Construction	*Fisheries Act*	Fisheries and Oceans Canada
FF-O-1	Change in freshwater fish and fish habitat quality from general terminal operations	› Design and construct chemical storage, transport, and containment facilities to minimize leakage and contamination. › Construct storage facilities and pipelines to meet appropriate standards and regulations, and develop and implement management plans, including a SWSWMP.	Operation		
FF-D-1	Changes to fish habitat quality from the removal of infrastructure	› Develop and implement an ESCP and SWSWMP for decommissioning. › Restore surface drainage conditions to a state congruent with the surrounding environment.	Decommissioning	*Fisheries Act*	Fisheries and Oceans Canada
Economic Conditions					
EC-C-1	**Effect of Project Construction on Financial Well-being of Businesses** Project construction is expected to contribute to labour competition, which affects all employers in the region by raising their wage bills	› Engage with chambers of commerce.	Construction		
EC-C-2	**Effect of Project Construction on Consumer Access to Goods and Services** The Project will have an uncertain, but potentially negative effect on consumer access to goods and services during construction because it is unclear what the net effect of business expansion will be, and if some local suppliers will direct their business activities to major projects and away from their existing clientele	› Engage with chambers of commerce.	Construction		

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
EC-O-1	**Effect of Project Operation on Financial Well-being of Businesses** The financial well-being of businesses in the region is influenced by several effect pathways, and while some of these pathways will be beneficial on business in the region, Project operation will contribute to labour competition which will adversely affect businesses.	› Engage with chambers of commerce; participate in local employment, training, and labour market planning committees.	Operation		
EC-O-2	**Effect of Project Operation on Consumer Access to Goods and Services** There is uncertainty as to the effect of Project operation on consumer access to goods and services with respect to the extent that businesses will not expand but instead direct their attention to major project opportunities	› Engage with chambers of commerce.	Operation		
EC-D-1	**Effect of Project Decommissioning on the Financial Well-being of Individuals** Project decommissioning will lead to an eventual loss of employment after many years of operation-related employment	› Communicate timing of decommissioning.	Decommissioning		
EC-D-2	**Effect of Project Decommissioning on the Financial Well-being of Businesses** Project decommissioning will lead to an eventual loss of business activity after many years of operation-related activity	› Communicate timing of decommissioning.	Decommissioning		
EC-D-3	**Effect of Project Decommissioning on the Financial Well-being of Local Governments** Project decommissioning will lead to an eventual loss of economic activity after many years of operation-related activity	› Communicate timing of decommissioning.	Decommissioning		
EC-D-4	**Effect of Project Decommissioning on Consumer Access to Goods and Services** Project decommissioning may lead to contraction in the region's business community, with associated effects on consumers and their access to goods and services, but possibly also redirection of local businesses to consumers. The overall effect of Project decommissioning on consumer access to goods and services is uncertain.	› Engage with chambers of commerce.	Decommissioning		
Marine Use and Navigation					
MU-C-1	Change in marine use	› A Marine Access and Vessel Communications Plan will be developed and implemented. › Authorizations will be required for any construction, works, demolition or development by PRPA.	Construction	*Canadian Navigable Waters Act*	Transport Canada
MU-C-2	Change in navigation	› Marine safety zones, under the jurisdiction of the PRPA will be used during construction.	Construction	*Canadian Navigable Waters Act*	Transport Canada
MU-O-1	Change in marine use	› A Marine Access and Vessel Communications Plan and a Light Management Plan will be developed and implemented. › Clearance under trestle spans sufficient to allow continued navigation of some vessels (e.g., kayaks), if the safety zones do not apply when vessels are not at berth. › Liaising with CCG to provide Notices to Shipping and Notices to Mariners. › Adherence to PRPA and PPA procedures (including mandatory piloting of carriers calling on the terminal and safety zones for other vessels). › Transit speed will be in accordance with the PRPA and Collision Regulations. › Mitigation included in Ambient Light Subsection 5.3.2.8 Mitigation Measures.	Operation	*Canadian Navigable Waters Act*	Transport Canada

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
		› Navigational aids will be installed on jetty structures, where required, to enhance navigation safety. › Submitting information about the trestle and berth locations to the CHS so that navigational charts may be updated to minimize the potential for vessel collisions or impacts with the jetty structure. › Escort vessels will be used to confirm the route is clear and safe and that other vessels do not intrude on safety zones. › Tugboats will be used for the safe transit and berthing of vessels calling on the terminal. › Abiding with the applicable limits set by the PRPA on environmental conditions under which operation can be conducted safely. › Compliance with the Navigable Waters Act approval conditions.			
