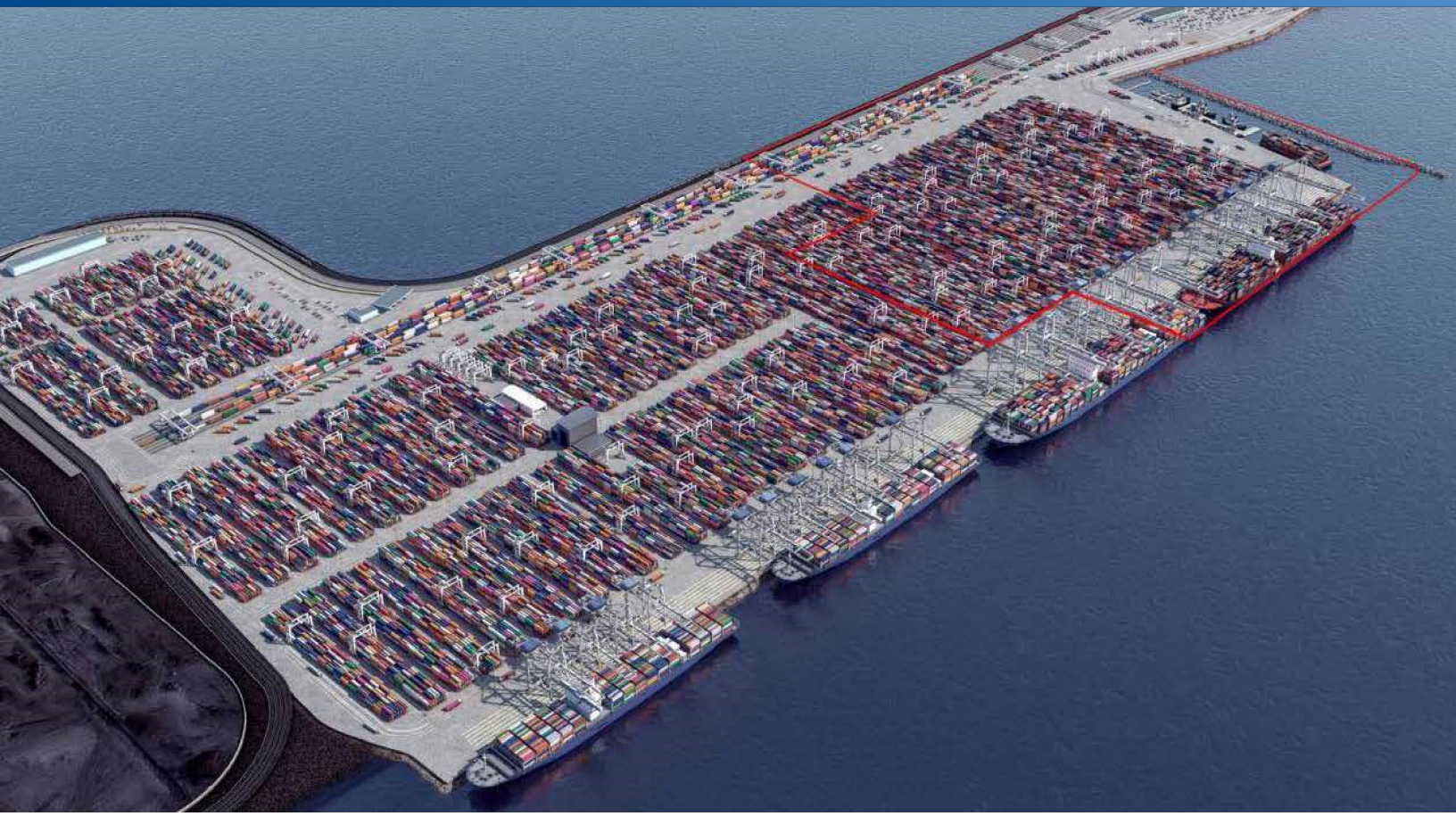
GLOBAL CONTAINER TERMINALS
DELTAPORT EXPANSION
BERTH FOUR PROJECT (DP4)



Initial Project Description

SEPTEMBER 18, 2020

Joint Submission to the Impact Assessment Agency of Canada and
the BC Environmental Assessment Office

GLOBAL CONTAINER TERMINALS CANADA

Submitted by GCT with expert input provided from its advisors

ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	DEFINITION
ALR	Agricultural Land Reserve
AOA	Archaeological Overview Assessment
BC	British Columbia
BCEAO	British Columbia Environmental Assessment Office
BCI	British Columbia Investment Management Corporation
CAC	Criteria Air Contaminants
CEAA 2012	Canadian Environmental Assessment Act
CEBP	Coastal Environmental Baseline Program
CHE	Container Handling Equipment
DFO	Fisheries and Oceans Canada
DP3	Deltaport Third Berth Project
DP4	GCT Deltaport Expansion, Berth Four Project (the Project)
DPW	Dubai Ports World
ECCC	Environment Climate Change Canada
ECHO Program	Enhancing Cetacean Habitat and Observation Program
EMS	Environmental Management System
EMSP	Environmental Management System Procedures
EOP	Environmental Operating Procedure
FLNRO	BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development
FTE	Full Time Equivalent Jobs
GCT	GCT Canada Limited Partnership
GCT Deltaport	Global Container Terminals Deltaport Container Terminal
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IAA	Impact Assessment Act
IAAC	Impact Assessment Agency of Canada
IBA	Important Bird Area
IFM	IFM Investors
LED	Light-Emitting Diode

ACRONYM/ABBREVIATION	DEFINITION
OTPP	Ontario Teachers' Pension Plan Board
RBRC	Roberts Bank Rail Corridor
RBTA	Roberts Bank Trade Area
RBT2	Roberts Bank Terminal 2 Project
RMG	Rail Mounted Gantry Cranes
RTG	Rubber Tired Gantry Cranes
SRKW	Southern Resident Killer Whale
SRY	Southern Railway of British Columbia
TFN	Tsawwassen First Nation
TMX	Trans-Mountain Expansion Project
ULCV	Ultra Large Container Vessel
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
USA	United States of America
VIEA	Vancouver Island Economic Alliance
VFPA	Vancouver Fraser Port Authority
WMA	Wildlife Management Area

SYMBOLS AND UNITS OF MEASURE

SYMBOL/UNIT OF MEASURE	DEFINITION
%	percent
cm	centimetre
ha	hectare
km	kilometre
km^2	square kilometre
m	meter
m^2	square meter
TEU	twenty-foot equivalent unit

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1 INTRODUCTION

1.1 Project Status and History

The GCT Deltaport Expansion, Berth Four Project (DP4 or the Project) is being proposed by GCT Canada Limited Partnership ("GCT"), the long-term operator of GCT Deltaport Terminal. As proposed, DP4 is an expansion to the existing marine terminal primarily on federal lands managed by the federal Minister of Transport and the Vancouver Fraser Port Authority[1] (VFPA) in Delta, British Columbia (BC). Project construction and operations may also overlap Tsawwassen First Nation (TFN) and Government of BC water lots, and navigational jurisdiction asserted by the VFPA.

The Project involves the expansion of the existing terminals container storage and handling area, addition of a fourth berth on the southeast side of the Roberts Bank Causeway, expansion of the existing Intermodal rail yard, and relocation of several buildings and related services. The Project will also require dredging to provide safe access for ships, and the relocation of the existing tug basin to the north end of the new berth four area. Consideration is also being given to a new short sea shipping berth in response to government initiatives and potential business feasibility of distributing currently trucked goods in containers via barge services, along with a proposed new marina for fishing and crabbing vessels, in response to feedback from TFN (Figure 1).

GCT currently holds all required permits, tenures, and approvals to operate at the GCT Deltaport Terminal. A federal impacts assessment and/or provincial environmental assessment may be required prior to securing any additional permits or approvals necessary to advance DP4. The Project has not been previously assessed by the provincial or federal governments.

The Project is intended to be funded entirely by GCT and private investment, and operated by GCT thereby ensuring that the assessment, approval, funding, development, and operation of the Project are fully integrated.

[1] The VFPA's administrative, permitting and other powers with respect to the DP4 Project, including those related to port operations, are currently the subject of judicial review

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Figure 1 GCT Deltaport Expansion, Berth Four Project Area.

Legend

- Project Area
- Tsawwassen First Nation Marina & Tug Basin
- Short Sea Shipping Berth
- Fourth Berth

National Topographic System (NTS) map number: 092G03

0 200 400 600 800 m

N

Scale: 1:30,000

Projection: NAD 1983 UTM Zone 10N

Data Sources:
a) Project area and components, Ausenco 2020.
b) GeoEye-1 50 cm, 17 July 2018, Esri Online Service.

GLOBAL CONTAINER TERMINALS CANADA

GCT Deltaport Expansion Berth Four Project

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1.2 Proponent Information

GCT, a majority Canadian-owned and operated company with headquarters in Vancouver, has operated on the west coast of Canada since 1907. Under long-term leases, GCT is responsible for operating both GCT Vanterm and GCT Deltaport. These two state-of-the-art west coast container terminals provide customers and carriers with reliable and convenient access to all major Asia-Pacific trade lanes and are representative of GCT's considerable involvement in the development and operation of Canada's Asia-Pacific Gateway.

GCT's two East Coast United States of America (USA) facilities, GCT Bayonne (formerly Global Terminal & Container Services) and GCT New York (formerly New York Container Terminal) were established in 1972 and 1995, respectively.

GCT has three major pension fund investors: British Columbia Investment Management Corporation (BCI); Ontario Teachers' Pension Plan Board (OTPP) and IFM Investors (IFM), which support nearly one million Canadian public sector employees and retirees. With a combined portfolio value of $361 billion, our shareholders are long-term, experienced infrastructure investors committed to GCT and the overall growth and servicing of Canada's marine shipping sector.

All three of GCT's shareholders are signatories to the United Nations Principles for Responsible Investment (UN PRI, https://www.unpri.org/). As signatories, OTPP, IFM, and BCI each adhere to responsible investing principles considering environmental, social, and governance factors in all its portfolio companies, as reflected in their investment and strong support in GCT.

In 2014, GCT joined Green Marine, a voluntary, environmental certification program for the North American Marine Industry. As a participant, GCT has individually certified its facilities with a commitment to strengthen the North American marine sector's environmental performance through continuous improvement, stronger relations with stakeholders, and increased overall awareness of the marine industry's activities and environmental benefits. Full certification of facilities came into effect in 2015 and remain in place today. In 2018, GCT Canada joined the VFPA-endorsed Climate Smart program, aimed at achieving reductions in greenhouse gas emissions. As its terminals continue to expand and increase capacity, sustainability and environmentally-responsible practices remain a core focus, both locally and globally. GCT is committed to supporting and protecting the communities where the company operates and continuously evaluates initiatives that will contribute to sustainability.

Table 1: Proponent Information.

PROJECT	
Proposed Project Name	GCT Deltaport Expansion, Berth Four Project (DP4)
Project Location	Roberts Bank, Delta, BC, Canada
Project industrial sector and type	Marine Shipping
Proponent Name	GCT Canada Limited Partnership 1285 Franklin Street, Vancouver, BC, Canada V6A 1J9
PRIMARY CONTACT INFORMATION	
Name	Mike McLellan, Vice President, Project Development
Mailing Address	Suite 610, The Landing, 375 Water Street, Vancouver, BC, Canada
Phone	604 267 5195
Email	mmclellan@globalterminals.com
Website	https://globalterminalscanada.com/

Table 1: (Cont'd.)

SECONDARY CONTACT INFORMATION	
Name	Marko Dekovic, Vice President, Public Affairs
Mailing Address	Suite 610, The Landing, 375 Water Street, Vancouver, BC, Canada
Phone	604 267 5276
Email	mdekovic@globalterminals.com
Website	https://globalterminalscanada.com/

1.3 Project Purpose, Need, and Rationale

1.3.1 Purpose

The purpose of DP4 is to provide timely container handling capacity to Canadian exporters and importers based on historical and projected demand growth on the west coast of Canada.

1.3.2 Need for the Project and Rationale

The Port of Vancouver terminals are Canada's largest port complex handling the most diversified range of cargo of any port in North America. In direct and indirect terms, the terminal operators in Port of Vancouver are a major contributor to employment and the economy of Canada. The provinces of BC, Alberta, Saskatchewan and Manitoba rely on the Port of Vancouver operations for market access and to help them meet their trade and economic objectives across Canada, as well as those dependent on USA destined gateway cargo. Private sector investment by marine terminal operators is a critical component to the Port of Vancouver's growth, competitiveness and sustainability. Attracting investment into operations and infrastructure maintains the competitiveness of the Vancouver Gateway, ensures high-performance standards, and positions Canadian exporters and importers effectively to gain access to international markets, secure new growth opportunities, and remain cost-competitive.

Container volumes on Canada's west coast have had an average Compounded Annual Growth Rate of 4.6% per year since 2008, but it also included sharp declines during economic downturns and recoveries. DP4 represents an approach of incremental expansion of west coast container terminal capacity aimed at timely, efficiently and competitively delivering container capacity to Canadian exporters, consumers, and supply chain partners. The development of DP4 is timed to meet forecasts for growth, while incremental approach provides for market fluctuations in container terminal demand and is designed to effectively accommodate increasing vessel size. Global marine shipping industry consolidation is resulting in fewer, but larger vessels, making fewer port terminal stops, and placing greater competition on terminal operators for their business. DP4 is the right-sized approach to deliver Canada's and our trading partners' needs.

GCT commissioned an independent study of demand for container capacity on the west coast of Canada (Black Quay Consulting 2019). Low, medium, and high growth scenarios were developed to 2050. These scenarios were then compared to existing and anticipated capacity at the five west coast container terminals: GCT Deltaport, Dubai Ports World (DPW) Centerm, GCT Vanterm and DPW Fraser Surrey Docks in Greater Vancouver and DPW Fairview in Prince Rupert (see Table 2).

Table 2: Existing and Anticipated Capacity at West Coast Canada Terminals.

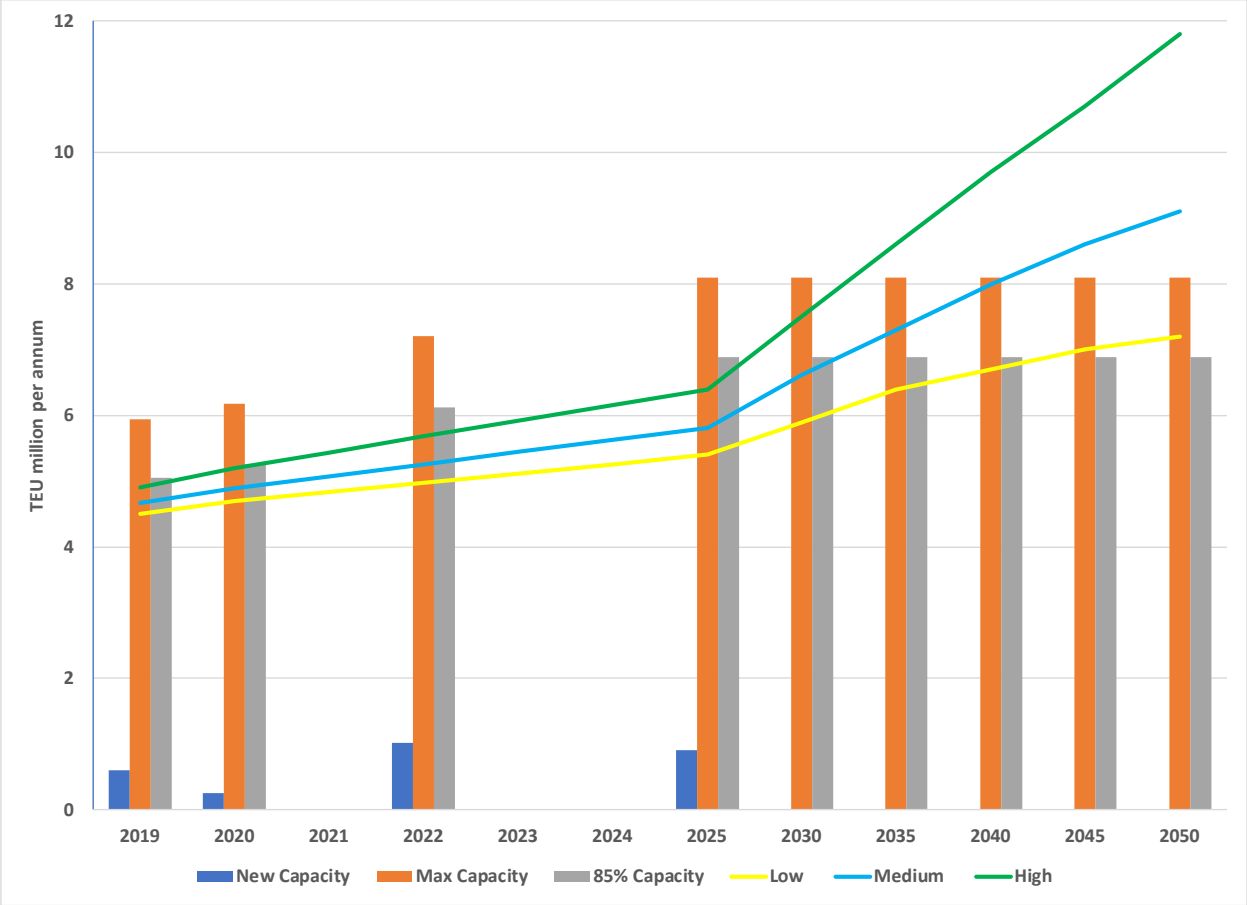
Terminal	Operator	Existing Capacity (Million TEU/yr)	Planned or Proposed Expansion	Additional Proposed Capacity (Million TEU/yr)	Anticipated Capacity (Million TEU/yr)
GCT Deltaport	GCT	2.40	-	-	2.40
Centerm	DPW	0.90	Centerm Expansion Project	0.60	1.50
GCT Vanterm	GCT	0.85	GCT Vanterm Phase 1	0.20	1.05
Fraser Surrey Docks	DPW	0.45	-	-	0.45
Prince Rupert (Fairview)	DPW	1.35	Phase 2 Expansion	1.35*	2.70
Total		**5.95**		**2.15**	**8.1**

* *Prince Rupert Port Authority (PRPA) had previously indicated that they would like to expand container capacity at Fairview terminal from the existing capacity of 1.35M TEU to 2.70M TEU by 2025, as reflected in Table 2 (Black Quay Consulting 2019). In 2019, PRPA issued a press release explaining that Master Planning had identified the potential for the development of a second container terminal in Prince Rupert with a capacity of 2.5 million TEU per annum, as an alternative to the expansion. This potential capacity increase is not reflected in Table 2, as a new terminal has not yet been proposed.*

GCT has used the medium-growth scenario as its base case Project rationale, which is the industry standard used for project planning. GCT is also guided by the generally accepted port planning principle of ensuring new capacity is planned once 85% capacity utilization is approached.

A comparison of capacity, as defined in Table 2, and demand, under the low, medium and high growth scenarios, is provided in Figure 2. Under the base-case-medium growth scenario and assuming the planned and proposed expansions at Prince Rupert, Centerm, and GCT Vanterm that are presented in Table 2 are delivered, the analysis demonstrates a potential requirement for additional capacity in 2030s. This analysis was completed before impacts of COVID-19 pandemic significantly impacted global trade and demand.

Figure 2: Predicted Demand vs Capacity of West Coast Canada Container Ports.



GCT has a long history and experience operating leading container terminals on Canada's west coast and East coast of USA. GCT has a track record of collaboration with Port Authorities where it operates, and a unique perspective on delivering competitive facility capacity and services relevant to specific trade lanes. This experience underpins the capability of GCT to forecast, design, permit, deliver, construct and operate facilities in either partnership with local port authorities or independently. At GCT Deltaport, GCT has engaged and developed longstanding working relations with local governments, businesses, its local workforce and union, various non-profit organizations and senior levels of government. GCT has engaged all these groups to share information about the development of DP4 and is well-positioned to work more formally with stakeholders in an organized program of engagement and consultation at the time DP4 enters an assessment process.

As an established marine terminal operator in the region, GCT has working relations with its shipping customers and the VFPA which means that GCT will be able to deliver on commitments and obligations, and to collaborate, in particular in relation to environmental protection. GCT has established long-standing engagement and working relationships with some of the local Indigenous groups and is committed to continuing to work in collaboration for the ongoing protection of the environment and Indigenous interests.

1.3.3 Benefits

The preliminary capital cost estimate that GCT is to invest is estimated up to $1.60 billion in capital and construction expenditures for the Project. This estimate will be refined during the Project's development and final design, and is expected to generate significant economic benefits in the Metro Vancouver region, the province of BC, and Canada.

The economic benefits to Canada from DP4 will include direct, indirect, and induced employment growth, gains in economic output/gross domestic product (GDP) plus increased government revenues during the construction period and throughout the Project's operating term. The tax revenues from trade activities will support essential programs such as health care, education, and other social and environmental priorities. Although the majority of the expenditures are projected to occur in BC, the intended investment will impact the overall Canadian economy through the expenditures on goods and services, the employment of construction and support staff, the operation of the terminal, and in the generation of various tax revenues. Positive economic outcomes for Indigenous groups may also include training, employment and contracting opportunities.

GCT will provide an independent and objective assessment of the Project's economic impacts as part of the Project's assessment, including measures of economic activity such as GDP, employment, labour income, and government tax revenues. Based on Project information known to date and current and anticipated GCT Deltaport operations, the following is anticipated for the DP4 Project:

- Construction of DP4 is estimated to create total employment of 10,000 full-time equivalent jobs in Canada, consisting of direct employment of 4,700 FTEs in B.C., indirect and induced employment of 3,700 FTEs in B.C. and indirect and induced employment of 1,600 FTEs in the rest of Canada over the approximately 4 years of construction. The operation of DP4 is expected to require an increase in the current GCT Deltaport workforce of approximately 1,000 additional permanent jobs when at capacity.
- In 2018 GCT paid an estimated $300M towards annual wages and benefits and this is projected to double by the time DP4 is operating at its additional capacity.

In addition, the Project's benefits and attributes also include:

- New container terminal capacity to meet the future needs of Canadian trade.
- Consistent with the objectives of the VFPA Port 2050 Plan, to accommodate Canada's trade needs, but at the same time maintaining a healthy environment and enabling thriving communities.
- A cost-effective and timely way to address near-term container demand on the west coast.
- New investment in a physical area of operation where there are precedents of successful and recent container terminal development.
- Financing by institutional investor capital, thus removing financial risk to or demand upon the VFPA's or Federal government's financial capacity and fiscal frameworks.
- Involvement of an experienced terminal operator with a track-record in operating similar infrastructure at Roberts Bank.
- Scalable delivery design that reflects changing industry trends and preserves optionality.

- Leverage of GCT Deltaport's existing footprint and infrastructure to build upon strong working relations with labour, customers, railways, and beneficial cargo owners as well as employment and economic benefits shared with the surrounding Indigenous groups, communities, and stakeholders.
- Four contiguous berths future-proofing Port of Vancouver's ability to receive upsized vessels.
- Expansion of Canada's largest on-dock marine terminal rail yard to become more effective in making Port of Vancouver a competitive destination for gateway cargoes.

DP4 is part of a larger and more complex network of infrastructure improvements intended to meet the Gateway Transportation Collaboration Forum's goal of ensuring Vancouver is ready to manage growing trade. The Greater Vancouver Gateway 2030 Program is guided by the Government of Canada's commitment to strengthen transportation corridors to increase trade and access to global markets. GCT is proposing to advance DP4 concurrently with over 40 different infrastructure projects and studies being advanced by the Greater Vancouver 2030 Program to expand existing off terminal road and rail infrastructure. Identification and mitigation of road, rail and other potential network constraints will be essential to the national supply chain, the local economy, and the quality of life for residents who live along the transportation corridor.

1.4 Environmental Assessment Regulatory Requirements

The Project may require reviews under both the new federal *Impact Assessment Act* (IAA), formerly *Canadian Environmental Assessment Act*, 2012 (CEAA 2012), and the newly enacted BC *Environmental Assessment Act* (2018). Under the IAA, the Project meets the criteria for a designated project in the Physical Activities Regulations, and under the BC *Environmental Assessment Act*, the Project meets the criteria for a reviewable project under the Reviewable Projects Regulation (Table 3).

Table 3: Federal and Provincial Environmental Assessment Regulations Criteria.

Section	Physical Activity	Relevant Project Component
Physical Activities Regulation		
53 (Transport)	The expansion of an existing marine terminal, if the expansion requires the construction of a new berth designed to handle ships larger than 25 000 DWT and, if the berth is not a permanent structure in the water, the construction of a new permanent structure in the water.	The expansion includes the construction of a new berth that will handle ships larger than 25,000 DWT and is a permanent structure.
Reviewable Projects Regulation		
Transportation Projects (Table 13;4)	Modification of an existing project, other than a ferry terminal, if the modification of the project results in dredging, filling or other direct physical disturbance of: • >1,000 m of linear shoreline; and • >2 ha of foreshore or submerged land, or a combination of foreshore and submerged land, below the natural boundary of a marine coastline or marine estuary.	The Project will require the physical disturbance of over 2 ha of foreshore and submerged land at Roberts Bank.

This Initial Project Description includes the information requirements described in the Impact Assessment Agency of Canada's (IAAC) Information and Management of Time Limits Regulations and the BC Environmental Assessment Office's (BCEAO) Early Engagement Policy (BCEAO 2019), including Initial Project Description Guideline. It also includes a description of section 25 requirements under the BC *Environmental Assessment Act*.

1.5 Applicable Agreements and Policies

The Impact Assessment Cooperation Agreement between Canada and BC provides for cooperation before, during, and after the environmental assessment process (Government of Canada 2019). The agreement contains the administrative processes to support the principle of "one-project, one-assessment" that will be followed by provincial and federal agencies for projects subject to assessment by both jurisdictions such as DP4. It is GCT's understanding that the federal and provincial regulators will determine the level of cooperation and the type of environmental assessment required for the DP4 Project.

The TFN Final Agreement (the Treaty) provides TFN with certain rights and benefits regarding land and resources, and self-government over its lands and resources and its members (AECOM 2009). It provides certainty with respect to ownership and management of lands and resources and the exercise of federal, provincial and Tsawwassen governmental powers and authorities, including requirements for the assessment of proposed projects that could adversely affect TFN lands and rights.

A Species at Risk Act Section 11 Conservation Agreement to Support the Recovery of the Southern Resident Killer Whale was signed by the Government of Canada, VFPA, Pacific Pilotage Authority and five marine transportation industry partners to support the recovery of the southern resident killer whales (A Species at Risk Act Section 11 Conservation Agreement 2019).

2 PROJECT DESCRIPTION

2.1 Project Location

The DP4 Project is located to the northeast of the existing GCT Deltaport Container Terminal in Roberts Bank, on the shore of the municipality of Delta, BC and TFN.

The coordinates for the center of the DP4 expansion are approximately 49°01’25’’ N 123°09’10’’ W (Figure 3). The coordinates for the proposed endpoint of the marine shipping route (Buoy J) that is incidental to the Project is 48°29'45" N, 124°59'29" W (Figure 4).

2.2 Project Overview and Components

The DP4 Project is a further expansion of the existing GCT Deltaport Container Terminal to add a fourth berth and additional land-based container storage and handling to increase capacity by 2 million TEU per annum.

The Project proposes an expansion of the terminal footprint by approximately 56 ha to achieve the increase in capacity. This equates to a terminal footprint approximately two thirds larger than existing. To provide the fourth berth and access for the larger container ships that are expected to call at the terminal, the berth face will be extended by approximately 560 meters.

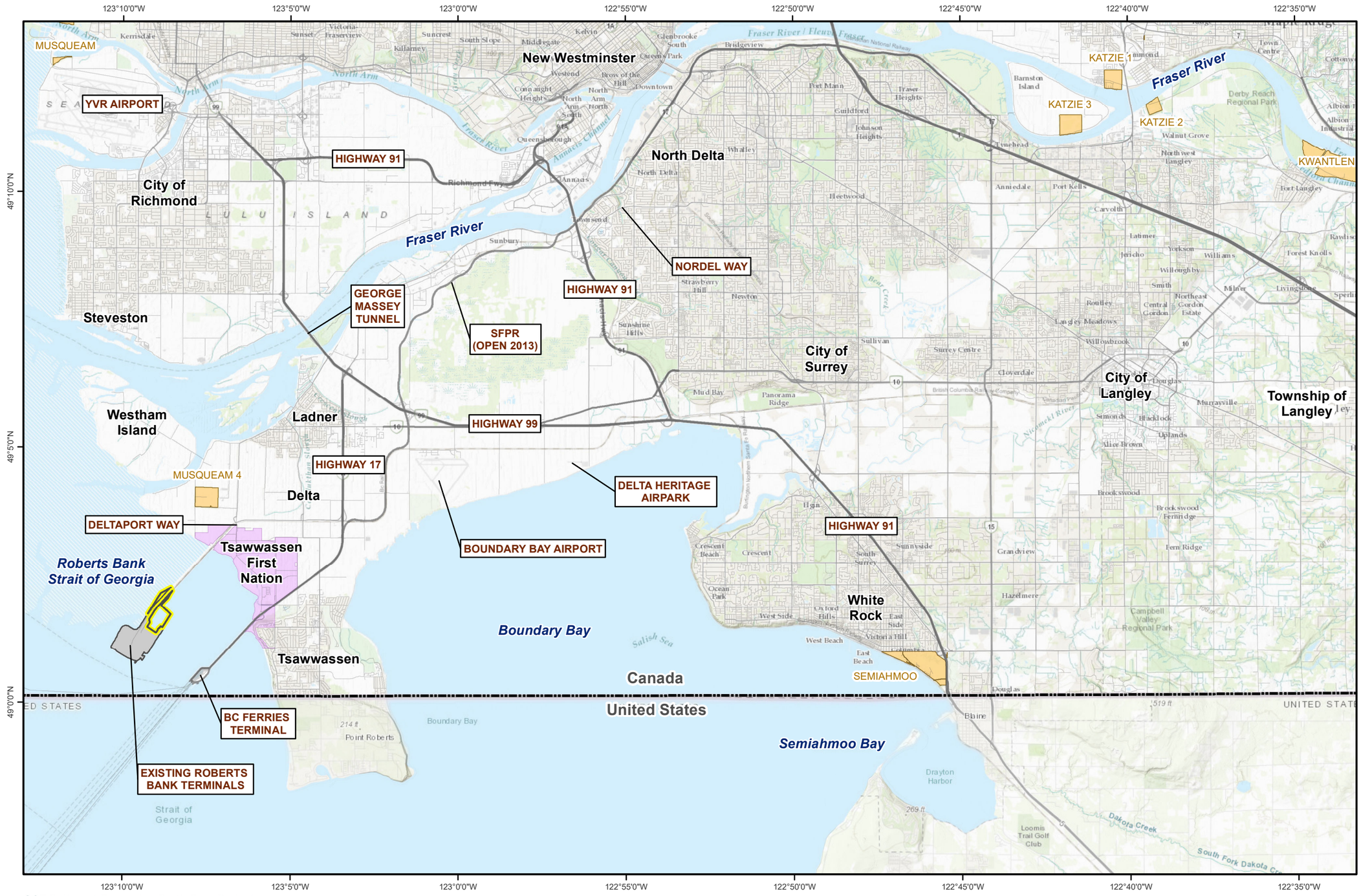
The Project includes an expansion of approximately 12 of the 56 ha along the causeway to increase the rail handling capacity in the existing intermodal rail yard and to provide for other infrastructure. The expansion increases the width of the causeway at the location where the causeway alignment deflects due to an anecdotal survey error that occurred during the original 1960's construction.

Construction of the container and storage handling area would be made operational in two stages. The first would be approximately 15 ha of additional container storage and handling capacity west of the existing third berth. The second would involve the remainder of the container and storage handling area expansion and the other Project components.

Dredging will be required for ships to access the fourth berth as an extension to the existing dredge pocket. Dredging may also be required beneath the expanded container storage and handling area to achieve seismic stability requirements, depending on the construction methodology selected. The size of the dredge pocket for the Project is anticipated to be approximately 30 ha. Additional dredging equivalent to approximately 13 ha will also be required within the existing dredge pocket for DP3 to accommodate larger vessels. GCT will explore options to re-use the dredged material for causeway and terminal land reclamation, and/or the creation of new habitat, as an alternative to disposal at sea at an approved location. The disposal at sea requirement has not yet been determined and therefore a disposal site has not been identified. There is an existing Environment and Climate Change Canada (ECCC) approved disposal site at Point Grey.

The intertidal zone in the inter-causeway area is historically known to be sensitive to the formation of dendritic channels (Hemmera 2015). The Project design is being developed with consideration for such erosion/ scour and broader geomorphological concerns. Consequently, this will require the re-placement of existing and installation of new crest protection, e.g., rock berms or other mitigation along new and existing seabed slopes to mitigate against the development of dendritic channels and to stabilize and protect against other geomorphological changes that may result from the Project.

Figure 3 GCT Deltaport Expansion, Berth Four Project Location.



Legend

- Project Area
- Existing Roberts Bank Terminals
- First Nation reserve
- Tsawwassen First Nation Lands

National Topographic System (NTS) map number: 092G03

0 1 2 3 4 km

N

Scale: 1:140,000

Projection: NAD 1983 UTM Zone 10N

Data Sources:
a) Project area, Existing Deltaport Terminal, Ausenco 2020.
b) First nation reserve, FLNRO 2020.
c) Tsawwassen First Nation Lands, Ministry of Indigenous Relations and Reconciliation.
d) Topographic map, Esri Online Service.

GLOBAL CONTAINER TERMINALS CANADA

GCT Deltaport Expansion Berth Four Project

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The expansion overlaps with the existing tug basin and therefore a new tug basin will be required to support operations. Based on the preliminary initial design of berth 4, the existing tug basin would be temporarily relocated at some point during the progress of dredging and landfilling so as to be accessible directly from the Roberts Bank causeway in the vicinity of the future TFN marina, within the proposed Project footprint. Ultimately, the new tug basin would be permanently located at the north end of berth four and the area temporarily used as a tug basin converted to the TFN marina.

A short sea shipping berth is being considered for inclusion into the Project, as marine shipping of containers on barges along the coast aligns with federal government initiatives and Metro Vancouver plans, and GCTs objective to increase operational efficiency and reduce impacts of truck transportation from GCT Deltaport Short sea shipping is estimated to be 3.7 times more fuel-efficient than transportation by truck (Metro Vancouver, 2020a) which in turn leads to reduced fuel costs and consumption, reduced GHG emissions, less noise and air pollution. As discussed further in Section 2.3.4, it should be noted that GCT is including a short sea shipping berth in anticipation of future use as there are currently no off-terminal short sea shipping facilities to accommodate container movement from GCT Deltaport.

No new work camps or housing requirements are anticipated to support the Project construction or operations as it is anticipated that the majority of the workforce will be drawn from the Metro Vancouver area.

Table 4: Project Components.

Component	Description based on Project Design
Container handling and storage area	44 ha expansion of the existing terminal for container handling and storage.
Marine berth	560 m berth extension The berth will require rail, fenders, mooring bollards, ship to shore power and safety rails.
Intermodal rail yard expansion	12 ha expansion to expand existing intermodal rail yard and other roadways to expand capacity.
Causeway road improvements	Upgrades to the existing causeway roads and relocation of Westshore overpass. No additional expansion required.
Container handling equipment	Additional loaded and empty container handling equipment, yard and rail gantry cranes, and ship-to-shore cranes at the new berth.
Wastewater treatment facility	Upgrades to existing wastewater treatment facility to accommodate increased terminal area.
Offices and buildings	New building for Administration/Operation/Security. Additional workshop to service and maintain new container handling equipment, including storage area for spare parts.
Utilities	Underground stormwater, water, sanitary, electric, and data utilities to service expanded terminal area
Short sea shipping berth	Barge berth to accommodate future potential demand for short sea shipping capability, including fendering and mooring systems and barge-to-shore rail-mounted crane.

Table 4: (Cont'd.)

Component	Description based on Project Design
Tug basin	Relocated tug basin with floating dock moorage and ramp system for shore access at the north end of berth 4.
Mitigation for coastal morphology	Rock berm structure or alternative mitigation on the seabed, to address the concern regarding dendritic channel formation.
Habitat offsetting	Habitat offsetting requirements are yet to be determined.
TFN Marina	A fishing boat marina was incorporated into the Project during early engagement with TFN. The marina would include a floating dock facility and harbour year-round in-water fishing vessels as well as smaller vessels via a boat launch ramp and include vehicle parking.
Shipping, rail and road transportation	DP4 will result in changes to vessel, road and rail transportation to/from GCT Deltaport. Marine shipping, road and rail activities outside of the lease boundary are not within GCT's care and control but will be considered within the Impact Assessment. Further discussion is provided in Section 2.3.4.

Table 5 compares the size of the existing infrastructure and components at GCT Deltaport with the estimated size of those key components that require expansion as a result of the Project. Project components that require upgrades or relocation (i.e., causeway road improvements and tug basin relocation) with no expansion in size are not included.

Table 5: Estimated Size Comparison of Existing and Proposed Project Infrastructure and Components.

Facility areas	Existing Deltaport Facility	Proposed DP4 Expansion	Deltaport with proposed expansion - DP4
Container handling and storage area	40 ha	44 ha	**84 ha**
Intermodal rail yard	12 ha	7 ha[1]	**19 ha**
Buildings, truck gates, berths, misc. other areas	33 ha	5 ha	**38 ha**
Total areas:	**85 ha**	**56 ha**	**141 ha**
Other key components			
Marine berth	1100 m	560 m	1660 m

[1] The rail intermodal yard area is the estimated area of the seven rail tracks only. The proposed expansion of the rail intermodal yard area is actually only two hectares (as compared to seven hectares) as the expansion is in an existing rail yard operated by the railways.

Table 5: (Cont'd.)

Facility areas	Existing Deltaport Facility	Proposed DP4 Expansion	Deltaport with proposed expansion - DP4
Other key components (Cont'd.)			
Container handling equipment	34 Yard Rubber Tired Gantry Cranes (RTGs) 12 Ship to Shore Cranes 8 Rail Rail Mounted Gantry Cranes (RMG)s Misc. support Container Handling Equipment (CHE)	58 RTGs or RMGs 8 Ship to Shore Cranes 6 Rail RMGs Misc. support CHE	**92 RTGs or RMGs** **20 Ship to Shore cranes** **14 Rail RMGs** **Misc. support CHE**
Short sea shipping berth	N/A	123m	**123m**
Marina	N/A	12 fishing boats Boat ramp Truck-trailer parking	**12 Fishing boats** **Boat ramp** **Truck-trailer parking**
Capacity-TEUs	2.4m TEU	2.0m TEU	**4.4m TEU**

The spatial boundaries associated with the assessment of the Project, including the local and regional study areas specific to each valued component will be defined in the Detailed Project Description, following the implementation of GCT Engagement Plan, and formal consultation administered by the IAAC and BCEAO on the DP4 Initial Project Description. GCT will leverage this opportunity to continue advancing engagement activities in order to clearly identify key Project issues and concerns, and appropriate assessment boundaries specific to the Project.

2.3 Project Activities

2.3.1 Construction

Construction activities include preparation of the existing site to accommodate the expansion, fabrication and installation of concrete components and equipment, and handling of material, including rock, sand and sediment via dredging and filling. A majority of the construction materials would be moved to the Project site via marine shipping (i.e., fill and dredgeate, caissons, steel piles, concrete, paving via barge), whereas other materials such as utilities, site and building improvements will likely be trucked to the site. Transportation corridors for the movement of materials and whether the Project will require off-site staging or laydown areas are unknown at this time and will be further explored through the Project's assessment.

The following activities have been identified and may change as a result of future design phases, additional consultation and the environmental assessment process:

- Temporary works to facilitate dredging;
- Dredge beneath fill area, as required depending on construction methodology. Reuse dredge material as fill as far as possible. Transport remaining dredge material off-site for reuse or disposal;

- Place and densify structural fill;
- Dredge temporary tug basin and install sheet pile wall for temporary tug berths;
- Implement crest protection mitigation;
- Dredge basin for fourth berth construction;
- Install and densify structural fill and mattress layer;
- Install slope protection on north end of the fourth berth fill and fill area west of the causeway;
- Install sheet pile wall for short sea shipping berth and new tug basin;
- Install precast concrete caissons and infill panels;
- Install rock berm behind caissons and infill rock material into caissons;
- Install concrete slabs, concrete beams;
- Place asphalt pavement or other surfacing;
- Construct tug basin and marina: including driving of piles, and installation of float fenders and mooring bollards;
- Place scour protection on seabed slopes, as required;
- Construct new Westshore overpass;
- Demolish existing Westshore overpass;
- Construct extension of intermodal rail tracks and crane rails;
- Construct buildings, such as sub-station, Administration/Operations/Security Building, etc.;
- Install civil utilities (electrical, data, water, sewer, and gas, if necessary), including shore power and lighting;
- Install berthing and mooring bollards and safety equipment, such as railings and ladders on fourth berth; and
- Install crane rails.

2.3.2 Operations

GCT is proposing to expand the existing GCT Deltaport terminal which has been in service for over 20 years. GCT's Environmental Management System (EMS) has been designed to capture, organize and manage vessel, rail, yard, gate, and maintenance operations so that environmental risks are controlled and environmental management is integrated into daily terminal operations. The EMS is divided into several sections, including the following components:

- GCT's Environmental Policy;
- A list and hazard ranking of terminal and office (administrative) activities that have actual or potential environmental impacts;
- Environmental Management System Procedures (EMSPs) to address overall policies for environmental management;
- Specific Environmental Operating Procedures (EOPs) to ensure that activities are carried out in a systematic manner to avoid adverse impacts on the environment; and
- A list of forms that support the EMSPs and EOPs.

Operational activities of DP4 will be similar to existing operations and therefore the Environmental Management System will only require updates to cover the additional capacity and reconfiguration of some areas of the terminal, and to incorporate additional activities, such as short sea shipping. GCT's plans are regularly reviewed and updated even without expansion.

DP4 operations are planned for efficiency, including green infrastructure, while supporting quality well-paying jobs and community benefits. Operations will be planned in consultation with labour unions and local Indigenous groups.

The independent study of demand for container capacity on the west coast of Canada commissioned by GCT (Black Quay Consulting 2019), included a preliminary study of vessel calls at the expanded GCT Deltaport, including DP4. The results are provided in Table 6. While DP4 will result in an increase in capacity of 2 million TEU per annum at GCT Deltaport, there will only be a small increase in the number of vessels calling. This is due to the expected increase in the size of vessels, which will be facilitated by GCT Deltaport's four contiguous berths, and a greater proportion of containers loaded/unloaded at GCT Deltaport from each vessel. Currently, there are seven shipping services calling at GCT Deltaport each week. This is predicted to increase to eight following the construction of DP4. GCT Deltaport is currently able to handle vessels up to the size of Ultra Large Container Vessel (ULCV) but current vessels calling are predominantly Post-Panamax. It is expected by 2035, the mix of shipping service vessels is projected to be 75% Post Panamax size and 25% ULCV size.

Table 6 GCT Deltaport Vessel Calls and Size.