MU-O-2	Change in navigation	› Same as listed above (MU-O-1). › Vessels will be required to establish and maintain radio communications with the Canadian Coast Guard's Marine Communications and Traffic Services, as required by CCG. › Vessel vetting by Vopak.	Operation	*Canadian Navigable Waters Act*	Transport Canada
MU-D-1	Change in marine use	› Liase with CCG to provide Notices to Shipping and Notices to Mariners. › Navigational aids will remain on jetty structures, where required, to enhance navigation safety.	Decommissioning	*Canadian Navigable Waters Act*	Transport Canada
MU-D-2	Change in navigation	› Clearance around trestle spans sufficient for navigation of some vessels (e.g., kayaks) following decommissioning.	Decommissioning	*Canadian Navigable Waters Act*	Transport Canada
Community Services and Infrastructure					
CI-C-1	Effect of Project Construction on Rental Housing	› Use of work camp › 14/7 work schedule › Engagement with government and housing stakeholders › Financial support for social housing	Construction		
CI-C-2	Effect of Project Construction on Quality of Health Care	› Meet or exceed WorkSafeBC requirements. › Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct to avoid workplace accidents and associated pressure on the region's health care system. › Require work camp operators' adherence to health-related laws and policy. › Support the work camp operator's standard health and safety practices. › 14/7 work schedule. › Provide health care in the work camp and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and other drugs. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Reduce personal and industrial traffic volumes to reduce potential traffic accidents. › Opioid overdose management. › Additional traffic safety measures.	Construction		
CI-C-3	Effect of Project Construction on Traffic Volume and Safety	› Construction Traffic Management Plan (CTMP) › Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Use of shuttle buses to and from the work camp. › Use of barges and rail to transport materials and equipment used during construction. › Supporting the work camp operator's use of work camp policies relevant to reducing Project-related traffic volume and maximizing safety. › Additional traffic safety measures. › Prohibition of alcohol and other drugs. › Additional health care measures	Construction		

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
CI-O-1	Effect of Project Operation on Traffic Volume and Safety	› Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Additional traffic safety measures.	Operation		
CI-D-1	Effect of Project Decommissioning on Quality of Health Care	› Meet or exceed WorkSafeBC requirements. › Require work camp operators to not permit workers to leave work camp unless there is an emergency (if work camp is being used for decommissioning). › Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct to avoid workplace accidents and associated pressure on the region's health care system. › Require work camp operator's adherence to health-related laws and policy (if work camp used for decommissioning). › Support the work camp operator's standard health and safety practices (if work camp used for decommissioning). › Provide health care in the work camp (if work camp used for decommissioning) and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and drugs. › Reduce personal and industrial traffic volumes to reduce potential traffic accidents. › Opioid overdose management..	Decommissioning		
CI-D-2	Effect of Project Decommissioning on Traffic Volume and Safety	› Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Use of shuttle buses to and from the work camp. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Use of barges and rail to transport materials and equipment used during decommissioning. › Supporting the work camp operator's use of work camp policies (if work camp being used during decommissioning) relevant to reducing Project-related traffic volume and maximizing safety. › Prohibition of alcohol and drugs.	Decommissioning		
Community Well-being					