Year	Smallest Vessel Size	Largest Vessel Size	Calls per annum
Current 2020	~4,500 TEU – Panamax	~10,000 TEU – Post Panamax	364
DP4 at Capacity	~10,000 TEU – Post Panamax	~18,000 TEU – ULCV	416

GCT has not undertaken detailed analysis of road and rail transportation requirements specifically for DP4 yet. However, Roberts Bank Trade Area study undertaken by the Gateway Transportation Collaboration Forum has examined road and rail traffic impacts from terminal expansion at Roberts Bank. The Gateway Transportation Collaboration Forum was established in 2014 as a partnership between Transport Canada, the Ministry of Transportation and Infrastructure, TransLink, the Greater Vancouver Gateway Council and the VFPA to pursue solutions and funding opportunities to implement transportation-related projects to mitigate the impact of increased goods movement within the region. Four trade areas have been studied including the Roberts Bank Trade Area (RBTA) which would be affected by increased trade through both Roberts Bank terminals; GCT Deltaport Container Terminal and the Westshore Coal Terminal.

The study builds upon the previous Roberts Bank Rail Corridor (RBRC) study which identified road-rail interface projects that would both enhance trade and maintain safety and community livability. The RBRC consisted of eight infrastructure grade-separations and a road realignment project along the RBRC. Complementary to the RBRC, the Province of BC completed the South Fraser Perimeter road along the southern side of the Fraser River that connects Deltaport way in Delta to Highway 1 in Surrey, and also connects to Highways 15, 17, 91 and 99.

The RBTA encompasses much of the area south of the Fraser River, and overlaps the municipalities of Delta, Surrey, White Rock, Langley City, the Township of Langley and Abbotsford and several Indigenous groups including the Tsawwassen First Nation.

It is strategically located in the international supply chain between North America and its Asia-Pacific trading partners. The operation of the two Roberts Bank marine terminals depends heavily on a well-connected and efficient rail and road corridor to bring commodities to and from the terminals. The RBTA study projected trade increases at Roberts Bank to increase to an estimated 2.4 to 3.0 million TEUs in containers and 35.0 million tonnes in coal by 2030. Other commodities also move through the study area, including lumber, agricultural, manufactured food, and other products. Much of this other trade moves through the Cascade border crossings to and from the USA.

The study indicates that the rail corridor supports anywhere from four trains per day along the Southern Railway of British Columbia (SRY) segment (between north Langley and Abbotsford) to 17 trains per day along the RBRC (to Colebrook Road and 72nd Street). Correspondingly, train delays to roadway traffic can range from 5 minutes to as much as 96 minutes per day between the least and busiest segments, respectively. The report indicates that significant growth in rail traffic was forecasted in the western and central parts of the RBTA as a result of the previous Deltaport and Westshore expansions and proposed future container growth related to projects like DP4. The future rail operating plans that were incorporated in the regional rail simulation model included 12 additional trains per day over the next 10-15 years. This increase in train activity and train length will also impact the length of road traffic delay experienced at the at-grade rail crossings. Conversely, the projected growth in train activity in the eastern parts of the RBTA is not expected to change significantly over the same period of time.

Highways and major roads within the RBTA not only serve port terminals and rail yards; they also provide important connections for the movement of goods between the Lower Mainland, the rest of BC and Canada, as well as the USA. The road network primarily serves regional commuter traffic within six growing municipalities south of the Fraser River. Truck volumes typically make up 8 to 12 percent of roadway traffic, depending on location. Based on the report's findings, about 50% of all trucks moving through and within the Lower Mainland serve national or international trade while the remainder serves the regional area.

Based on the study's purpose and problem definition, a preliminary list of candidate improvement projects was developed, including road-rail interface projects and major roadway projects to enhance international trade and mitigate impacts associated with increased trade activities. (See RBTA study (CH2M 2016) for actual short-listed projects).

The study indicates that the short-listed projects could be advanced over the next few years in partnership with the Gateway Transportation Collaboration Forum, agencies, local municipalities and other stakeholders. GCT acknowledges that these types of short-listed proposed infrastructure improvements will be vital in realizing the stated benefits of the proposed Project. The predicted rail and road movements are provided in Table 7. Road movements include trucks for container transportation, and other vehicle movements such as staff travelling to work. A movement is in or out of the Roberts Bank terminal, so one truck or train call equates to two movements. Current approximate average rail and road movements per day are provided for GCT Deltaport. These numbers have been scaled based on the planned TEU throughout for DP4 to provide a predicted number of road and rail movements per day for DP4. This is based on an approximate split of 65% rail and 35% road transportation of containers for GCT Deltaport, which is presumed not to change for DP4. The estimate for other road movements per day is expected to be an overestimate as the number of staff and other visitors to GCT Deltaport is not expected to increase in proportion to the increase in TEUs. Movements are also provided for Westshore to provide a complete picture for the Roberts Bank Terminal. All coal from Westshore is transported by rail.

Table 7 Average Rail and Road Traffic Volumes to/from Roberts Bank Terminal.[1]

Scenario	Rail movements per day	Truck movements per day	Other road movements per day
GCT Deltaport	8	3,500	2,000
Westshore (Delcan 2015)	13	N/A	350
Total exc. DP4	**21**	**3,500**	**2,350**
Estimated DP4	8	2,900	1,700
Estimated Total	**29**	**6,400**	**4,050**

The operation to import/export containers through DP4 will involve the following steps:

- Containers arrive and leave the terminal via large capacity container vessels which moor at the berth;
- Ship-to-shore container cranes, mounted on the berth rail system, pick up or store the container at any point on the vessel;
- Containers arriving at the berth are removed and stored for inspection and then sorted for either pick up on-site or loaded on to railcars or trucks within the terminal for onward transportation via the causeway or loading at the new short sea shipping facility;
- Containers for export undergo a similar process involving offloading from truck, railcar or short sea shipping and inspection and sorting before loading onto container vessels;
- Ongoing maintenance of the terminal and equipment and tug operations to support the berthing of vessels. Maintenance dredging of the existing dredge pocket has not been necessary at GCT Deltaport to date; and
- Tug assisted berthing and de-berthing of vessels.

Potable water will be supplied from the City of Delta's water system and distributed throughout the site for domestic supply to terminal buildings. Hydrants will also be located throughout the site for fire water supply. This system is currently operational at the existing GCT Deltaport and will be expanded to meet the additional needs of the Project.

2.3.3 Decommissioning

The Project will result in the creation of new land area. The DP4 Project infrastructure will be designed for 100+ year service life. Similar to GCT's other terminals, plans include ongoing maintenance, refurbishment and maintenance to ensure the assets will continue to function in perpetuity. Therefore, there is no intention to decommission and abandon the Project. The land will remain in perpetuity and its future use will be subject to applicable permitting and regulatory requirements.

1 Information in Table 7 is derived from the 2015 RBT2 Environmental Impact Statement (Appendix 4-D of the Roberts Bank Traffic Data Matrix). The actual table numbers have been adjusted to reflect a decrease in future capacity gain from 2.4 m to 2.0 m TEUs for the DP4 Project.

2.3.4 Physical Activities Incidental to the Project

The Project may result in various activities that are incidental to the Project since they fall outside of GCT's care and control. This may include, for example, the effects of marine vessel movements associated with short sea shipping or road and rail activities that take place outside of GCT's lease boundary. These incidental physical activities may be considered part of the Project for the purposes of the assessment and Ministerial decisions as they could result in adverse environmental, social, or economic effects.

Building on the preliminary study of shipping traffic Black Quay completed for GCT, and in collaboration with the local Indigenous groups who have expressed significant interest in better understanding expected marine traffic, GCT will conduct additional marine traffic studies. This may include an assessment of marine activities associated with marine shipping, short sea shipping, the TFN marina and vessel movements related to disposal-at-sea activities. Increased truck and rail traffic associated with the Project will also be assessed.

Marine Shipping

For marine shipping of containers via international waters, the assessment will extend from GCT Deltaport through the international shipping lanes to Buoy J, which marks the western entrance to Juan de Fuca Strait from the Pacific Ocean (Figure 4). The assessment may include potential environmental effects of malfunctions or accidents and any cumulative environmental effects.

Short sea-shipping

The VFPA is working with industry stakeholders to advance short sea shipping in the Port of Vancouver, to increase the sustainable movement of containers through the Port of Vancouver (VFPA 2020). This work is supported by federal funding received from Transport Canada through the National Trade Corridors fund in 2019. The next steps involve the following two initiatives:

1. Participating in industry's establishment of a short sea shipping service connecting existing facilities.
2. Advancing the development of a dedicated common-user short sea shipping terminal

Currently, the only active example of short sea shipping container barge service in the region is from Centerm to/from the DPW Duke Point terminal (Port of Nanaimo). There are currently no off-terminal short sea shipping facilities to accommodate container movement between GCT Deltaport and destinations in Metro Vancouver, including along the Fraser River, due to the fact that under prevailing conditions the movement of containers by short sea shipping is not competitive with transportation by truck. However, Transport Canada is leading an initiative to assess opportunities, including commissioning a 2018 study through Cascadia Partners, titled Opportunities for Short Sea Shipping in the BC Lower Mainland (Cascadia Strategy Consulting Partners Ltd. 2018). GCT is including a short sea shipping berth in anticipation that governments may mandate alternatives to trucking in the future, or dynamics in the market change.

At this stage it is not possible to define where short sea shipping terminals and therefore routes will be located. Additional information, if available, will be provided during the environmental assessment process. If there is a delay in the implementation of short sea shipping beyond the construction of DP4 such that the short sea shipping berth cannot be used for its intended purpose, the area of the terminal will be used for container operations. The bulkhead at the short sea shipping berth is still required to construct the DP4 terminal expansion and therefore the inclusion of the short sea shipping berth makes little difference to the design.

TFN Marina

Based on GCT's engagements with TFN, a marina was incorporated into the Project design that can support fishing and other activities, where access to deeper water is not tide-bound. As a result, the Project includes provision for such a facility and may include floating dock facilities for crabbing and fishing boats, a boat ramp for trailer launching, a floating dock for temporary mooring of launched boats, and parking for vehicles and trailers. This is in line with GCT's commitment to work in collaboration with Indigenous groups and to find opportunities for mutual benefit. The nature of the use (commercial, recreational, etc.) will be determined following additional discussions with TFN, and the results will be included in the assessment of marine traffic incidental to the Project.

Truck and Rail Traffic

The Project will result in an increase in truck and rail traffic. Since GCT does not have care and control over the roads or rail outside of its lease boundary, GCT will be collaborating with municipal governments, Indigenous groups, BC Ministry of Transport and Infrastructure, and the rail companies, amongst others, to estimate traffic volumes and confirm any improvements that are required to the network as a result of the Project. Table 7 provides initial estimates of increased rail and road traffic for the Project. Additional information on estimated truck and rail traffic associated with the Project will be provided during the assessment process once additional analysis is completed.

GCT will also collaborate with the Gateway Transportation Collaboration Forum and municipal stakeholders to better understand potential offsite infrastructure improvements needed to support the increased trade growth. Additional information on potential ancillary infrastructure and Project works (i.e., road and rail improvements, overpasses, construction staging areas etc.) will be provided during the assessment process following additional engagement.

CP and CN are the two railway companies that service Deltaport for inbound and outbound international container trains. All international container trains destined to/or from Deltaport travel along the 70-km Roberts Bank Rail Corridor (RBRC) that connects with the North American rail network and is a critical link between Canadian industry and Asia-Pacific economies. The RBRC traverses five Greater Vancouver municipalities and crosses a number of at-grade public roads. The RBRC connects with both the CP and CN mainlines where both railways use their respective lines to move container trains across Canada into Central Canada, Ontario and Quebec as well into the US Midwest to destinations like Chicago, Minneapolis and Detroit. Truck traffic leaving/arriving at Deltaport use Highway 17 and then branch off onto other lower mainland roads to their final destination or collection points. Typically, traffic routes will take trucks throughout the lower mainland and depending on their destination, trucks will use highways 17, 99, 91, 10 and 1. Traffic destined to the USA will utilize highway 17 to 99 and then to the USA border. Trucks moving containers to other parts of BC or to other provinces will typically utilize highway 17 to highway 1 eastbound to their destinations.

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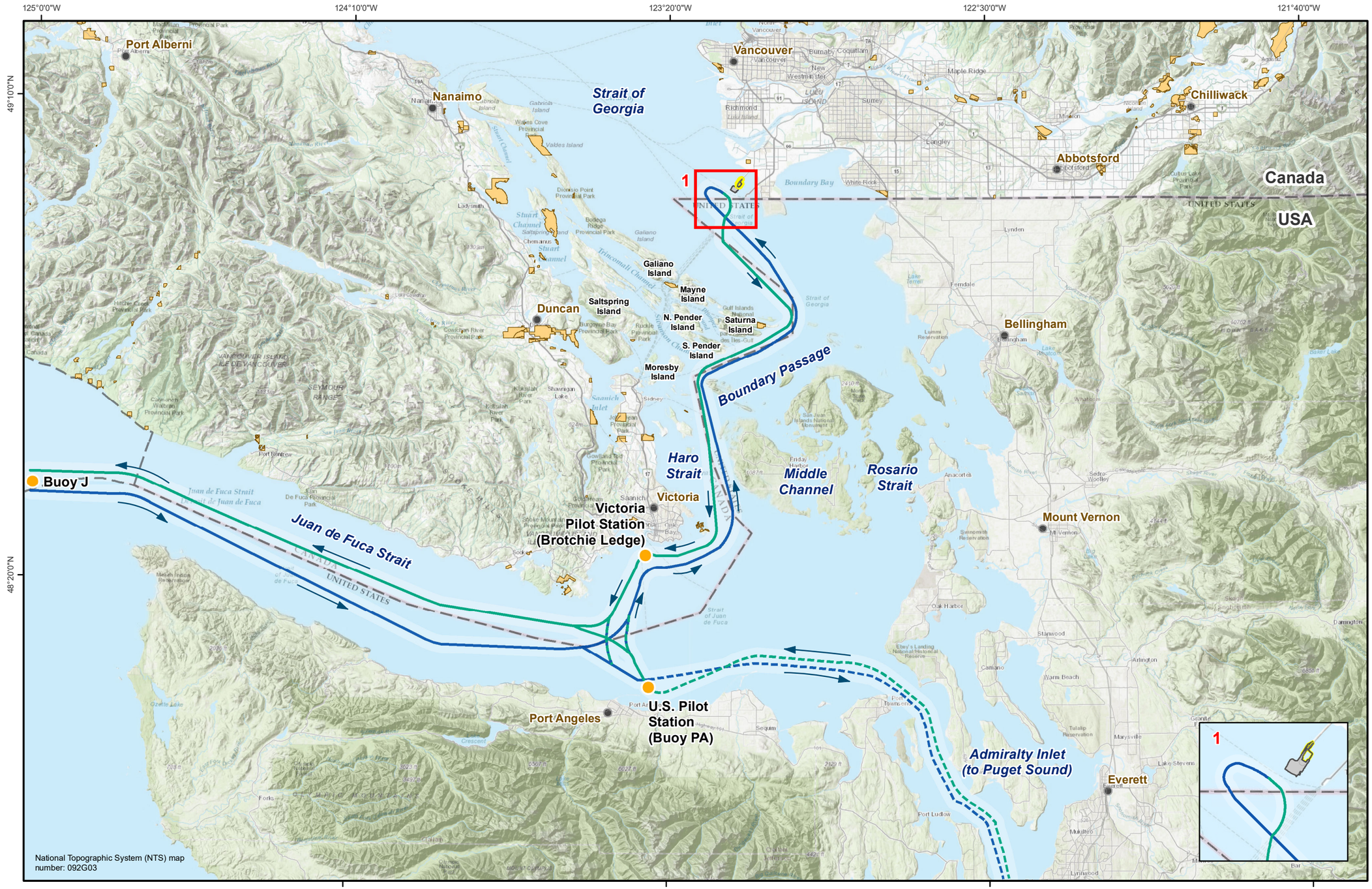
Figure 4 Marine Shipping Routes for Container Ships.



Legend

- Pilot Station
- Project Area
- Existing Roberts Bank Terminals
- First Nation reserve
- Canada/US border

Shipping Route

- Project-Associated Outbound Shipping Route
- Outbound Non-Project Associated U.S.A Route
- Project-Associated Inbound Shipping Route
- Inbound Non-Project Associated U.S.A Route

0 5 10 15 20 km

N

Scale: 1:750,000

Projection: NAD 1983 UTM Zone 10N

Data Sources:

a) Project area, Existing Deltaport Terminal, Ausenco 2020.
b) First nation reserve, FLNRO 2020.
c) Shipping route and pilot station, digitized using RBT2 Marine Shipping Supplemental Report, 2015.
d) Topographic map, Esri Online Service.

GLOBAL CONTAINER TERMINALS CANADA

GCT Deltaport Expansion Berth Four Project

K:\Data\Project\GCT10314-NV\A_MXD\IPD\GCT10314_Fig4_Marine_Shipping_FN_Map_20200831_v1_0_TD.mxd

2.4 Project Schedule

Figure 5 provides the preliminary schedule for the Project.

This schedule is contingent on consultations with Indigenous groups and regulatory approvals. The actual duration of each of the environmental assessment phases of the federal and provincial review processes will depend on direction from the agencies, scope of the assessment and findings, and input received during the environmental assessment process. There are no plans to decommission or abandon the Project. The land will remain in perpetuity and its future use will be subject to applicable permitting and regulatory requirements.

Fisheries and Oceans Canada (DFO) publishes least risk windows for the protection of fish. The least risk window for the area covering Roberts Bank runs from August 16 to February 28. GCT is aware of fisheries-related sensitive windows that have been determined for other projects. Mitigation measures related to construction activities and timing windows will be developed through the environmental assessment and permitting processes.

2.5 Alternatives to the Project

GCT is committed to playing a key role in meeting the expected demands for container capacity, as discussed in Section 1.3.2. GCT has reviewed the alternatives to support the continued growth in capacity to meet this requirement.

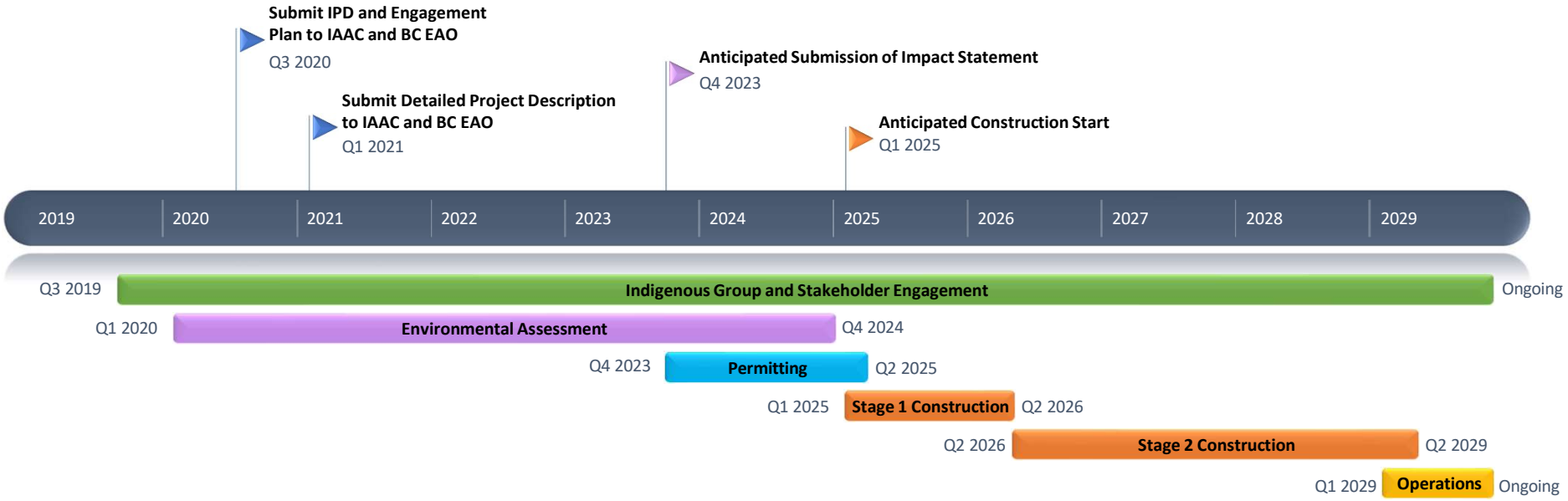
GCT has reviewed the analysis of government agencies and agrees that:

- Terminals on the Fraser River have limited growth capacity as they cannot accommodate Post-Panamax and larger container vessels, because they cannot safely navigate the river; and
- Road and rail connections to terminals on the north shore of Burrard Inlet are not adequate to handle container volumes.

GCT considered a further expansion at the GCT Vanterm terminal in Burrard Inlet of 1 million TEU. However, GCT has undertaken additional analysis and determined that DP4 is preferable, for similar reasons of accessibility to those cited above, in addition to consideration of the limitation on vessel size imposed by the Lions Gate Bridge and increased tanker traffic from the Westridge terminal, and has therefore now focused its efforts on DP4. Expansion at GCT Vanterm may be considered in the future. Based on this assessment, the expansion of GCT Deltaport or the development of a new terminal are the only Project alternatives.

The VFPA is proposing the construction of the Roberts Bank Terminal 2 Project (RBT2), which has a planned capacity of 2.4 million TEU per annum. The proposed RBT2 project could meet the predicted demand in container capacity should it receive approvals, establish a sustainable business case and identify a terminal operator. However, the DP4 Project can achieve a similar increase in capacity through the addition of only one berth, compared to the new construction of three berths for RBT2, and approximately 56 ha of land reclamation: one third the size of RBT2. Even with the dredging footprint that will be required, DP4 will have a much smaller footprint. The development of DP4 is also to the southeast side of the causeway, in the inter-causeway area where previous development has occurred. DP4 is an efficient and effective use of the existing GCT Deltaport infrastructure that provides the fullest optimization of the entire port complex. GCT believes this location and design will result in a lower overall impact on the environment compared to RBT2.

Figure 5: Preliminary Project Schedule.



2.6 Alternative Means of Carrying out the Project

The following factors were considered when analyzing alternatives during the development of the design for DP4:

- Use of Best Available Technologies;
- Technical feasibility;
- Economic feasibility; and
- Potential effects, risks, and uncertainties of alternatives.

The Project design utilized information from the Analysis of Alternatives that was prepared as part of the GCT Deltaport Third Berth Project (DP3) environmental assessment. A detailed Alternative Means assessment will be prepared specifically for DP4, once further engagement and baseline study has taken place, as part of the environmental assessment.

Historical marine terminal development at Roberts Bank, and elsewhere in BC, since the 1950s has helped to inform alternative means of carrying out projects that balance technical feasibility, financial viability, and environmental effects.

The technical and economic feasibility of the terminal configuration and construction methods employed are driven by physical location, water depth, geotechnical and seismic considerations, and operability. These are all inextricably linked to the environmental constraints and mitigations that will be implemented. Project designs have benefitted from an increased understanding of site conditions, including soils and their behaviour during seismic events. Existing biophysical studies and local and Indigenous traditional knowledge also have identified environmental constraints, issues, and increased understanding of effective mitigations.

Identification of alternative means of carrying out the Project was established through early engagement with Indigenous groups, government agencies, and community stakeholders. In particular, engagement with Tsawwassen First Nation regarding the initial design of the project resulted in the inclusion of a marina on the east side of the causeway for which Tsawwassen First Nation could launch fishing and crabbing vessels and other watercraft.

Specific feedback from stakeholders Bird Studies Canada, Boundary Bay Conservation Committee and Fraser Voices highlighted the need to consider the alternative design of night-time lighting from the terminal to minimize the impact on bird populations. By leveraging existing light-emitting diode (LED) lighting infrastructure and the expansion of the existing terminal instead of a separate terminal, GCT light pollution may be reduced. Minimizing construction on the east side of the causeway was also important for these groups to limit the impact on biofilm in the region.

Alternative means of carrying out the Project considered within the Project design process include marine terminal configuration, construction method, dredge pocket configuration and configuration of the short sea shipping berth and tug basin.

Orientation and Configuration of Container Storage and Handling Area

Due to the configuration of the existing GCT Deltaport terminal, the neighbouring Westshore coal terminal and the existing dredge pocket, the only option for DP4 that is believed to be technically and economically feasible is to expand the terminal north (towards the shore) along the existing causeway by maintaining a continuous linear berth.

GCT continues to assess Best Available Technologies for container storage and handling configuration to maximize terminal operating efficiency. This includes the use of Best Available Technologies, such as container stacking and maintaining a continuous linear berth for efficiency.

Construction Methodology

Three alternative methodologies were reviewed during the design for the construction of the terminal:

- A mass gravity wall using precast concrete caissons (caisson);
- A revetment slope with pile and deck structure (pile and deck); or
- A bulkhead wall of cylindrical and sheet piles (bulkhead wall).

Due to the deep layer of soft sediments in the area, piles need to be driven a significant depth below the seabed and ground improvements are required to meet geotechnical and seismic requirements. As a result of this and the heavy marine equipment required for installation, the cost of the pile and deck and bulkhead wall options, which both have steel piles as their primary structural support, will be higher than the caisson method and might be economically unfeasible. This was found to be the case for DP3 but further investigation is required for DP4. There are also advantages of the caisson method in terms of reliability during and after an earthquake. The caisson method has been proven to be economically and technically feasible on multiple occasions at this site.

From an environmental perspective, there are advantages and disadvantages of the alternatives. For example, the caisson method requires additional dredging but avoids pile driving and has a relatively short construction duration on-site. These environmental considerations will be at the core of the analysis of alternative means presented in the environmental assessment and will incorporate feedback received during engagement and consultation.

Intermodal Rail Yard Configuration

The Project design includes an expansion of the existing intermodal rail yard along the northwest side of the causeway by maintaining a continuous linear alignment. GCT is aiming to minimize expansion to the northwest of the causeway due to environmental concerns expressed by local community based environmental organizations, in particular as it relates to shorebirds and biofilm. However, alternatives were reviewed and given the current configuration of the linear orientation of the existing rail yard at GCT Deltaport, it may not be technically or economically feasible to avoid extending the intermodal rail yard into the inter-causeway area. This will be assessed further through the analysis of alternatives in the environmental assessment and later phases of engineering design and further engagement with the local environmental organizations and Indigenous groups.

Although outside the care and control of GCT, there is potential for upgrades to the railway that could affect the Agricultural Land Reserve (ALR), specifically the Province of BC's ALR Option Lands along Deltaport Way that have already been designated for a future rail right-of-way. The rail upgrades required to support DP4 have not yet been assessed. GCT will continue to liaise with the rail companies, who would be responsible for the construction and operation of any upgrades.

Dredge Pocket Configuration and Extent

Dredging is required to enable ships to access the new berth. The orientation of the dredge pocket is driven by the berth configuration and the existing dredge channel servicing berths 1 to 3. As a result, no other technically- or economically-feasible alternatives for the orientation of the dredge pocket were identified during the development of the Project design.

The Project design minimizes the dredge footprint and therefore minimizes the total dredge volume. However, the depth of the dredge pocket is driven by vessel draft and under keel clearance requirements, the width by safe berthing procedures and the clearance required by ships entering and exiting the terminal. GCT will undertake a detailed assessment, working with Indigenous groups, regulators and stakeholders, including the BC Pilotage Authority, to minimize the dredging required. There is no requirement for a turning basin at GCT Deltaport, which reduces the size of the dredge pocket required.

Short sea Shipping Berth, Tug Basin and Marina

Alternatives for the location of the short sea shipping berth, tug basin and marina are limited at this site. To minimize the additional marine structures required, the Project design has these located along the north face of the proposed container storage and handling expansion. This requires additional dredging to provide access, but to a shallower depth than the dredge pocket at the main berths. If it is determined that short sea shipping is not economically viable, the project footprint and construction techniques would remain the same, and the area designated for short sea shipping would be used for other purposes, such as container storage. No other technical and economically feasible alternatives have been identified during Project design but this will be evaluated further through engagement, the environmental assessment, and later phases of engineering design.

3 LAND AND WATER USE

3.1 Land Ownership and Tenures

GCT Deltaport is within the City of Delta. The proposed DP4 expansion is approximately 3 km southwest of TFN Lands and 2 km north of the international border with the USA.

GCT holds a lease from the VFPA for the GCT Deltaport terminal.

The DP4 Project will be within federal lands and waters. Based on the current Project design, the required dredging may extend into provincial aquatic crown land (as shown in Figure 6).

The TFN currently holds a 99-year agreement to lease two water lots which lie on either side of the Tsawwassen Ferry Terminal causeway and include a total area of approximately 456 ha, as set out under the TFN Final Agreement. The required dredging may extend into one of these TFN water lot leases.

The federal lands are purported to be managed lands by the VFPA and within their purported navigational jurisdiction.[1] Under section 44(6) of the *Canada Marine Act* a port authority may manage, occupy or hold only the real property and immovables set out in its letters patent. There is no exclusion with respect to section 44(6). PID 029-139-759 which underlies a significant portion of the DP4 Project is not listed in the letters patent.

TFN has entered into a Memorandum of Agreement with the VFPA, which would provide TFN with additional water lots on either side of the Roberts Bank Causeway. If granted, DP4 may extend into one of these water lots.

Activities associated with the expansion of the intermodal railyard will extend into land on the causeway that is held by the BC Railway Company and potentially TFN industrial lands.

Land ownership and tenure are summarized in Table 8 and shown in Figure 6.

[1] The VFPA's administrative, permitting and other powers with respect to the DP4 Project, including those related to port operations, are currently the subject of judicial review.

Table 8: Land Ownership and Tenure.

Registered Owner	PID	Parcel Class	Legal Description/District Lot
Crown Agency (Crown/Minister of Transport c/o VFPA)	023-279-222	Subdivision	Lot A, Except Portions in Plan BCP22579, Bed of the Strait of Georgia Group 2 New Westminster District Plan LMP25402 Legal notations and encumbrances currently on title: Annexed Easement BA378186 over Parcel M Plan BCP23856 SRW BJ296338 (Corporation of Delta) Possibility of Reverter BJ296345 (Federal Crown and transferred to BC Rail) Easement BA378187
Crown Agency (Crown/Minister of Transport c/o VFPA)	029-139-759	Subdivision	Lot 1 of the Bed of Georgia Strait Group 2 New Westminster District Plan EPP28116 Legal notations and encumbrances currently on title: Title may be affected by Permit under part 29 of *Municipal Act*, BJ258329 SRW G99253 BC Hydro
Crown Agency (Crown/Minister of Transport c/o VFPA)	026-630-745	Subdivision	Parcel A, Except: Part in Parcel B (PlanBCP27391); Bed of the Strait of Georgia Group 2 New Westminster District Plan BCP22581 Legal notations and encumbrances currently on title: Right of Entry BB501289 (Federal Crown)
VFPA	029-272-700	Subdivision	Lot C Bed of the Strait of Georgia Group 2 New Westminster District Plan EPP32972 Except Plan EPP64031 Legal notations and encumbrances currently on title: SRW CA6656283 (BC Rail)
BCR	030-131-561	Subdivision	Lot D Bed of the Strait of Georgia Group 2 New Westminster District Plan EPP64031 Legal notations and encumbrances currently on title: SRW CA6656285 (VFPA)
Crown Waters	-	-	Roberts Bank Wildlife Management Area. Plan 12 Tube 1993.

DP4 is an expansion of an existing terminal and therefore components and activities of the Project will overlap with existing use for port-related activities, including the existing dredge pocket. The remainder and much of the DP4 footprint is within the natural undeveloped foreshore that has been used for fishing and other marine activities.

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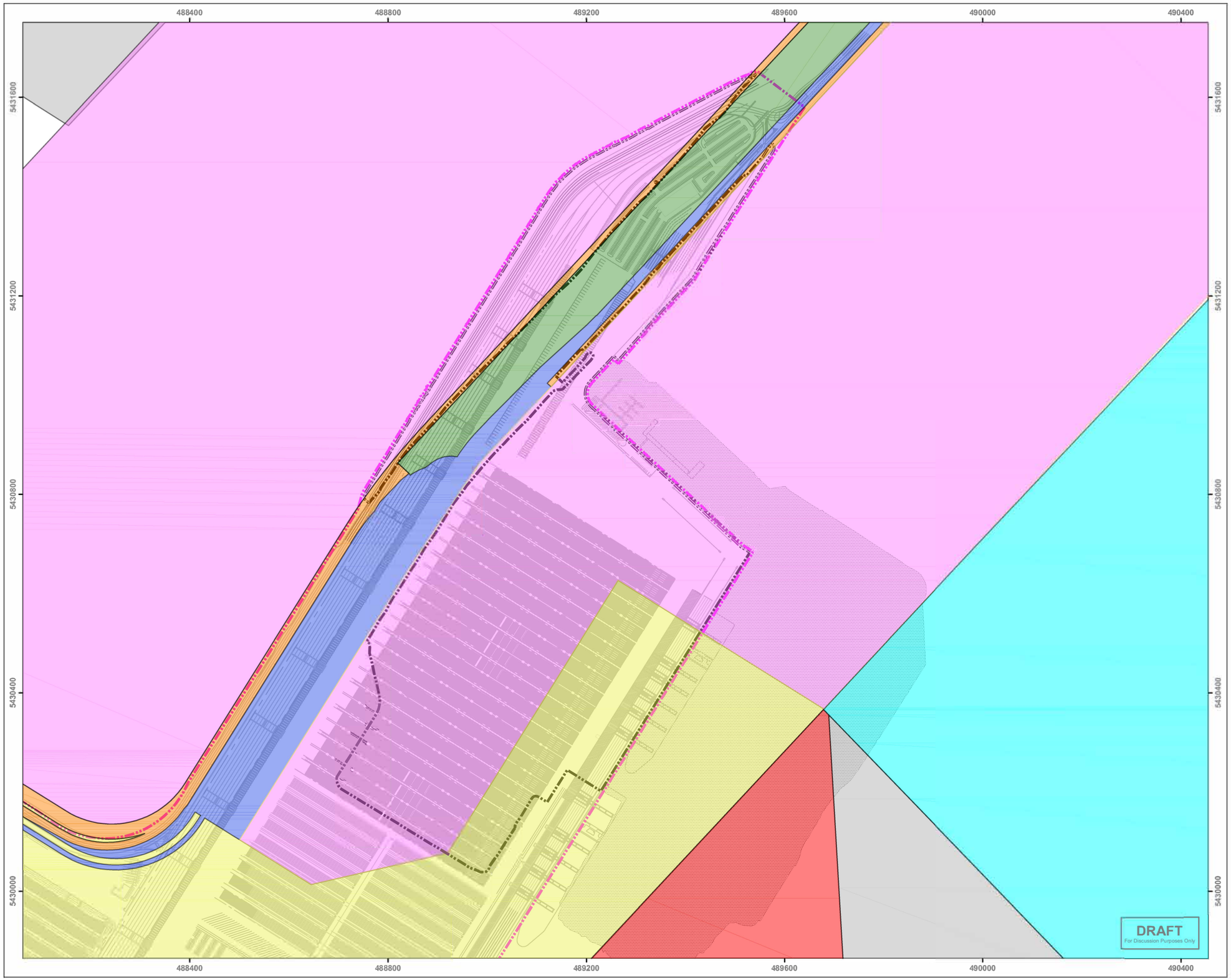
GCT Deltaport Expansion, Berth Four Project, Delta, BC

Figure 6: Land Ownership and Tenures.



Legend

- Project Boundary
- Estimated New GCT/DP4 Lease Boundary

Parcels that intersect with the Project Boundary

- PID 023-279-222 (Federal - Minister of Transport c/o VFPA)
- PID 026-630-745 (Federal - Minister of Transport c/o VFPA)
- PID 029-139-759 (Federal - Minister of Transport)
- PID 029-272-700 (VFPA)
- PID 030-131-561 (BCR)
- DL 851 (Federal)
- DL 954 (TFN Water Lot)
- Provincial WMA

Notes

1. NTS Map Number: 092G
2. All mapped features are approximate and should be used for discussion purposes only.
3. This map is not intended to be a “stand-alone” document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Parcel Boundaries: TSA, ParcelMap BC; DataBC, Tantalis

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GLOBAL CONTAINER TERMINALS CANADA

3.2 Planning Context and Zoning

DP4 is contained within Planning Area 6 (Roberts Banks) of the VFPA's Land Use Plan. The VFPA's Land Use Plan designates the Roberts Bank terminal for use as a Port Terminal (Port Metro Vancouver 2014). Typically, each year, to satisfy the intent of the *Canada Marine Act*, the VFPA produces yearly amendments to the Land Use Plan to update any acquired or divested land and designations of such land. The overall Land Use Plan is currently being updated as part of a five-year review and based on feedback from engagement conducted in 2019. An updated draft of the VFPA's Land Use Plan is anticipated to be provided for a second phase of engagement in 2020.

The proposed DP4 expansion falls within the Roberts Bank area and is designated for Port Terminal land use. The VFPA has stated that in planning for future capacity within the guidelines of the Land Use Plan, one of the principles includes increasing capacity and efficiency of existing container terminals. DP4 meets this principle.

The existing GCT Deltaport and therefore a portion of the area planned for DP4 is designated as Industrial under the Metro Vancouver Regional Growth Strategy (Metro Vancouver 2017). The remaining area of DP4 is not covered by the plan and is therefore not designated. Similarly, much of DP4 would fall within land designated industrial within the City of Delta Official Community Plan, with the remainder not designated (The Corporation of Delta 2019). All of these plans are consistent with the objective to preserve industrial lands.

The TFN Land Use Plan covers the water lots that are under lease or Memorandum of Understanding to TFN as described in Section 3.1. It describes the importance of the tidal marsh and water lots to TFN, for traditional and recreational use, and to wildlife (AECOM 2009).

3.3 Proximity to Parks and Protected Areas

Table 9 describes the proximity of the Project to parks and protected areas. Approximate distances have been calculated as a direct line (as the crow flies) from DP4 to the nearest border of the park or protected area.

Table 9: Parks and Protected Areas Located Within the Vicinity of the Project.

Parks and Protected Areas	Approximate Distance to DP4 (km)	Location Description
Regional Parks		
Boundary Bay Regional Park	7	Located in Delta, BC.
Deas Island Regional Park	10	Located in Delta, BC.
Burns Bog Ecological Conservancy Area	14	Located in Delta, BC.
Wildlife Management Areas[1]		
Roberts Bank Wildlife Management Area (WMA)	0.3	The tip of the WMA is located approximately 300 m from the new berth face and may be overlapped by dredging activities pending finalization of the Project design.
Boundary Bay WMA	9	Located east of the Project Area.
South Arm Marshes WMA	9	Located north of the Project Area, within the Fraser River.
Sturgeon Bank WMA	13	Located north of the Project Area, in the Fraser River estuary.

Table 9: (Cont'd.)

Parks and Protected Areas	Approximate Distance to DP4 (km)	Location Description
Federally Protected Areas		
Fraser River Estuary Important Bird Area (IBA)	0	This IBA[2] encompasses private and public land and overlaps with legally protected sites in the region.
Fraser River Delta	9	A 20,682 ha Ramsar Site[3] formed by six components (Burns Bog, Sturgeon Bank, South Arm Marshes, Boundary Bay, Serpentine and the Alaksen Ramsar Site).
Alaksen National Wildlife Area	9	Located on Westham Island and designated as an IBA and a Ramsar Site. Also located within the Fraser River Estuary Western Shorebird Reserve Network Site.
Western Hemispheric Shorebird Reserve Network	9	31,648 ha within the Fraser River Estuary. The Western Hemispheric Shorebird Reserve Network designation applies to the intertidal portions of the entire Fraser River Estuary and upriver to the South Arm marshes.
George C. Reifel Migratory Bird Sanctuary	8	Overlaps with the Alaksen National Wildlife Area and part of the Fraser River Estuary Western Shorebird Reserve network.
Southern Resident Killer Whale (SRKW) critical habitat[4]	0	The southern Strait of Georgia.

[1] *Established to conserve critical and internationally significant habitat for fish, marine mammals, and migrating birds.*

[2] *Designated by Birdlife International.*

[3] *Designated under the Ramsar Convention.*

[4] *The critical habitat of southern resident killer whale within Canadian waters meets the definition of critical habitat as described in the Species at Risk Act.*

4 REGULATORY CONTEXT

4.1 Permits, Licenses, Approvals and Authorizations

Table 10 lists the potential key permits and approvals that may be required for Project construction. Permit requirements will be confirmed throughout the environmental assessment process and in consultation with regulatory authorities. As discussed in Section 1.4, the Project may require reviews and potential permits or certificates under both the new federal IAA and the newly enacted BC *Environmental Assessment Act* (2018).

Table 10: Anticipated Key Permits and Approvals.

Permit	Legislation	Regulator	Trigger(s)
Federal			
Fisheries Act Authorization	*Fisheries Act*	DFO	An authorization is required if the Project will result in the harmful alteration, disruption or destruction of fish habitat or death of fish.
Agreement or permit authorizing an activity affecting listed wildlife species, any part of its critical habitat or the residences of its individuals	*Species at Risk Act*	DFO	Project within SRKW critical habitat.
Navigable Waters Approval	*Canadian Navigable Waters Act*	Transport Canada	For works that take place within navigable waters that do not meet works established under the Minor Works Order and which may interfere with navigation.
Disposal at Sea Permit	*Canadian Environmental Protection Act*; Disposal at Sea Regulations	ECCC	For disposal at sea of dredged material, if it cannot be reused.
Amendment to Existing Lease Agreement	*Canada Marine Act*	VFPA[1]	Updated Operational Lease Agreement for works covered under the VFPA managed federal lands and water.

[1] The VFPA's administrative, permitting and other powers with respect to the DP4 Project, including those related to port operations, are currently the subject of judicial review.

Table 10: (Cont'd.)

Permit	Legislation	Regulator	Trigger(s)
Federal (Cont'd.)			
Project Environmental Review Permit	*Canada Marine Act* *Impact Assessment Act*	VFPA[1]	Works and activities on federal lands and waters within the VFPA managed federal lands and water. Potentially required for field investigations and the Project.
Provincial			
Wildlife Management Area Authorization	*Wildlife Act*	Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRO)	For use of land within a Wildlife Management Area.
License/Lease Agreement	*Land Act*	FLNRO	Potential license for field investigations, if within provincial crown land. Lease for expansion of terminal into provincial crown land.
Archaeological Investigation Permit	*Heritage Conservation Act*	FLNRO	If an Archaeological Overview Assessment (AOA) for the Project during the Impact Assessment phase identifies further archaeological assessment is required, this permit will be required. It is not anticipated at this time but if a known archaeological site cannot be avoided by the Project, an alteration permit would be required for construction.

[1] The VFPA's administrative, permitting and other powers with respect to the DP4 Project, including those related to port operations, are currently the subject of judicial review.

Various Indigenous groups may also have protocols for archaeological investigations conducted in their territory. Identification of the protocols required for archaeological investigations in the Project area will be confirmed through ongoing engagement with identified Indigenous groups. In addition to these protocols, ongoing engagement with Tsawwassen First Nation will identify any additional permits or approvals that may be required for the Project related to potential use of Tsawwassen Lands or Water Lots. GCT, through further engagement with other Indigenous Groups, will identify any other Project permits that may be required subject to a modern-day treaty or comprehensive land claim agreement.

Table 11 provides a preliminary overview of the potential environmental, social and economic effects that may result in Canada from the issuance of federal permits, authorizations and licenses. Additional effects may result from the issuance of federal permits and will be further explored through the specific permitting process.

Table 11: Potential Effects Resulting from the Issuance of Federal Permits, Authorizations and Approvals.