CW-C-1	Effect on well-being outcomes	› Implement the Vopak Fundamentals of Safety and the Vopak Code of Conduct. › Indigenous liaison. › Use of work camp. › 14/7 work schedule. › Engage with governments and housing stakeholders. › Financial Support social housing. › Meet or exceed WorkSafeBC requirements. › Require work camp operators' adherence to health-related laws and policy. › Support the work camp operator's standard health and safety practices. › Provide health care in the work camp and encourage use of home community care. › Planning for Project demand on services and infrastructure. › Prohibition of alcohol and other drugs. › Require work camp operators to not permit workers to leave work camp unless there is an emergency. › Opioid overdose management. › Construction Traffic Management Plan (CTMP). › Use of shuttle buses to and from the work camp. › Use of barges and rail to transport materials and equipment used during construction. › Supporting the work camp operator's use of work camp policies relevant to reducing Project-related traffic volume and maximizing safety. › Additional traffic safety measures. › Additional health care measures	Construction		

Reference Number	VC and Effect	Proposed Mitigation Measures	Timing[1]	Applicable Legislation	Expert Authority
CW-O-1	Effect on well-being outcomes	› Employee code of conduct. › Indigenous liaison. › Employee and contractor training and adherence to the Vopak Fundamentals of Safety. › Employee and contractor training and adherence to the Vopak Code of Conduct. › Additional traffic safety measures.	Operation		
CW-D-1	Effect on well-being outcomes	› Mitigation to avoid effects has not been proposed..	Decommissioning		
Heritage and Archaeology					
HA-C-1	Loss of or damage to CMTs from site clearing, including soil storage	› Avoidance of CMT sites. › Collection of stem round samples from all CMTs that are removed. › Creation of a wind-firm buffer to protect indirectly affected CMTs from potential blowdown. › ARMP. › On-site personnel receiving CFMP training prior to conducting any ground-disturbing activities.	Construction		
HA-C-2	Loss of or damage to heritage and archaeological resources from site grading, including blasting, and deposition of fill	› Avoidance of AOPs. › Monitoring of AOPs during construction to identify archaeological deposits, if present. › ARMP. › On-site personnel receiving CFMP training prior to conducting any ground-disturbing activities.	Construction		
HA-C-3	Loss of or damage to heritage and archaeological resources from construction of marine jetty and berths	› Avoidance of AOPs › ARMP. › On-site personnel receiving CFMP training prior to conducting any ground-disturbing activities.	Construction		
Human Health					
N/A.	Change in human health through discharge of Project Water	› Refer to proposed mitigations identified under Freshwater Fish and Fish Habitat and Marine Water Quality.	Construction		
N/A.	Change in human health through increased Project emissions (Criteria Air Contaminants or CACs) resulting in decreased air quality	› Refer to proposed mitigations identified under Air Quality.	Construction		
N/A.	Change in ambient light from the construction of Project facilities on land, the marine jetty and berths	› Mitigation, including avoidance or reduction measures, is not considered feasible during construction as the construction lighting must be in place for safe work, security, and marine navigation.	Construction		
N/A.	Decreased country food quality through increased Project emissions	› Refer to proposed mitigations identified under Freshwater Fish and Fish Habitat and Marine Water Quality, Wildlife and Wildlife Habitat, Vegetation and Wetlands and Wetland Function.	Construction		
N/A.	Change in human health from increased ambient sound levels.	› Refer to proposed mitigations identified under Noise.	Construction		
N/A.	Change in human health from increased CACs from operation activities	› Refer to proposed mitigations identified under Air Quality.	Operation		
N/A.	Change in human health through Project emissions resulting in decreased food quality	› Refer to proposed mitigations identified under Freshwater Fish and Fish Habitat and Marine Water Quality, Wildlife and Wildlife Habitat, Vegetation and Wetlands and Wetland Function.	Operation		
N/A.	Change in visual quality, including ambient light, affecting human health as a result of Project operations	› An Operation Environmental Management Plan (OEMP) will be developed and implemented, and will include a Light Management Plan (LMP) to address effects from ambient light.	Operation		
N/A.	Change in ambient noise levels affecting human health as a result of Project operations	› Refer to proposed mitigations identified under Noise.	Operation		
N/A.	Change in human health through increased CACs resulting in decreased air quality	› Refer to proposed mitigations identified under Air Quality.	Decommissioning		
N/A.	Change in ambient noise levels affecting human health as a result of decommissioning activities	› Refer to proposed mitigations identified under Noise.	Decommissioning		