Permit	Legislation/ Regulator	Regulator	Potential Environmental, Social or Economic Effects
Federal			
Fisheries Act Authorization	*Fisheries Act/DFO*	DFO	Harmful alteration, disruption or destruction of fish habitat or death of fish. Effects on wetlands and wetland function. Changes in harvested foods and community health and wellness. Changes in marine food quality.
Navigable Waters Approval	*Canadian Navigable Waters Act/ Transport Canada*	Transport Canada	Changes in harvested foods and community health and well-being.
Disposal at Sea Permit	*Canadian Environmental Protection Act*; Disposal at Sea Regulations	Environment and Climate Change Canada (ECCC)	Changes in marine water quality and marine habitat. Changes in navigation and access for fishing and other marine uses. Changes in harvested food quality.
Amendment to Existing Lease Agreement	*Canada Marine Act*	VFPA[1]	Changes to air quality, greenhouse gas emissions, sound levels and marine water quality. Changes in visual quality, community health, marine navigation, marine recreational activities, and fishing.

[1] The VFPA's administrative, permitting and other powers with respect to the DP4 Project, including those related to port operations, are currently the subject of judicial review.

Table 11 (Cont'd.)

Permit	Legislation/ Regulator	Regulator	Potential Environmental, Social or Economic Effects
Agreement or permit authorizing an activity affecting listed wildlife species, any part of its critical habitat or the residences of its individuals	*Species at Risk Act/DFO*	DFO	Changes to the underwater acoustic environment. Physical disturbance such as vessel strike. Changes in prey availability. Cultural heritage effects on a species that is culturally important. Changes and effects on current and traditional use due to changes in the abundance of listed species.
Project Environmental Review Permit	*Canada Marine Act* *Impact Assessment Act*	VFPA[1]	Changes to air quality, greenhouse gas emissions, sound levels and marine water quality. Changes in visual quality, community health, marine navigation, marine recreational activities, and fishing.

[1] The VFPA's administrative, permitting and other powers with respect to the DP4 Project, including those related to port operations, are currently the subject of judicial review.

5 ENVIRONMENTAL SETTING

5.1 Past and Present Environmental Studies in the Region

The Project is not located in an area that has been subject to a regional assessment under CEAA 2012, or the IAA. The Government of Canada's Strategic Assessment of Climate Change (Government of Canada, 2020a) guidance document has informed the approach GCT has used to estimate the Project's GHG emissions (in CO_2 equivalent units) for this Initial Project Description, as described in Section 6.3.1.

As part of the Government of Canada's $1.5B Oceans Protection Plan and national strategy to create a world-leading marine safety system while protecting the coastline, the Cumulative Effects of Marine Shipping initiative is intended to create a shared approach to better understand coastal ecosystems and the possible effects that ships have on the environment. More specifically under this program, the Salish Sea Initiative responds to cumulative effects, including impacts on the Southern Resident Killer Whale. It is a long-term investment approach to develop and support the capacity of First Nations along the Salish Sea to monitor and evaluate the impact of human activities on their local ecosystems. Furthermore, the Coastal Environmental Baseline Program (CEBP) is also part of the Oceans Protection Plan. Launched in 2016, the CEBP provides $50.8 million over 5 years to collect comprehensive data on the state of 6 marine ecosystems in Canada, including in the Port of Vancouver, through the Fraser River Estuary Eulachon Migration Study being conducted by TFN, and the Port of Vancouver's ecosystem characterization program being conducted by the Tsleil-Waututh Nation.

The Fraser River estuary has been the subject of numerous environmental studies over the past few decades, and the Project is therefore supported by a large body of contemporary information that will inform the environmental assessment. A summary of some of these environmental studies is provided in Table 12.

Table 12: Environmental Studies and Programs.

Project/Program	Study	Summary	Year
Deltaport Third Berth Project	Environmental Assessment (VFPA 2005)	The environmental assessment process conducted for the DP3 Project was robust and included numerous studies, including the identification of habitats at Roberts Bank that required mitigation and protection.	2006
	Adaptive Management Strategy (Hemmera 2015)	A science-based program to monitor and manage the ecosystem of the Roberts Bank inter-causeway area has concluded after eight years of monitoring that the ecosystem has not suffered any significant negative impacts due to the construction of a third berth at the GCT Deltaport container terminal, which began in 2007.	2007 – 2014

Table 12 (Cont'd.)

Project/Program	Study	Summary	Year
Deltaport Road and Rail Improvement Project – Intermodal Yard Reconfiguration at Roberts Bank	VFPA Project and Environmental Review – Category C	The environmental review considered potential adverse environmental and social effects of the project on 16 environmental components (e.g., species with special status, aquatic species and their habitat, recreational interests, etc.) and accidents and malfunctions. These environmental components are aspects of the biophysical and socio-economic environment considered to have ecological, economic, social, cultural, archaeological, or historical importance.	2015
Government of Canada's Ocean Protection Plan	Cumulative Effects of Marine Shipping	A shared approach to better understand coastal ecosystems and the possible effects that ships have on the environment in order to create a national strategy and world-leading marine safety system that gives economic opportunities to Canadians.	2016 – Ongoing
Government of Canada's Ocean Protection Plan	CEBP	The program provides $50.8 million over 5 years to collect comprehensive data on the state of 6 marine ecosystems in Canada that are deemed to have existing or potential high vessel traffic, including the Port of Vancouver.	2016 – Ongoing
Metro Vancouver's Integrated Air Quality and Greenhouse Gas Management Program	Integrated Air Quality and Greenhouse Gas Management Plan	A comprehensive action-oriented plan that aims to protect public health and the environment, improve visual air quality and minimize the region's contribution to global climate change through an adaptive management approach.	2011 - Ongoing
Robert Bank Terminal 2 Project	Environmental Assessment (PMV 2015)	The RBT2 project is currently undergoing a federal environmental assessment under the CEAA 2012. It included baseline field surveys, scientific studies and environmental effects assessment. Information is available from engagement with Indigenous groups, communities, regulators and academics. Technical Advisory Groups were established to gather expert advice on the Roberts Bank ecosystem.	2011 – Ongoing
Sturgeon Bank Marsh Recession Project	Scientific Study	An investigation by FLNRO, ECCC, and the VFPA into the cause of approximately 250 ha of tidal marsh recession throughout the Fraser River delta front WMAs since 1989.	2019

Table 12 (Cont'd.)

Project/Program	Study	Summary	Year
Trans-Mountain Expansion Project (TMX) and other Marine Terminal Projects	Marine Shipping Studies	TMX accommodation measures require additional studies (i.e., The Salish Sea Initiative, Terrestrial Cumulative Effects Initiative etc.) that will build on the extensive body of knowledge that has resulting from the assessment and permitting of other marine terminal projects within the Strait of Georgia, including studies focused on underwater noise, SRKW and accidents and malfunctions.	N/A
Parks Canada National Marine Conservation Areas	Feasibility Study for the Proposed Southern Strait of Georgia National Marine Conservation Area Reserve	A feasibility assessment was launched in 2004 by Canada and the Province of BC to assess the feasibility of creating a new national marine conservation area reserve in the southern Strait of Georgia. The assessment includes the results of numerous consultations and technical studies analyzing ecological, cultural and socio-economic information.	2004 – Ongoing
Songhees Nation	Tl'ches Marine Use Plan	The Marine Use Plan documents community knowledge of Tl'ches (also known as the Discovery and Chatham Islands) and a vision for the future. It is intended to limit, reduce and mitigate negative impacts with regulation, enforcement and continued monitoring. The Marine Use Plan will be a living document guiding the Songhees Nation's efforts to protect and govern the Islands.	2019
A *Species at Risk Act* Section 11 Conservation Agreement to Support the Recovery of the Southern Resident Killer Whale (A *Species at Risk Act* Section 11 Conservation Agreement 2019)	Agreement signed by the Government of Canada, VFPA, Pacific Pilotage Authority and five marine transportation industry partners.	Agreement of the parties to participate in the VFPA-led Enhancing Cetacean Habitat and Observation (ECHO) Program and further develop understanding and management of the impact of shipping activities on at-risk whales throughout the southern coast of BC.	2019 – Ongoing

Relevant studies have been undertaken by organizations, such as Lower Fraser Fisheries Alliance, the Pacific Salmon Foundation and historically under the now disbanded Fraser River Estuary Management Program. TFN has also undertaken independent studies, such as the Dungeness Crab Abundance and Movement Study in the Roberts Bank Terminal 2 Project Area (LGL 2017). The City of Delta and other municipalities have developed coastal flooding and climate change adaptation studies and strategies that are relevant to this Project. Habitat offsetting projects such as the VFPA's Tsawwassen Eelgrass Project will also provide useful data and information for the environmental assessment.

In 2020, GCT has established a $200,000 fund to support Indigenous-led initiatives aimed at increasing both participation and collaboration in the cumulative-effects assessment of the south Salish Sea off BC's coast. The funding initiative is not specific to the DP4 Project but may inform the assessments of projects in the area. It was created in response to calls for action voiced by many Indigenous leaders, including the need for Indigenous-led efforts to assess cumulative effects at the historic January 2020 Declaration Conference which focused on building a collective understanding of the principles established by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

These studies will be used to inform the Impact Assessment, and where studies are ongoing and new information is relevant, update the effects assessment and mitigations throughout the process.

5.2 Previous Disturbances

The history of development at Roberts Bank dates to the late 1950s with the construction of the Tsawwassen Ferry Terminal and subsequent construction of the Roberts Bank coal terminal and container terminal expansions over several decades. Key infrastructure developments include:

- 1958–1960 Construction of the Tsawwassen Ferry Terminal;
- 1968–1970 Construction of the 20 ha Roberts Bank coal terminal and causeway;
- 1981–1984 Expansion of the 20 ha Roberts Bank coal terminal to a 50 ha coal terminal and the creation of 65 ha of undeveloped land to the north;
- 1991–1995 8 ha expansion of the Tsawwassen Ferry Terminal;
- 1994–1996 Development of GCT Deltaport on a portion of the land northeast of the coal terminal (approximately 35 ha);
- 2000 Expansion of GCT Deltaport onto the portion of land northwest of the coal terminal (total area 65 ha);
- 2007–2010 Expansion of GCT Deltaport Third Berth (20 ha);
- 2014 Completion of the Roberts Bank Rail Corridor Project infrastructure improvements (nine new overpasses);
- 2014 Completion of the Roberts Bank Causeway Overpass;
- 2015–2020 Deltaport Terminal, Road and Rail Improvement Project; and
- 2019–2020 Construction of the Deltaport Truck Staging Facility.

Previous studies have demonstrated that water and sediment quality within the Project area are within the range of levels expected in an estuarine environment. Coal dust has been introduced to the marine environment as a result of activities at Westshore Terminals, however, past studies have shown that there are no appreciable sediment contamination issues in the Project area (Review Panel 2020). Elevated copper, cadmium and inorganic arsenic concentrations greater than the Canadian Interim Sediment Quality Guidelines are known to exist and are attributed to naturally occurring conditions at Roberts Bank (Review Panel 2020).

5.3 Biological Setting

The Project is located on Roberts Bank, which is a complex ecosystem that consists of intertidal and subtidal mudflats formed by the delta of the Fraser River. Marine shipping will occur through the southern Georgia Strait and Juan de Fuca Strait, within the Salish Sea.

The climate is strongly influenced by the surrounding mountains. During winter, low-pressure systems move in from the Pacific Ocean and lead to heavy precipitation; long periods of warm, sunny weather typically occur from April to September. The marine and terrestrial environments in Delta are widely acknowledged for having rich ecological significance that includes marine mammals, fish, and migratory birds. Roberts Bank consists of salt marshes, near the high-tide level, that gives way to gently sloping mudflats divided by tidal channels and hydraulic bedforms. Outside of the bedforms, marine vegetation and other habitats have developed. Roberts Bank, including the inter-causeway area, supports extensive native eelgrass beds (Hemmera 2015).

In the Salish Sea, there are an estimated 37 species of mammals, 172 species of birds, 253 species of fish, and more than 3,000 species of invertebrates (Gaydos and Brown, 2011). Of these 113 species are listed as threatened, endangered or are candidates for listing(Gaydos and Brown, 2011).

On the mud surface of Roberts Bank, a biofilm is produced as diatoms and bacteria settle out of the seawater and bind to the mud, providing nutrient-rich forage for shorebirds, particularly sandpipers. The biofilm is predominantly located to the northwest of the causeway closer to the mouth of the Fraser River, with minimal biofilm in the inter-causeway area (Hemmera 2014).

The Project falls within the migratory Pacific Flyway and the Fraser River Estuary Important Bird Area (IBA). The IBA forms one of the richest and most important ecosystems for migrant and wintering waterbirds in Canada (IBA Canada 2020). The link between shorebirds and biofilm, eelgrass and other marine habitats is also an important ecological consideration.

Roberts Bank neighbours one of the main entry channels into the Fraser River for the largest salmon run in BC. All five species of pacific salmon use the tidal marshes for food, shelter and acclimatization to saltwater. Other fish drawn to Roberts Bank include white sturgeon, green sturgeon, steelhead and anadromous cutthroat trout. Visiting herring, eulachon, flounders and sculpins are a food source for diving and wading birds.

Marine mammals such as orca, harbour seals, California sea-lions, and other whale species also frequent the area (Government of BC 2020a). The Project is within the SRKW Critical Habitat.

Environment Canada, Metro Vancouver and the Fraser Valley Regional District operate a network of air quality monitoring stations in the Lower Fraser Valley. The pollutants monitored at these stations include particulate matter, ozone, sulphur dioxide, nitrogen oxides, carbon monoxide, ammonia and volatile organic compounds (FVRD 2020). Metro Vancouver's GIS Airmap indicates that the nearest air quality monitoring station to the Project area is located in Tsawwassen.

Table 9 in Section 3.3 provides an overview of parks and protected areas in the vicinity of the Project.

5.4 Human Environment Setting

5.4.1 Socio-Economic Setting

The Project is located within the boundaries of the City of Delta which includes three urban communities: Ladner (administrative centre), Tsawwassen and North Delta. Other communities include Boundary Bay and TFN. TFN is the closest community occupying the foreshore and lands between the Deltaport causeway on Roberts Bank and the BC Ferries Tsawwassen Terminal causeway. The communities of Ladner and Tsawwassen are approximately 9 km away by road although the line-of-sight distance to Tsawwassen is only approximately 3 km over mostly open water. North

Delta is significantly further away to the east (28 km). TFN community's, as well as other Indigenous groups, proximity to the Project are described in Section 7.1. The City of Delta is bordered by the Fraser River to the North and the Canada-US border to the south. Land use in Delta is a mixture of urban and industrial (28%), conservation and recreation (21%), and agricultural land (51%) (Metro Vancouver 2020).

In 2016 the population of Delta was estimated at 102,000 people of whom 22,193 resided in Ladner, 21,588 in Tsawwassen and 60,000 in North Delta. In 2016, the median age was 45.3 years and seniors (defined as adults aged 65 years and older) made up 20% of the population. The population exhibits a marked ageing trend, and the percentage of seniors is expected to increase drastically to 41% by 2024. Over the five-year period from 2011 to 2016 the population grew at a modest rate of 2.3% or approximately 0.48% annually. Over the same period, the size of the labour force registered similar growth of 2.5%, reaching 54,370 persons in 2016 with the labour force participation rate of 64%. In 2016, the unemployment rate in Delta was 5.3%, lower than that of the rest of the Metro Vancouver area (5.8%). Over 12.6% of the labour force was self-employed. On average, the level of educational attainment is high, with over 40% of adults possessing a university degree, 26% college degree or diploma and 26% high school diploma (Statistics Canada, 2016).

Delta has one of the fastest rates of industrial growth in the Greater Vancouver Area (Delta 2020; Statistics Canada 2016). Average household income is 30% higher than the Canadian average and most census respondents occupied single-family detached homes in 2016 (Statistics Canada 2016). Leading industries and major employers include aerospace, manufacturing, construction, energy, transportation, deep sea and river shipping, communications and tourism. The local and regional economy is largely driven by the activities at Deltaport – the largest container terminal in Canada (Trade and Invest British Columbia 2020).

The Roberts Bank Rail Corridor runs out to the existing GCT Deltaport Container Terminal and connects to the BC Rail Line. Major roads in the vicinity include the South Fraser Perimeter Road, Highway 17A, Highway 99, Highway 91, and Deltaport Way. BC Ferries' Tsawwassen Terminal is located approximately 2 km to the south of the DP4 Project. Ferry service from Tsawwassen Terminal runs to Vancouver Island (Swartz Bay and Duke Point) and several ports of call in the southern Gulf Islands. The Canada-US border, separating Delta from the small US community of Point Roberts, defines the southern boundary for Delta. Services in Delta are concentrated in Ladner and Tsawwassen.

While outside of GCT's care and control, the Projects marine shipping may affect the communities located within the Southern Gulf Islands and the coast of Vancouver Island. These communities include Sidney, Victoria, Sooke and Port Renfrew.

Vancouver Island is the second most populous economic region in BC. It has experienced a steady population and economic growth. The population grew 1% in 2016, 1.3% in 2017 and 1.3% in 2018. The largest employers are health care and social assistance sector (59,400 people), wholesale and retail trade (56,000) and construction (36,000) (BC Stats, 2018).

Indigenous and coastal communities are closely connected to the marine environment and rely on marine resources to sustain their livelihoods. They depend on the Salish Sea for its marine biodiversity, culturally significant marine mammals and fish species and economic opportunities, primarily in tourism and commercial fishing, and recreation.

Approximately 11,000 large cargo vessels transit the Salish Sea annually. With major resource development and infrastructure projects under way, the vessel traffic in the Salish Sea is expected to increase. Through the environmental assessment processes for such projects and organizations such as the Islands Trust, coastal and

Indigenous communities have expressed concerns over the increased levels of marine shipping activity, and anchorage activity within the Salish Sea.

5.4.2 Human Health Setting

Delta residents have access to high-quality health care, community services and recreational facilities which are reflected in the above-average level of population health. A healthy community is a priority identified in the City's Community Development Plan and includes the allocation of funds and support to services, such as mental health, drug use and addiction, poverty, and food security (City of Delta 2017).

The Deltaport container terminal is located approximately 3.5 km away from the nearest residence. Noise and vibration from ships, machinery, and existing road and rail traffic entering and exiting the terminal have long been a concern for Tsawwassen and Delta residents (City of Delta 2019). A desktop assessment of publicly available documents revealed no existing seasonal or temporary residencies in the vicinity of the Project, such as seasonal trappers' cabins, wilderness resorts or housing for seasonal farmworkers. As the Project proceeds, information will be updated if such residencies are identified.

The light and visual landscape out into the Georgia Strait is dominated by Westshore, GCT Deltaport and the BC Ferries terminal. These facilities have been part of the visual landscape for residents of Delta and Tsawwassen since the 1950s.

Air quality in Delta is generally good as the area is flat and is exposed to ocean breezes from the Strait of Georgia. Delta is an urban-agricultural community, therefore residents are sometimes exposed to farming-related odours. Air emissions from trucks, trains, ships, and equipment are largely associated with the operation of the Roberts Bank and BC Ferries terminals.

5.4.3 Heritage Setting

There have been several archaeological studies over the decades in the area (Arcas 2008; Vancouver Port Authority 2005; Millennia Research Limited 2004), but, in general, archaeological finds have been quite limited. An archaeological impact assessment conducted as part of the DP3 environmental assessment concluded that there were no archaeological sites in the area (Vancouver Port Authority 2005).

An archaeological overview assessment, conducted as part of the environmental assessment of RBT2, recorded three archaeological sites within the proximity of the RBT2 project area. DgRs-2 site consists of a large shell midden and is located on the Tsawwassen Indian Reserve, approximately 3.5 km southeast of the Gulf Siding at 41B Street. DgRs-9 site is located 4.3 km to the south of the Gulf Siding and consists of shell midden deposits. Several artifacts and various human remains were encountered at this site, suggesting it was a burial ground ca. 900 before the present. DgRs-11 site is located approximately 50 m northeast from DgRs-9 and consists of disturbed shell midden deposits (Millennia Research Limited 2004).

GCT recognizes that heritage is not limited to known archeological and cultural sites, and will conduct an Archaeological Overview Assessment and other relevant studies, as required, as well as work with the Indigenous groups to ensure key aspects of culture and heritage are assessed.

6 POTENTIAL EFFECTS OF THE PROJECT

6.1 Potential Effects in Relation to *Impact Assessment Act* Requirements

Potential effects that relate to IAA requirements have been identified based on the past environmental studies described in Section 5.1. These relate to the following:

- Fish and fish habitat, as defined in subsection 2(1) of the *Fisheries Act*;
- Aquatic species, as defined in subsection 2(1) of the *Species at Risk Act*; and
- Migratory birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act*, 1994.

The potential effects are presented in Table 13. As a result of the biological setting in the marine environment on Roberts Bank, as described in Section 5.3, these potential effects are expected to be at the core of the environmental assessment.

Table 13: Potential Effects in Relation to Impact Assessment Requirements.

Component	Potential Effect	Activities and Anticipated Pathway of Effect	Potential Mitigation and Offsetting
Fish Habitat	Changes in fish habitat (Harmful Alteration, Disruption or Destruction), e.g., eelgrass and intertidal marsh, although no intertidal marsh identified within the DP4 footprint (Hemmera 2015)	Terminal and railyard expansion construction, dredging infilling and potential disposal at sea leading to direct destruction or secondary effects, e.g., change in water quality, leading to alteration of fish habitat. During operations direct effects, e.g., propeller wash or dendritic channel formation, or secondary effects, e.g. changes in water quality due to an increase in wastewater discharge and propeller wash.	Expansion of the existing terminal to minimize footprint. Scour protection and control structures to reduce the risk of dendritic channels. Minimizing dredging footprint within engineering design Habitat offsetting. Reuse of dredged material to minimize disposal at sea.
Fish	Effects on fish, e.g., crab	Terminal construction and railyard expansion, dredging, infilling, disposal at sea and associated marine transportation leading to underwater noise, burial/crushing, increased reduced water quality, effects on migration. Changes in water quality or underwater noise during operations, including marine shipping.	Construction timing windows to avoid key fish life stages and migrations. Operational requirements of ships at berth to avoid discharge of deleterious substances. Stormwater management upgrades. Voluntary ship speed restrictions and routing to reduce vessel noise and risk of marine mammal strike (outside GCT care and control).

Table 13: (Cont'd.)

Component	Potential Effect	Activities and Anticipated Pathway of Effect	Potential Mitigation and Offsetting
Aquatic Species at Risk	Harm or disturbance of listed species, e.g., southern resident killer whale, stellar sea-lion Changes in critical habitat	Terminal construction and railyard expansion, dredging, infilling, disposal at sea and associated marine transportation leading to underwater noise, reduced water quality, destruction of critical habitat. Shipping leading to underwater noise or vessel strike. Reduction in prey species.	Construction timing windows to avoid species-at-risk. Mitigations and offsetting for fish habitat. Voluntary ship speed restrictions and routing to reduce vessel noise and risk of marine mammal strike (outside GCT care and control). Implementing measures that result from the Section 11 Conservation Agreement to support the recovery of SRKW (outside GCT care and control) (A Species at Risk Act Section 11 Conservation Agreement 2019).
Migratory Birds	Disturbance during construction and operations. Changes in habitat, e.g., eelgrass, biofilm, although minimal coverage of biofilm in the inter-causeway area (Hemmera 2015).	Terminal construction and railyard expansion, dredging and infilling, leading to physical disturbance, noise and light, change in habitat or mortality due to collisions. Disturbance due to increased noise and light during operations. Disturbance or mortality risk from increased traffic (road, rail, and shipping).	Avoidance of biofilm Construction timing windows to avoid bird nesting and migrations. Habitat offsetting. Measures to reduce light, such as the continued installation of LED technology. Further information is provided in Section 6.3.

Through the environmental assessment and other permitting processes, GCT is committed to assessing these changes, and either avoiding, mitigating or offsetting the Project effects. As identified in Section 2.3.4, through the environmental assessment process, as more information becomes available, other physical activities associated and incidental to the Project with potential effects may be considered such as short sea shipping and the TFN marina.

6.2 Potential Environmental Effects on Federal Lands in a Province Other than the Province in which the Project is Proposed to be Carried Out or Outside Canada

The Project footprint is predominantly on federal lands. No changes to the environment are anticipated in a province other than the province of BC, in which the Project is proposed.

Potential Project effects in relation to federal IAA requirements are discussed in Section 6.1. Potential Project effects relating to the following components are discussed in Section 6.3 to 6.7:

- Air and Noise;
- Waste;

- Socio-economic;
- Human Health; and
- Heritage.

Potential Project effects relating to accidents and malfunctions are presented in Section 6.9. Other potential Project effects that do not relate to these components are presented in Table 14. All of these Project effects may occur within or outside of federal lands.

Table 14: Other Potential Effects of the Project.

Component	Potential Effect	Activities and Anticipated Pathway of Effect	Potential Mitigation and Offsetting
Wetlands	Changes in wetland habitat, although no intertidal marsh identified within the DP4 footprint (Hemmera 2015)	Terminal construction, dredging leading to direct destruction or secondary effects, e.g., change in water quality, leading to effects of wetlands. During operations secondary effects, e.g. changes in water quality	Expansion of the existing terminal to minimize footprint. Scour protection and control structures to reduce the risk of dendritic channels. Habitat offsetting.
Wildlife	Effects on terrestrial wildlife	Terminal construction and operations, e.g., noise, light, increased road traffic.	Shore Power. Continued installation of LED lighting. Use of electric and/or high-efficiency cranes and other equipment. Auto decoupling tractor-trailers. Short sea shipping.

The Project is approximately 2 km from the border of the US, and ancillary activities associated with marine shipping will transit through US waters. Table 15 below provides a list of changes that, as a result of carrying out the Project may occur outside of Canada. These potential changes will be further explored through the assessment process.

Table 15: Changes that May Occur Outside of Canada Due to the Project.

Component	Potential Project Related Changes Outside of Canada
Air Quality	• Increases in some criteria air contaminants during operations due to marine shipping.
Noise and Vibration	• Increases in perceptible noise levels during construction and operations due to material handling and shipping.
Light	• Minimal increases in light trespass and sky glow levels.
Marine Sediment and Water Quality	• Temporary increase in turbidity and sediment deposition during construction following sediment re-suspension (dredging and disposal at sea).
Underwater Noise	• Increased underwater noise during operations due to marine shipping.

6.3 Atmospheric Emissions

Project activities associated with the construction and operations phases have the potential to produce and emit criteria air contaminants (CACs), GHGs, as well as change levels of light, noise and vibration.

CACs are defined as emissions of criteria air contaminants that contribute to smog, poor air quality and acid rain. CACs include particulate matter, carbon monoxide, nitrogen oxides, Sulphur Oxides, Volatile Organic Compounds and ammonia. GHGs are emitted from internal combustion-powered vehicles and equipment and contribute to climate change.

During Project construction, dust and particulate matter may be generated during site preparation, transport of materials, crews and equipment, soil transfer, infilling and wind erosion from stockpiles of fill material. There is also a potential for short-term emissions of GHGs from the transportation of equipment, crews and materials, and the use of construction equipment (including non-road diesel engines, generators and light plants). Potential exposure pathways include dust from roads, soil stockpiles and site preparation activities, vehicle and equipment exhausts, and handling and stockpiling of debris and soils. Air quality and dust-related issues are expected to be temporary and limited to working hours, with the exception of exposed soils, which could potentially generate dust if left uncovered under dry conditions. Dust emissions will be limited to the extent of the site boundaries and major haul roads.

Changes in air quality due to construction and operational activities may interact with Indigenous health, social or economic conditions, as described in Section 6.8.

During the construction phase of the Project, short-term sources of emissions with potential to affect the atmospheric environment shall be managed through standard mitigation measures which shall be detailed in the Construction Environmental Management Plans, e.g., measures such as road watering during dry conditions to limit the spread of dust beyond the Project boundaries.

During Project operations, the primary sources of air emissions will include movement of marine vessels, cargo handling equipment, and vehicle movements. GCT and the VFPA introduced a shore power system at GCT Deltaport Berth 3 in November 2019. This technology allows vessels to plug into the electrical power grid (which is predominantly hydroelectric based) at GCT Deltaport and turn off their auxiliary diesel engines while docked. This reduces fuel consumption and eliminates up to 95 tonnes of air pollutants per vessel – equivalent to removing 20 vehicles off the road for one year. The proposed terminal expansion at DP4 will provide further shore power connections.

Project emissions sources during operations will be managed through adherence to best management practices, regulatory requirements, and guidelines. Operational activities and emission sources of DP4 will be similar to existing operations and therefore the EMS will only require updates to cover the additional capacity and reconfiguration of some areas of the terminal, and to incorporate additional activities. GCT's EMS contains procedures for managing ozone-depleting substances and plans are regularly reviewed and updated to ensure compliance with environmental regulatory requirements.

Project-related light may also affect the atmospheric environment due to temporary lighting required for construction, and additional permanent lighting required for operations. Construction activities will primarily take place during daylight hours, so light trespass and sky glow are anticipated to primarily result from operational activities, including new high mast lights on the expanded terminal and lighting installed on the new ship-to-shore

gantry cranes. The effects of lighting from marine ships are expected to be less than operational activities as container ships have a temporary and lower luminous output and generally move during the day.

Light pollution will be managed by engaging affected parties and developing designs and plans to address light trespass and sky glow, including best management practices associated with minimizing the number of light installations, orientating lights away from residential and marine areas, and restricting the time of operations for exterior lights, while ensuring employee safety.

Increased levels of noise and vibration are anticipated to result primarily from temporary construction activities such as pile driving and soil compaction and operational activities associated with rail shunting, cargo handling and marine ship movements. The environment surrounding Robert's Bank is already influenced by noise and vibration from the existing Roberts Bank terminal, the BC Ferries terminal, road and rail traffic, and the Project would contribute to daily noise levels. The Project has the potential to affect both people and wildlife within the marine shipping area and within communities closest to the project, such as Delta and the TFN.

GCT will explore opportunities to reduce effects associated with increased noise and vibration by developing plans prior to the start of construction that limit construction noise, regularly maintaining equipment, carrying our noise effects awareness training for staff, and notifying local residents of construction activities.

The Project falls under Metro Vancouver's Integrated Air Quality and Greenhouse Gas Management Plan, described in Table 12. Table 16 provides an initial list of potential effects of atmospheric emissions.

Table 16: Potential Atmospheric Emissions.

Atmospheric Emissions	Potential Effect	Activities and Anticipated Pathway of Effect	Potential Mitigation
CACs	Change in air quality, including sulphur dioxide, nitrogen oxides and dust.	Construction: Increased emissions associated with fossil fuel-powered vehicles and equipment. Dust through soil transfer, infilling and wind erosion from stockpiles of fill material. Operations: Increased emissions associated with fossil-fuel-powered equipment, shipping, road and rail.	Shore Power. Use of electric and/or high-efficiency cranes and other equipment. Auto decoupling tractor-trailers. Short sea shipping.
GHGs	Change in GHG contributing to climate change	Increased emissions from fossil fuel-powered vehicles and equipment (including non-road diesel engines, generators and light plants).	
Light	Change in light trespass and sky glow levels	Increased lighting to support Project activities, primarily during nighttime operations.	
Noise and Vibration	Change in noise and vibration in the upland and over marine surfaces	Construction: Increased noise and vibration resulting from activities, such as pile driving and compaction. Operations: rail operations, container handling adjacent to the Project. Increased noise from shipping, road and rail.	

6.3.1 Greenhouse Gas Emissions

GCT has a track record of sustainability excellence and greenhouse gas (GHG) emissions reductions which will extend to the DP4 Project design and operations. GCT's achievements include achieving top levels in the Green Marine certification system for all its terminals and achieving an annual reduction of 3.3% in GHG emissions intensity (per TEU) across its Canadian operations. GCT also measures its carbon footprint and calculates emission as per the GHG Protocol Corporate Accounting and Reporting Standard.

The Government of Canada's Strategic Assessment of Climate Change (Government of Canada, 2020a) guidance document has informed GCT's approach to estimate the Project's GHG emissions (in CO_2 equivalent units) for this Initial Project Description, as described in Table 17.

The assessment estimates emissions from the Project and net emissions or avoided relative to what would occur in the absence of the Project (i.e., a base case or business as usual scenario). The expansion in terminal capacity provided by the Project is necessary to meet growing demand in western Canada. In the absence of the Project, this capacity would need to be met by another project. For the base case, we assume the replacement project is an expansion of an existing port, acknowledging, as identified in Section 2.5, existing port expansion at other terminals is not feasible at this time. This selection is conservative, as it is the most economical and lowest emission method of adding terminal capacity. Base case emissions are modelled using actual GHG emissions from the existing Deltaport facilities, including forecasted emissions reductions. Choosing this modelling approach aligns with GHG quantification principles: conservativeness by using a modern, efficient site for the base case; accuracy by using real, not estimated data; and consistency, by aligning conditions and boundaries of the Project and base case.

The approach used to establish the Project and base case boundaries and emissions estimates are consistent with the Climate Lens[1], the guidance referred to in the Strategic Assessment of Climate Change, ISO 14064-2:2019[2], and the GHG Protocol for Project Accounting[3]. GHG emission sources, sinks and reservoirs include direct emissions (scope 1) and indirect energy emissions (scope 2). The GHGs considered in the process include carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), converted into CO_2 equivalent units (tCO_2e). The approach follows the principles of GHG Project Accounting as recommended by the Climate Lens, which is used to ensure the inventory represents a faithful, true and fair account of total and net GHG emissions.

Emissions or removals that are of consequence to the Project but occur at GHG sources or sinks not owned or controlled by GCT, including marine shipping, truck and rail locomotives emissions, are not included in the scope of the GHG quantification specified by the Strategic Assessment of Climate Change.

The Project will aim to avoid or reduce emissions by switching from fossil fuel equipment to low-carbon fuels, hybrid and electric equipment and reduce energy consumption through efficient operations and management systems. Initial estimates from these measures have been included in the Project's GHG emissions profile, including:

- Electrified yard cranes;

[1] https://www.infrastructure.gc.ca/pub/other-autre/cl-occ-eng.html
[2] ISO 14064-2:2019 – Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements
[3] The Greenhouse Gas Protocol for Project Accounting (World Resources Institute/World Business Council - Revised Edition)

- Hybrid, or alternative fuel container handlers; and
- Hybrid, electric or battery-powered light-duty vehicles.

While not included in the scope of this assessment, the Project is also forecasted to reduce indirect emissions from the following activities:

- Provide ships access to shore power, reducing the need to burn fuel while at berth;
- Accommodate larger ships to use the terminal, reducing the number of ships needed to transport goods;
- Ability to move containers via lower-emitting short sea shipping instead of road or rail;
- Layout and configuration improvements to reduce travel distances for support equipment;
- Market greater capacity to load containers onto rail as opposed to road, thereby reducing emissions required to transport goods from the terminal;
- Reduce truck idling time by improving truck flows and travel distances and managing a improved and robust container reservation system; and
- Adding ship capacity through the fourth berth will further optimize the rail yard and will be an attractive proposition to global shipping alliances (bigger ships, fewer calls).

Table 17 shows the preliminary GHG estimates for the Project and base case and the net GHG emissions between them. Net GHG emissions are the emissions reduced by the Project relative to the base case. In this assessment, all emissions from the Project and base case occur within Canada.

Table 17: Estimated GHG Emissions for Direct (Scope 1) and Indirect Energy (Scope 2).

Phase	Duration	Base case emissions	Project scenario emissions	Net GHG emissions
Construction	4 years	42,778 tCO_2e/y	42,778 tCO_2e/y	0 tCO_2e/y
Operation and maintenance	> 50 years[+]	12,884 tCO_2e/y	5,214 tCO_2e/y	-7,669 tCO_2e/y
Decommissioning	N/A	N/A	N/A	0 tCO_2e
Total	**> 50 years[+]**	**17,483 tCO_2e/y**	**10,993 tCO_2e/y**	**-6,489 tCO_2e/y**

[+]Annual average emissions are based on construction from 2025-2028 (4 years) and operations from 2029-2050 (22 years). Note the project is anticipated to operate well beyond 2050.

Table 18 below presents the estimated GHG emission intensity for operation and maintenance phase and the annual GHG emissions average.

Table 18: Estimated GHG emission Intensity.

Phase	Container shipments (TEU/yr)	Base case ($kgCO_2e$/TEU)	Project scenario ($kgCO_2e$/TEU)	Net or relative difference ($kgCO_2e$/TEU)
Operation and maintenance, excluding construction	1,324,210	9.7	3.9	-5.8
Operations and maintenance, including construction	1,324,210	15.6	9.8	-5.8

Note: Production and emissions intensities are based on construction from 2025-2028 (4 years) and operations from 2029-2050 (22 years). Note the project is anticipated to operate well beyond 2050.

Based on the initial estimate above and in alignment with the Strategic Assessment of Climate Change, the Project is anticipated to:

- Generate 285,827 tCO_2e total emissions including construction, operations and decommissioning, equivalent to 10,993 tCO_2e per year over the life of the Project up to 2050.
- Produce 168,723 tCO_2e less total emissions relative to an alternative project required to meet increasing container terminal demand among Canadian west coast ports, equivalent to 6,489 tCO_2e per year over the life of the Project up to 2050.

This assessment presents initial GHG estimates. GCT will continue to refine and report on the Project's GHG estimates in the Detailed Project Description and assessment process, including:

- Presenting complete results including annual GHG forecasts through construction and the life of the Project;
- Refining GHG calculations as more detailed Project design information becomes available;
- Systematically reviewing additional GHG mitigating technologies and approaches for design, construction and operations; and
- Exploring the potential for achieving net-zero emissions by 2050 through on-site reduction measures and purchasing offsets.

6.4 Solid, Liquid and Hazardous Waste

During the construction of the Project, wastes produced will either be disposed of in accordance with applicable regulations or will be reused or recycled where feasible.

As described in Section 2.3.2, GCT has an EMS for GCT Deltaport that will be updated to incorporate DP4. The EMS includes Environmental Operating Procedures specifically for the management of wastes, including designated roles and responsibilities and instructions for the safe, environmentally responsible and economical storage and disposal of hazardous and non-hazardous waste streams. Waste streams from DP4 will be very similar to existing and therefore GCT has the necessary procedures and permits already in place to manage waste during operations.

Solid, liquid and hazardous waste generated during the life of the Project are summarized in Table 19.

Table 19: Potential Solid, Liquid and Hazardous Waste for the Project.

Waste Type	Waste Examples	Potential Mitigation
Solid Waste	• Packing materials from the shipping of Project components for construction. • Construction waste, including wood, metal and concrete. • Municipal waste, including paper, plastics and glass during both construction and operations.	Waste management plan for segregation and recycling schemes during construction. Waste management requirements under existing GCT Deltaport EMS.
Liquid Waste	• Wastewater during terminal operations.	Treated and effluent discharged under the existing *Environmental Management Act* waste discharge permit, that will be amended for an increase in flow, as required. Management of ship wastes at berth under existing EMS and GCT Canada Vessel Manual.
Hazardous Waste	• Waste oils, petroleum products and solvents. • Batteries. • Oil filters. • Chemical cleaning fluids. • Paints. • Antifreeze.	Hazardous waste management within Waste Management Plan for construction, including storage, transportation and disposal requirements. Waste management requirements under existing GCT Deltaport EMS, including reduction.
Stormwater	• Discharges of stormwater resulting from precipitation.	Upgrades to the existing stormwater management system and discharge as per the existing EMS, which will be amended for an increase in flow, as required.

6.5 Potential Socio-economic Effects

The Project is situated in a large, regional, urban economy with a large, diverse, and mobile labour market and is unlikely to cause adverse (i.e., upward) pressure on wages or rents for local businesses in Delta. Project economic effects are expected to be beneficial, as the Project will generate new employment and contracting opportunities. Direct employment opportunities are anticipated in trades and related occupations, with some opportunities in professional occupations such as engineering. Indirect employment and contracting opportunities will be generated through businesses that supply goods and services to the Project.

Increased road and marine traffic as well as construction-induced closures and detours may temporarily impact access to land and marine areas used for recreational and commercial activities.

Increased road, rail and marine traffic as well as construction-induced closures and detours may temporarily impact access to land and marine areas used for recreational and commercial activities. TFN and Delta residents have expressed concerns over traffic congestion due to the road and rail (crossings) traffic associated with the Roberts

Bank terminals. A traffic impact assessment will be conducted to better understand changes in traffic volumes and determine the required improvements to transportation infrastructure, in collaboration with municipal governments, Indigenous groups, BC Ministry of Transport and Infrastructure, and the rail companies. Traffic management plans will be developed for construction and operations.

The Project is aligned with the National Trade and Transportation Corridor Initiative to build stronger, more efficient transportation corridors to international markets, and is aligned with the Provincial commitment to continually improving western trade corridors and encouraging investments that will help importers and exporters get goods to market, quickly and efficiently. GCT believes the proposed DP4 Project is also aligned with the Metro Vancouver's Regional Growth Strategy, the economic development objectives of the City of Delta, and the general directions set out in the TFN Land Use Plan for industrial lands. Furthermore, the Greater Vancouver Board of Trade has repeatedly noted that the Pacific Gateway is estimated to support over $32 billion in Canadian GDP, nearly $3 billion in BC alone, and having the right port capacity was of national importance.

Potential socio-economic effects are summarized in Table 20.

Table 20: Potential Socio-economic Effects.

Component of Human Environment	Potential Effect	Activities and Anticipated Pathway of Effect	Potential Mitigation
Employment and contracting	• Change in the local labour force. • Change in local levels of employment and income. • Change in levels of local business activity.	Project expenditures, employment and contracting during construction and operation will result in increased levels of local employment and income, as well as local business growth.	Develop employment and procurement plan to prioritize local employment and contracting.
Access	• Change in access to areas used for recreational and commercial activities, e.g., crab fishing.	Navigational closures and detours during construction may temporarily limit access to land and marine areas used for recreational and commercial activities.	Develop a traffic management plan to monitor and control road and marine traffic. Temporarily restrict access only to those areas that present a risk to public health and safety.

Although outside the care and control of GCT, there is potential for upgrades to the railway that could affect the ALR, specifically the Province of BC's ALR Option Lands along Deltaport Way that have already been designated for future rail right-of-way. The rail upgrades required to support DP4 have not yet been assessed. GCT will continue to liaise with the rail companies, who would be responsible for the construction and operation of any upgrades.

Further details of these effects and potential mitigations strategies are discussed in Section 6.3 (atmospheric emissions), Section 6.9 (public and environmental safety) and Section 6.11 (potential cumulative effects).

6.6 Potential Effects on Human Health and Community Wellbeing

Human health values include air quality, noise, light pollution and accidents or malfunctions (DFO and Environment Canada 2006). The Project may result in adverse effects on human health through increased levels of air contamination, increased presence of dust and particles, and increased levels of noise and night-time lighting. The latter may result in rest and sleep disruptions which can be associated with increases in stress levels and adverse impacts on mental health. Accidents and malfunctions could potentially impact worker and public health and safety.

Potential human health effects are summarized in Table 21.

Table 21: Potential Effects on Human Health and Community Wellbeing.

Component of Human Environment	Potential Effect	Activities and Anticipated Pathway of Effect	Potential Mitigation
Human health	• Change to physical health • Change to mental health • Change to public health and safety	Exposure to air emissions during DP4 construction and operation and through incidental activities such as marine shipping and rail and road transportation, may affect human health and a general sense of well-being. Increased levels of noise and vibration may cause disturbance and disrupt rest and sleep, which, in turn, may affect mental and physical wellness.	Conduct a human health risk assessment. Develop environmental management and monitoring plan to monitor and control emissions and discharges to soil and water. Develop an occupational health and safety plan and a public health and safety plan to monitor and control levels of noise and light emissions. Develop protocols and procedures to prevent and manage accidents and malfunctions. Collaborate with municipal governments, Indigenous groups, BC Ministry of Transport and Infrastructure, and the rail companies to implement infrastructure upgrades and operational plans to manage increases in shipping, rail, and road transportation.
Visual	• Change in viewscape	Expansion of terminal and additional infrastructure equipment, e.g., cranes	Expansion of existing terminal reduces the change in viewscape. Selection of equipment and infrastructure design.

6.7 Potential Heritage Effects

Project activities, e.g. excavation or dredging, during construction may result in disturbance and/or destruction of archaeological materials and thus affect the integrity of the site and its potential physical and cultural heritage. Potential heritage effects are summarized in Table 22.

Management plans, chance find procedures, crew training and qualified monitors will be in place in accordance with requirements of the Archaeology Branch of FLNRO to ensure no unintentional destruction or disturbance of archaeological or heritage values. Although not anticipated, if an archaeological site is encountered within the proposed DP4 Project footprint, the Project will proceed, at minimum, with procedures in accordance with conditions of a Section 12.4 Alteration permit under the *Heritage Conservation Act*. Any permitted alteration or mitigation of the site will be done with appropriate levels of consultation and collaboration with TFN, the Musqueam Indian Band, the Tsleil-Waututh Nation, Semiahmoo First Nation and other Indigenous groups, to develop appropriate mitigations to address potential heritage effects. The Project will also comply with requirements of the City of Delta's bylaws for Designated Heritage Properties.

GCT is committed to working with Indigenous groups and regulators to develop appropriate mitigation and monitoring plans to address potential Project effects, including those related to physical and cultural heritage values.

Table 22: Potential Heritage Effects of the Project.

Heritage and Culture Component	Potential Effect	Activities and Anticipated Pathway of Effect	Potential Mitigation
Physical and cultural heritage	Damage, disturbance or destruction of sites or materials.	Construction activities (e.g., excavation or dredging) may impact the integrity of sites or materials pertaining to physical and cultural heritage.	Avoid sites with potential physical and cultural heritage value. Conduct AOA in accordance with the Guidelines and Objectives set forth in Archaeological Overview Assessments as General Land Use Planning Tools – Provincial Standards and Guidelines (2009). Influenced by AOA findings and if deemed necessary, conduct Archaeological Impact Assessment.
Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance	Damage, disturbance or destruction of structure, site or thing of significance.	Construction activities (e.g., excavation or dredging) may impact the integrity of any structures of importance	Conduct AOA to determine presence of structure, site or thing of potential cultural significance. If presence is detected, avoid structure, site or thing. Conduct Archaeological Impact Assessment, if deemed necessary.

6.8 Potential Effects of Project-Related Changes on Indigenous Peoples

This section summarizes identified potential effects of Project-related changes on Indigenous groups known at this time. Information was compiled during Project engagement activities and also informed by previous environmental assessments and regulatory processes undertaken by other projects in the vicinity of the DP4 Project. Table 23 lists potential Project-related effects to Indigenous groups resulting from Project activities. Incidental Project activities (i.e. marine shipping, short sea shipping and road/rail transportation) may also affect health, social and economic conditions for Indigenous groups and will be further explored through the environmental assessment. GCT is committed to continued engagement and consultation with Indigenous groups to better understand how they may be affected through all phases of the Project.

Table 23: Potential Effects on Indigenous Peoples.

Component	Potential Effects	Activities and Anticipated Pathway of Effect
Physical and cultural heritage	• Disturbance, loss or alteration to a structure, site, heritage resources or thing that is of historical, archaeological, paleontological or architectural significance. • Change in access to features of cultural importance.	Terminal construction dredging activities may impact the integrity of archaeological and cultural resources. Terminal construction activities may temporarily restrict access to features of cultural importance. Incidental physical activities, such as shipping, short sea shipping and increased road and rail transportation may increase the risk of damage, disturbance or destruction of physical and cultural heritage resources.
Current and Traditional use of lands and resources	• Changes to or infringements on areas of traditional land use • Effects and changes in practicing traditional or subsistence food collection including hunting, fishing, and gathering, e.g., crab. • Changes to and effects on preferred harvested species, e.g., crab, and habitat, in particular, marine resources, e.g., biofilm, intertidal marshes, eelgrass.	Terminal footprint and construction and operational activities, including marine shipping, overlapping with areas of traditional use, or limiting the ability to practice food collection. GCT will work with indigenous community to limit the impact to crab fishing and changes to no-float zones are expected to be minor. Terminal construction, dredging, leading to physical disturbance or change in habitat. Incidental project activities such as shipping, short sea shipping, and road and rail transportation may further contribute to cumulative effects (e.g., congestion, noise) and affect access to and availability and integrity of resources.

Table 23 (Cont'd.)

Component	Potential Effects	Activities and Anticipated Pathway of Effect
Health, social or economic conditions	• Changes to or potential interference with marine fisheries and shoreline harvesting, e.g., crab fishing. • Interference with marine tourism and recreation. • Changes that result in effects on diet and nutrition. • Potential environmental and safety risks due to accidents or spills both on land and at sea. • Change in air quality due to construction and operational activities. • Sensory disturbance due to associated Project light, noise and vibration. • Presence of employment, training and/or business opportunities.	Construction-induced navigational and access restrictions may temporarily limit access to land and marine areas used for recreational and commercial activities. Changes in navigational closures for operations, although these are expected to be minor. During the Terminal construction and operations phase there will be some emissions and dust released into the air. Exposure to these contaminants may affect human health and a general sense of well-being. Fuel or other spill or leak during construction or operations that occurs on land or enters the marine environment. Increased levels of noise and vibration may cause disturbance and disrupt rest and sleep. Interrupted or lack of sleep may cause stress. Stress can have implications for both mental and physical wellness. Opportunity for employment and contracting during the construction and operation phase will result in increased levels of local employment and income.
Indigenous rights, title or other interests	• Changes to accessibility and quality of traditional lands, waters and resources. • Changes to traditional economic and cultural activities. • Effects on established and asserted Aboriginal and Treaty rights, including the right to fish.	Terminal footprint, construction or operational activities, including marine shipping, which alter accessibility and quality of traditional land, water and resources which results in infringement on rights, title or other interests.

As summarized above, changes to the environment that may affect traditional activities of Indigenous groups in the area include changes to the terrestrial and marine environment and associated resources. Construction of DP4 could alter nearby marine habitats not previously impacted by current and past port or ferry facilities. Nearby vegetation may be altered or affected by site activities. This could, in turn, impact mammals, birds, or fish traditionally or currently used for food. Noise and light from the site could impact nearby animal populations, which in turn, could affect Indigenous groups' right to hunt or fish. Light and sound from the site, while a historic disturbance, may also affect the cultural uses of nearby sites by Indigenous groups.

Continued urbanization and increased trade, the driving forces behind the global expansion in container port activity, may place health pressures on Indigenous groups. Sources of diet and access to traditional subsistence foods could be placed under increased stress if not properly managed. Only by working with Indigenous groups can GCT identify these effects and work to minimize the effects on the communities. Further understanding of potential effects on Indigenous Groups through GCT's ongoing engagement throughout the assessment process is expected. GCT will continue to work with Indigenous groups to identify and develop appropriate mitigation measures and management plans in relation to these potential effects throughout the environmental assessment. The incorporation of a fishing boat marina, identified as a project component in Section 2.2, is an example of working with Indigenous groups to identify ways to accommodate fishing and other activities, where access to deeper water is not tide-bound, which is currently a limiting factor.

From an economic perspective, the TFN, as holders of one of Canada's more recent and modern treaties, have turned property ownership and business acumen into strong advantages. Commercial development within and near their treaty lands has increased householder incomes, employment levels and educational outcomes. If this is to continue GCT will need to work closely with TFN and other Indigenous groups to identify a progressive share of opportunity flows to the Indigenous groups that the Project most effects.

6.9 Public and Environmental Safety

GCT is a majority-owned Canadian company that has made a global commitment to safety, environment and social responsibility. GCT has been operating GCT Deltaport since it first opened in 1997 and since that time there have been no major accidents or malfunctions that resulted in an impact on the environment or the public. This includes times of previous expansion where the port remained operational during construction.

Potential accidents and malfunctions associated with the Project include, but are not limited to the following:

- Operation of marine vessels which could result in collisions, grounding, foundering, allision and/or spills; and
- Operation of land-based machinery and potential for motor vehicle and equipment accidents and equipment leaks and spills.

It is important to note that GCT Deltaport currently handles some hazardous cargo, and this percentage amount is not expected to change as a result of the Project.

Potential effects associated with these potential accidents and malfunctions are presented in Table 24.

Table 24: Potential Effects Associated with Accidents and Malfunctions.

Component	Potential Effect	Activities and Anticipated Pathway of Effect
Fish and Fish Habitat and Migratory Birds	Effects on fish, fish habitat and birds, e.g., reduction in water quality or smothering.	Fuel or other spill or leak during construction or operations that enters the marine environment.
Human health	Changes in air, water or sediment. May lead to shellfish contamination.	Fuel or other spill or leak during construction or operations.

GCT Deltaport has a comprehensive Emergency Response Plan that covers all potential major accidents and malfunctions, including defined strategies to prevent and mitigate environmental impacts associated with emergency events. The Emergency Response Plan was developed in conjunction with the site safety committee, Delta Fire, Delta Police, the VFPA and covers all applicable Federal, Provincial, and Municipal regulations. The Emergency Response Plan is reviewed and updated annually. In November 2019, GCT also participated in the first of several workshops hosted by the VFPA aimed at improving port-wide response to emergency situations involving container ships.

The design, construction and ongoing operation/maintenance of the Project will meet all stringent codes and standards requirements. Hazard identification, hazard and operability studies, and safety integrity studies will be conducted during each phase of engineering and design. Prior to the construction of the Project, all contractors will also be required to develop their own Emergency Response Plans that are aligned with and approved by GCT.

As per GCT's Emergency Response Plan, ongoing training, drills and practice emergency exercises are carried out with the site workforce, safety committees and emergency responders to ensure plans are understood and effective. Additionally, GCT has contracts with Quantum Murray Environmental (Emergency Response) and with Western Canada Marine Response Corporation (Transport Canada's Certified Marine Spill Response Organization) for 24-hour response, mitigation and clean up in circumstances where there is potential for a hazardous spill or leak.

While there may be a risk of an accident or malfunction associated with the Project, the track record of the existing operations, augmented by the spill containment design of the proposed Project suggests that procedures to guard against such accidents and malfunctions will be effective.

The environmental assessment will consider the potential accidents and malfunctions that may occur due to the construction and additional operational aspects of the Project at GCT Deltaport, the potential effects of such incidents and mitigation measures that will be implemented as part of the Project design.

Section 8.1, 7.3 and 8.2 describe engagement activities undertaken with the public, Indigenous groups and government, respectively, including any issues raised in regards to public and environmental safety and how these issues were considered by GCT.

6.10 Effects of the Environment on the Project

Through the environmental assessment, the potential effects of the environment on the Project will be considered. This includes both short-term, potentially weather-related construction effects and long-term climate change and associated sea level rise potential effects.

Seismic activity

Seismic activity on the west coast of Canada is common and each year the Geological Survey of Canada records more than 1,000 earthquakes in western Canada. The Pacific Coast is the most earthquake-prone region of Canada. The Project area is located in one of the areas of higher seismic risk designations in BC (Natural Resources Canada 2018). Seismic activity in the Lower Mainland is primarily related to the interaction between the Juan de Fuca Plate and the North American Plate. The largest type of earthquake related to plate movement is called a subduction quake where, in this case, the Juan de Fuca Plate is moving toward and underneath (or subducting) the North American Plate along the Cascadia Subduction Zone.

The Cascadia Subduction Zone is located approximately 100 km west of Vancouver Island. The last subduction earthquake in this zone was in January 1700. The range of recurrence, however, varies from 300 years to 800 years.

Design parameters and mitigation measures for the Project will include consideration of potential seismic effects. The assessment will consider seismic design criteria and site geology for Project construction and structure and component design. Past work and studies in the area have resulted in a great depth of knowledge of existing conditions within the Project area.

Tsunamis

The risk of Tsunamis for the Lower Mainland and Roberts Bank from seismic events that occur off the coast of Vancouver Island is low. However, there is a risk of tsunamis generated as a result of an undersea landslide occurring within the Salish Sea due to the presence of unconsolidated sediments in the vicinity of Roberts Bank. There have been five such events since 1970 (Hemmera 2012). The existing Roberts Bank Port facilities, including Westshore Terminals and the GCT Deltaport Container Terminal, have been in operation during the reported five previous undersea landslides at Roberts Bank, and no large waves have been recorded that have overtopped these terminals. Regardless, the Project will assess the potential effects of tsunamis regarding design, construction and operation.

Climate change and related sea-level rise

An increase in average global temperatures due in part to climate change is resulting in rising sea levels around the globe. In BC, sea level rise has occurred at a slower rate than the global average of 17 cm/century but is still observed to be 2.0 cm/50 years (The Arlington Group Planning + Architecture Inc., EBA, a Tetra Tech Company, DE Jardine Consulting, Sustainability Solutions Group October 2013).

A 2011 study for the Government of BC recommended sea level rise planning levels of 0.5 m (50 cm) to the year 2050, 1.0 m to the year 2100 and 2.0 m to the year 2200.

The Project's assessment will consider requirements such as design parameters in relation to potential sea-level rise.

Extreme weather and weather-related events

Canada and the Lower Mainland have been experiencing more frequent and higher magnitude extreme weather-related events. Given the coastal location of the Project, increased precipitation, windstorms and storm surges along with predicted sea-level rise can lead to delays and issues for the Project both during construction and operations.

Storm surge is one of the more common coastal hazards associated with sea-level rise. A storm surge refers to a temporary increase in the seawater level during a storm due to extreme meteorological conditions such as low atmospheric pressure and/or strong winds. A storm surge is independent of tide levels, but the impact may be magnified if it occurs during high tide.

It is anticipated that climate change will cause more intense and frequent storms in the northern hemisphere and that sea-level rise will increase the coastal areas at risk from these events. The assessment for the Project will consider both design and construction aspects in relation to potential storms and extreme weather events.

6.11 Potential Cumulative Effects

A cumulative effects assessment will be completed that considers the potential for residual effects of the Project on specific valued components (e.g., environmental, social, economic), combined with the effects of other past, current or reasonably foreseeable projects that overlap with the Project study areas. Other projects to be included in the cumulative effects assessment will be informed through additional engagement and may include, but are not limited to the following:

- BURNCO Aggregate Project, Gibsons, BC;
- VFPA's DPW Centerm Terminal Expansion, Vancouver, BC;
- Delta Grinding Facility Project, Delta, BC;
- George Massey Tunnel Replacement Project, Richmond and Delta, BC;
- Kinder Morgan Pipeline Expansion Project (a.k.a. Transmountain Pipeline), Burnaby, BC;
- Lehigh Hanson Aggregate Facility, Richmond, BC;
- Lions Gate Wastewater Treatment Plant Project, District of North Vancouver, BC;
- North Shore Trade Area Project - Western Lower-level Route Extension, West Vancouver, BC;
- Pattullo Bridge Replacement Project, New Westminster, BC;
- VFPA's Roberts Bank Terminal 2, Delta, BC;
- Southlands Development, Delta, BC;
- Fortis Tilbury Phase 2 LNG Expansion and Marine Jetty Projects;
- Vancouver Airport Fuel Delivery Project, Richmond, BC; and
- Woodfibre LNG Project, Squamish, BC.

The cumulative effects assessment will incorporate the available information from these other projects and activities, and their anticipated effects. The assessment may also include potential trans-BC boundary effects, such as those associated with air quality or GHG emissions. A detailed methodology for conducting the cumulative effects assessment and a rationale for the selection of other projects will be described in GCT's Impact Assessment.

7 INDIGENOUS ENGAGEMENT

7.1 Indigenous Groups

GCT is committed to working meaningfully with the Indigenous groups with an interest in the proposed Project. As currently defined, the Project falls within or near the traditional territories, lands ratified by treaty, or other recognized areas of various Indigenous groups.

A review of the Consultative Areas Database and of Indigenous groups identified in other recent environmental assessments have resulted in the preliminary identification of the following Indigenous groups whose established or asserted traditional territories encompass or are near the Project or associated marine shipping activities.

Table 25 provides a summary of the locations of each Indigenous group and approximate distance from the Project site to their administrative offices and reserve lands. The list is in alphabetical order and includes those with a reasonable possibility for their Nation or their rights recognized and affirmed under Section 35 of the *Constitution Act*, 1982 to be adversely affected by the Project. GCT will work with Indigenous groups and regulatory agencies through the early engagement phase to confirm the appropriate involvement of Indigenous groups in the Project's assessment.

GCT acknowledges that due to the challenges created by the COVID-19 pandemic and the number of projects in the region for consideration by each Indigenous group, capacity may continue to be a concern, even after many of their offices formally re-open. GCT is committed to providing capacity funding when requested that meets the needs of each Indigenous group.

Table 25: Identified Indigenous Groups.

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Beecher Bay (Sc'ianew) First Nation	The Sc'ianew First Nation, also known as Beecher Bay, is a band government located on southern Vancouver Island. The Sc'ianew First Nation's main community is on Beecher Bay in East Sooke, 30 km southwest of Victoria (Sc'ianew First Nation 2020). Sc'ianew's asserted traditional territory includes an area from west of the Saanich Inlet to the southern tip of Vancouver Island (BC Assembly of First Nations 2020). Sc'ianew First Nation has reserves, Beecher Bay 1 (202.7 ha), Becher Bay 2 (95.1 ha), Fraser Island 6 (5.7 ha), Lamb Island 5 (0.2 ha), Long Neck Island 9 (1.6 ha), Twin Island 10 (0.4 ha,) Village Island 7 (1.2 ha) and Whale Island 8 (0.8 ha) for a total of 307 ha (Government of Canada 2020b).	84

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Cowichan Tribes	The Cowichan Tribes is made up of seven traditional villages and nine reserves totaling approximately 2389 ha on southeast Vancouver Island (Cowichan Tribes 2020a). The asserted traditional territory of the Cowichan Tribes includes the region around Cowichan Lake, the Cowichan and Koksilah River drainages, the areas around Shawnigan Lake, Maple Bay, and Cowichan Bay, the southern Gulf Islands, and the region of the South Arm and mouth of the Fraser River (Cowichan Tribes 2020b). Cowichan IR 1, (2291.3 ha) (located in the Cowichan and Quamichan districts, approximately 46 km from the Project), Cowichan IR 9 (17.9 ha) (located near the mouth of Koksilah River at the head of Cowichan Bay, approximately 46 km from the Project), Est-patrolas IR 4 (27.8 ha) (located to the south of Cowichan Bay, approximately 47 km from the Project), Kil-Pah-Las IR 3 (20.6 ha) and Theik IR 2 (30.3 ha) (located on the south shore of Cowichan Bay, approximately 45 and 46 km from the Project), Kakalatza IR 6 (8 ha) and Tzartlam IR 5 (6.5 ha) (located on the Cowichan River, approximately 59 and 56 km from the Project), Skutz IR 7 (7.3 ha) (located on the Cowichan River at Skutz Canyon, approximately 63 km from the Project), and Skutz IR 8 (14.9 ha) (located at the head of Skutz Canyon, approximately 63.5 km from the Project (Government of Canada 2020b).	45
Ditidaht First Nation	The Ditidaht First Nation is a First Nations band government with reserves (750.70 ha) on southern Vancouver Island in BC (BC Assembly of First Nations 2020). Ditidaht First Nation has a total of 17 reserves: Ahuk 1 (53.4 ha), Carmanah 6 (64.1), Cheewat 4a (3.8 ha), Chuchummisapo 15 (35.1 ha), Claoose 4 (100.6 ha), Doobah 10 (5.3 ha), Homitan 8(202 ha), Iktuksasuk 7 (68 ha), Ilclo 12 (31.2 ha), Malachan 11 (52.1 ha), Opatseeah 13 (28.7 ha), Oyees 9 (42.3 ha), Saouk 16 (70.8 ha), Sarque 5 (10.4 ha), Tsuquanah 2 (95.1 ha), Wokitsas 14 (16.2 ha) and Wyah 3 (53.4 ha) (Government of Canada 2020b). Ditidaht traditional territory is large. It stretches inland from Cowichan Lake, down through Nitinat Lake, and to the coast between Bonilla Point and Pachena Point. The territory also reaches out to sea all the way to the salmon, halibut and cod banks. It includes the headwaters of streams and rivers that drain to the coastline (Nitinat 2020).	125

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Esquimalt Nation	Historically the Esquimalt Nation's village was located closer to Victoria proper, but today their main reserve is on the north shore of Esquimalt Harbour adjacent to the Town of View Royal. According to the BC Assembly of First Nations website, the total reserve land area is 18.90 ha and their traditional territory extends throughout Greater Victoria and the San Juan Islands (Government of Canada 2020b).	68
First Nations of Maa-Nulth	The Maa-nulth First Nations are made up of 5 First Nations from Vancouver Island, which include: Huu-ay-aht First Nations, Ka:'yu:'k't'h'/Che:k'tles7et'h First Nations, Toquaht Nation, Uchucklesaht Tribe, and the Ucluelet First Nation. Maa-nulth means "villages along the coast" in the Nuu-chah-nulth language. The Maa-nulth First Nations villages/territories are located on the west coast of Vancouver Island surrounding Barkley Sound and Kyuquot Sound (Maa-Nulth First Nations 2020). The Maa-Nulth Final Agreement provides for 24,550 ha of fee simple land (Government of Canada 2020b).	127
Halalt First Nation	The Halalt First Nation is located near Crofton, BC on Vancouver Island, approximately 46 km from the Project. The asserted traditional territory of the Halalt First Nation is in the Cowichan Valley, at the southeastern edge of the City of Duncan, and on Willy Island, off the mouth of the Chemainus River. The Halalt First Nation has two reserves - Halalt IR 2 (located on 109.20 ha on the right bank of the Chemainus River, approximately 42 km from the Project) and Halalt Island IR 1 (located on 56.60 ha on Willy Island in Stuart Channel at the mouth of the Chemainus River, approximately 39 km from the Project; (Halalt First Nation 2019 and Government of Canada 2020b).	46

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Katzie First Nation	The Katzie First Nation is located in the Fraser Valley. The five reserves of the Katzie First Nation are Barnston Island IR 3 (54.6 ha) (the main community of the Katzie, approximately 37 km from the Project), Graveyard IR 5 (0.4 ha) (approximately 41 km from the Project), Katzie 1 (43.1 ha) (approximately 39 km from the Project), Katzie 2 (23.1 ha)(approximately 40 km from the Project) and Pitt Lake 4 (214 ha) (approximately 53 km from the Project). They are located in Pitt Meadows, Langley, and Barnston Island (Government of Canada 2020b).	40
Kwantlen First Nation	The Kwantlen First Nation is located primarily on McMillan Island near Fort Langley. The Kwantlen First Nation has seven reserves Langley 2 (58.3 ha) (approximately 56 km from the Project), Langley 3 (40.9 ha) (approximately 55 km from the Project), Langley 4 (93.4 ha) (approximately 57 km from the Project), Langley 5 (140.6 ha) (approximately 47 km from the Project), McMillan Island 6 (191 ha) (approximately 45 km from the Project), Pekw'xe:yles (10.3 ha) (approximately 65 km from the Project; this is a shared reserve) and Whonnock 1 (34.4 ha) (approximately 52 km from the Project) at the confluence of the Stave and Fraser Rivers. Kwantlen traditional territory extends from Richmond and New Westminster in the west, to Surrey and Langley in the south, east to Mission, and to the northernmost reaches of Stave Lake (Kwantlen 2020). Kwantlen's total reserve land base is 568.9 ha (Government of Canada 2020b).	46
Kwikwetlem Nation	Kwikwetlem First Nation (kʷikʷəƛ̓ əm) is situated along the Coquitlam River in Coquitlam, British Columbia. Kwikwetlem First Nation (kʷikʷəƛ̓əm)'s on-reserve community members live on IR#1, the ancient village site of slakəya'nc, near where the Coquitlam River meets the Stó:lō (Fraser River). IR#2, setłama'kmən, is located 2.5 km upstream. (Kwikwetlem First Nation 2019). Coquitlam 1 is 2.6 ha and Coquitlam 2 is 81.9 ha (Government of Canada 2020b). Ethnographic and traditional use information indicates a close connection between the Kwikwetlem and the Coquitlam watershed, an area that includes Coquitlam Lake, the Coquitlam River above and below Coquitlam Lake, the lower Pitt River, and the adjacent north and south banks of the Fraser River (Kwikwetlem First Nation 2009).	35

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Lake Cowichan First Nation (Ts'uubaa-asatx Nation)	The Lake Cowichan First Nation (Ts'uubaa-asatx Nation) is located near to Cowichan Lake on Vancouver Island. The asserted traditional lands of the Lake Cowichan First Nation are in the Lake Cowichan area, the Salish Sea, the South Arm of the Fraser River, and up to Squamish Nation areas. The Lake Cowichan First Nation has one reserve on Vancouver Island, comprising 39 ha of land along the north shore of Cowichan Lake. Ts'uubaa-satx has approximately 30 people residing on its reserve (Ts'uubaa-asatx Nation 2020).	70
Leq'á:mel First Nation	Leq'á:mel First Nation is located near Deroche across the Fraser River from Chilliwack, 22 km east of Mission. In the Leq'á:mel Notice of Assertion of Title Leq'á:mel sets out a land area south to the Nooksack River, (Washington State) east to the Harrison knob, northwest to the north shore of Stave Lake, southwest to the northern shores of Alouette Lake and down the west side of Silver Creek (Leq'á:mel First Nation 2020a). Leq'á:mel holds ten reserves, Yaalstick IR #1, Lackaway IR #2, Lakway Cemetery IR #3, Papekwatchin IR #4, Aylechootlook IR #5, Holachten IR #8, Zaitscullachan IR #9, Skweahm IR #10, Lakahahmen IR #11 and Sumas Cemetery IR #12 (Leq'á:mel First Nation 2020b). Pekw'xe:yles is a shared reserve. Leq'á:mel First Nation has a total of 491.2 ha of land (Government of Canada 2020b).	85
Lyackson First Nation	The Lyackson First Nation is located in Chemainus, BC, approximately 42 km from the Project. Core traditional territory includes a portion of southern Vancouver Island from north of Ladysmith, west to Lake Cowichan, east to the Gulf Islands The marine traditional territory spans across the Strait of Georgia to include a narrow corridor on the mainland. Valdes Island is Lyackson's ancestral territory and they currently manage three land reserves which comprise a third of Valdes Island, where they have continued to engage in traditional land-use practices on a seasonal basis. Lyackson IR 3 (710.60 ha near the north end of Valdes Island, approximately 38 km from the Project), IR 5 (2 ha situated at the south tip of Valdes Island, approximately 31 km from the Project) and Shingle Point IR 4 (32 ha located on the west shore of Valdes Island, approximately 32 km from the Project (Lyackson First Nation 2020 and Government of Canada 2020b).	42

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Malahat Nation	The Malahat Nation is a Coast Salish First Nations community of W̱SÁNEĆ (Saanich People) located on southeastern Vancouver Island. The Malahat Nation has two reserve lands located on the western shore of Saanich Inlet, south of the village of Mill Bay, about 40 km north of Victoria (Malahat Nation 2020). The Malahat Nation has two reserves Goldstream 13 (shared reserve 8.9 ha) and Malahat 11 (239 ha) The total reserve land is 247.9 ha (Government of Canada 2020b). They have traditional territories on the Saanich Peninsula, Gulf Islands, San Juan Islands and surrounding area (BC Assembly of First Nations 2020).	53
Matsqui First Nation	Matsqui First Nation is located in the Fraser Valley. The First Nation has five reserves, Matsqui 4 (24.3 ha), Matsqui Main 2 (129.7 ha), Pekw'xe:Yles (Peckquaylis) (shared reserve 10.3 ha), Sahhacum 1 (20.2 ha) and Three Islands 3 (246.3 ha). The reserve land area totals 430.80 ha (Government of Canada 2020b). The core traditional territory of the Matsqui stretches along the Fraser River from Crescent Island to Sumas Mountain, and southward beyond the Canada-US border (BC Assembly of First Nations 2020).	60
Métis Nation of British Columbia	The Métis Nation of BC has communities located in the Lower Mainland area of BC. In the Lower Mainland, there are six Métis Chartered Communities (Métis Nation British Columbia 2020). Chilliwack Métis Association (located in Hope, approximately 132 km from the Project), Fraser Valley Métis Association (located in Abbotsford, approximately 65 km from the Project), Golden Ears Métis Society (located in Maple Ridge, approximately 47 km from the Project), Waceya Métis Society (located in Langley, approximately 39 km from the Project), North Fraser Métis Association (located in Richmond, approximately 16 km from the Project), and Nova Métis Heritage Association (located in Surrey, approximately 27 km from the Project).	27

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Musqueam Indian Band	The Musqueam Indian Band is located in the Delta and Richmond areas of the Lower Mainland. Musqueam has three reserves: Musqueam IR2 (approximately 22 km from the Project), the main village site; Sea Island IR3, which is unoccupied; and Musqueam IR4 (approximately 5 km from the Project), which is located in the farmlands of Delta. Musqueam IR4 (57.2 ha) is approximately 5 km to the Project. The Musqueam received these lands in exchange for the major portion of IR#3 that was required for airport development. Surrounded by the District of Delta, the site is in the provincial ALR. Musqueam documentation indicates this land has the potential for industrial development or to support the Roberts Bank port expansion (Musqueam and EcoPlan ND).	23
Pacheedaht First Nation	The Pacheedaht First Nation is a First Nations government based on the southwest coast of Vancouver Island. Pacheedaht territory includes the lands and waters along the southwest coast of Vancouver Island between Bonilla Point and Sheringham Point (Pacheedaht First Nation 2013). Four reserve lands total 179.6 ha: Pacheena #1 (61.9 ha) (approximately 105 km from the Project), Gordon River #2 (69.2h) (approximately 104 km from the Project), Cullite #3 (38.4 ha) (approximately 58 km from the Project), and Queesidaquah #4 (10.1 ha) (approximately 96 km from the Project; (BC Assembly of First Nations 2020 and Government of Canada 2020b).	105
Pauquachin First Nation	The Pauquachin First Nation is located in the Greater Victoria region of Vancouver Island. The First Nation has three reserves totaling (330.40 ha), Cole Bay 3 (284.7 ha), Goldstream 13 (8.9 ha, shared reserve) and Hatch Point 12 (36.8 ha) Government of Canada 2020b). Traditional territories of the Pauquachin First Nation are located in the Greater Victoria area of Vancouver Island (BC Assembly of First Nations 2020).	50

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Penelakut Tribe	The Penelakut Tribe is located on Penelakut Island, BC. The traditional core territory of the Penelakut Tribe involves land on southern Vancouver Island. It goes from Ladysmith in the north, west to Lake Cowichan, east to the Gulf Islands. The traditional marine territory goes across the Strait of Georgia and also involves a corridor on the mainland. The four reserves of the Penelakut Tribe comprise 635.70 ha of land and are located directly opposite of the mouth of the Fraser River in the Strait of Georgia on Galiano Island (IR 9, 29.10 ha, approximately 35.5 km from the Project), Penelakut Island (IR 7, 556.70 ha, approximately 30.5 km from the Project), Tent Island (IR 34.40 ha, approximately 35 km from the Project), and Tussie in Chemainus (IR 15.50 ha, approximately 40 km from the Project (Government of Canada 2020b).	37
People of the River Referral Office	On June 28, 2019, the Province of British Columbia signed a Strategic Engagement Agreement with the Stó:lō Nations (Chawathil First Nation, Cheam First Nation, Kwaw-Kwaw-Apilt First Nation, Scowlitz First Nation, Skawahlook First Nation, Skowkale First Nation, Skwah First Nation, Sumas First Nation, Aitchelitz Band, Shxwhá:y Village, Soowahlie First Nation, Squiala First Nation, Tzeachten First Nation, Yakweakwioose First Nation, and Yale First Nation) for the purpose of increasing consultation effectiveness and efficiency, and to lead to greater certainty for land and resource decisions. The traditional territory is known as S'ólh Téméxw (Stó:lõ Research and Resource Management Centre 2016). The territory that is covered under the Referral Office goes east towards Manning Park and north to the Coquihalla Summit, west through Spuzzum, north end of Harrison Lake and above Pitt River Hot Springs. Heading southeast of the Sea to Sky Highway and entering the Salish Sea east of Horseshoe Bay. The southern border follows the Canada-US border south of Manning Park to Boundary Bay and follows the shoreline out to the Salish Sea. The "People of the River Referrals Office" or the "PRRO" is authorized to receive and respond to referrals on behalf of the Stó:lō First Nations in accordance with the Strategic Engagement Agreement (Stó:lō First Nations and Government of BC 2019).	87
Popkum First Nation	The Popkum First Nation is located approximately 2 km northeast of Bridal Falls near the Fraser River. Popkum has three reserves with the largest being Popkum 1 (141.1 ha) and the other two being Pekw'xe:yles (10.3 ha - shared reserve) and Popkum 2 (8.6 ha) in size (Government of Canada 2020b).	87

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Seabird Island Band	The Seabird Island Band is located in the upper Fraser Valley. The Band has two reserves, Pekw'xe:yles (10.3 ha – shared reserve) (approximately 65 km from the Project) and Seabird Island (2179 ha) (approximately 106 km from the Project). The main community is Seabird Island, located in the District of Kent on the Fraser River near Agassiz (Seabird Island Band 2020 and Government of Canada 2020b).	107
Semiahmoo First Nation	The Semiahmoo Indian First Nation is located in White Rock, the Semiahmoo First Nation reserve is 129.1 ha and is located between the boundary of White Rock and the Canada–US border (Government of Canada 2020b).	28
Shxw'ow'hamel First Nation	The Shxw'ow'hamel First Nation is a band government of the Sto:lo people located in the Upper Fraser Valley region near Hope, British Columbia. Shxw'ow'hamel is a member of the Stó:lō Tribal Council. Shxw'ōwhámél is part of the Tiyt Tribe of the Stólō Nation. Shxw'ōwhámél (Ohamil) I.R #1, is geographically located 13 kilometres west of Hope BC along the Trans-Canada Highway. Shxw'ōwhámél also has 3 other reserves: Wahleach IR #2 located along the Lougheed Highway, Xelhálh (kuth-lath) IR#3 located north of Yale BC along Highway #1 (Shxw'ōwhámél First Nation 2020) and Pekw'xe:yles (shared reserve). The total reserve land is 372.1 ha (Government of Canada 2020b).	120
Songhees Nation	The Songhees Nation is now located in Esquimalt on Vancouver Island, five kilometres from Victoria. the main Songhees community still lives on the New Songhees 1A Reserve in what is now the Township of Esquimalt. This is one of four reserves, (Deadman's) Halkett Island No. 2 (0.2 ha), Chatham Islands 4 (35.4 ha), Discovery Island 3 (36.4 ha) and New Songhees 1a (66.1 ha), which total 138.1 hectares (Government of Canada 2020b). The Songhees or Songish, also known as the Lək̓ʷəŋən People, are an indigenous Coast Salish people who reside on southeastern Vancouver Island, British Columbia in the Greater Victoria area. Historically, the Songhees Nation occupied the area from Albert Head to Cordova Bay to the San Juan Islands in the USA (Songhees Nation 2020a).	65

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Sq'ewlets First Nation	Sq'éwlets First Nation is located on Harrison Bay in the Upper Fraser Valley. Sq'éwlets is a member of the Stó:lō Tribal Council. The traditional Stó:lō territory is known as S'ólh Téméxw (Stó:lō Research and Resource Management Centre / Stó:lō Nation 2016). The Sq'ewlets First Nation has a total of 4 reserves one of which is Pekw'xe:yles (shared reserve) for a total of 247 ha (Government of Canada 2020b).	87
Squamish Nation	The Squamish Nation (Sḵwx̱wú7mesh Úxwumixw) is comprised of descendants of the Coast Salish Aboriginal peoples who lived in the present-day Greater Vancouver area; Gibson's landing and Squamish River watershed. The Squamish Nation has occupied and governed their territory since beyond recorded history. Total area of Squamish Nation Traditional Territory is approximately 692,100 ha. The Nation consists of 23 villages encompassing approximately 2,828 ha. This territory includes some of the present-day cities of Vancouver, Burnaby and New Westminster, all of the cities of North Vancouver and West Vancouver, Port Moody and all of the District of Squamish and the Municipality of Whistler. These boundaries embrace all of Howe Sound, Burrard Inlet and English Bay as well as the rivers and creeks that flow into these bodies of water (Squamish Nation 2020).	34
Stz'uminus First Nation	The main Stz'uminus (Chemainus) First Nation community is located near Ladysmith, BC. The four reserves of the Stz'uminus First Nation on Vancouver Island comprise more than 1,200 ha of land, much of it bordering the Strait of Georgia and Ladysmith Harbour (Stz'uminus First Nation 2020). The reserves include Chemainus IR 13 (1,082.30 ha, approximately 45 km from the Project), Oyster Bay IR 12 (106.90 ha), near Ladysmith Harbour (approximately 50.6 km from the Project) Squaw-Hay-One IR 11 (31 ha), locate southeast of the community of Chemainus (approximately 41 km from the Project), and Say-La-Quas IR 10 (6 ha), located on the Chemainus River (approximately 40.5 km from the Project (Government of Canada 2020b).	45

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Tsartlip First Nation	The Tsartlip First Nation is located on the Saanich Peninsula, in Saanich territory on Vancouver Island. The Nation's main community is South Saanich Indian Reserve 1, located near the town of Brentwood Bay. The traditional territory covers the Saanich Peninsula and the Gulf Islands (BC Assembly of First Nations 2020). The Tsartlip First Nation has four reserves, Goldstream 13 (8.9 ha – shared reserve), Mayne Island 6 (130.7 ha), Senanus Island 10 (1.6 ha), and South Saanich 1 (192.6 ha) for a total of 333.8 ha (Government of Canada 2020b).	55
Tsawout First Nation	The Tsawout First Nation is located on the Saanich Peninsula in southern Vancouver Island. It is one of five bands that constitute the Saanich Nation. The other bands of the Saanich Nation are Tsartlip, Tseycum, Malahat and Pauquachin. East Saanich IR No. 2, the Tsawout First Nation main village, is 237.7 ha in size and on the west side of the Saanich Peninsula. Tsawout First Nation has 5 other reserves Bare Island 9 (10.5), Fulford Harbour 5 (17.4 ha), Goldstream 13 (8.9 ha), Pender Island 8 (3.2 ha) and Saturna Island 7 (145.7 ha) for a total of 423.4 ha (Government of Canada 2020b). The traditional territory covers the Saanich Peninsula and the Gulf Islands (Tsawout First Nation 2020).	51
Tsawwassen First Nation	Tsawwassen First Nation (TFN) is located in Tsawwassen, B.C. It owns approximately 724 ha of land and exercises rights on 10,000 km^2 of traditional territory. They inhabit the lands nearest to the Project but have used traditional lands over a much wider area. According to the TFN website: "Our land base is deeply connected to our identity. Our traditional territory is bordered on the northeast by the watersheds that feed into Pitt Lake, down the Pitt River to the city of Pitt Meadows, where they empty into the Fraser River. It includes Burns Bog and part of New Westminster, following the outflow of the Fraser River just south of Sea Island. From Sea Island, it cuts west across the Salish Sea to Galiano Island and includes all of Saltspring, Pender and Saturna Islands. From there, our territory continues northeast to include the Point Roberts Peninsula and the watersheds of the Serpentine and Nicomeckl rivers (Tsawwassen First Nation ND)."	< 5

Table 25: (Cont'd.)

Indigenous Group	Location Details	Approximate Distance of Administrative Office to the Project (km)
Tseycum First Nation	The Tseycum First Nation is a First Nations government located on southern Vancouver Island near Victoria. Union Bay Indian Reserve No.4 (28 ha) is one of the four Saanich villages of southern Vancouver Island, located at the center of Patricia Bay on the Saanich Peninsula. (BC Assembly of First Nations 2020). The Tseycum First Nation has three other reserves that it shares with Tsawout First Nation - Bare Island 9 (10.5 ha), Pender Island 8 (3.2 ha) and Saturna Island 7 (145.7 ha). Tseycum First Nation shares Goldstream 13 (8.9 ha) with four other First Nations: Malahat Nation, Pauquachin, Tsartlip and Tsawout First Nation. The total reserve lands held by Tseycum First Nation is 196.3 ha (Government of Canada 2020b).	45
Tsleil-Waututh Nation	Tsleil-Waututh Nation's traditional territory encompasses an area of approximately 190,000 ha reaching from the Fraser River in the south to Mamquam Lake (east of Whistler) in the north. Today, about half of their people live in Burrard Inlet Indian Reserve #3 (a government-allocated name), and the balance lives off the reserve. In addition, they have two smaller reserves at the head of Indian Arm (Tsleil-Waututh Nation ND).	34
T'Sou-ke Nation	The T'Sou-ke Nation of the Coast Salish peoples is a band government whose reserve community is located on Vancouver Island, in the province of BC, Canada. There are two reserves around the Sooke Basin on the Strait of Juan de Fuca at the southern end of Vancouver Island, T'Sou-ke 1 (26.3 ha) and T'Sou-ke 2 (40.9 ha) with a total area of 67.2 ha. Their traditional territory includes an area from west of the Saanich Inlet to the southern tip of Vancouver Island, but also includes the traditional territory claimed by the Te'mexw Treaty Association, which includes land from Port Alberni east to Parksville and marine and land areas south into Washington State (T'Sou-ke Nation 2018 and Government of Canada 2020b).	82

7.2 Summary of Indigenous Groups' Rights, Title Interests and Land Subject to a Land Claim Agreement or Self-government Agreement

As currently defined, the Project falls within or near the traditional territories, lands ratified by treaty, or other recognized areas of various groups. The Project also falls within the traditional and/or consultative boundaries of a number of other Indigenous groups. Each of the groups identified in Table 25 has or asserts claims of rights and title to the lands, water and resources within their traditional territories, consultative boundaries or proximity to the Project area with identified interest. GCT will continue to work with each of these groups through the early engagement phase to identify specific interests and further understand and characterize each groups' rights or other interests. This information will be updated in the Detailed Project Description.

7.2.1 Sc'ianew (Beecher Bay) First Nation

Sc'ianew's asserted traditional territory includes an area from west of the Saanich Inlet to the southern tip of Vancouver Island. The traditional territory includes areas of the Project's associated marine shipping and marine interests.

According to the Government of Canada's ATRIS (Government of Canada 2020c), the Sc'ianew First Nation is involved in negotiations through the Te'mexw Treaty Association, which is negotiating with Canada and BC in the BC Treaty Process on behalf of its 5 member bands: Malahat, Sc'ianew (Beecher Bay), Songhees, Snaw-aw-as (Nanoose) and T'sou-ke First Nations. They are in Stage 5 (Final Agreement Negotiations). Completed agreements include the Te'mexw Treaty Association Agreement-in-Principle (AiP) – 2015 and Sc'ianew First Nation Incremental Treaty Agreement – 2013 (Government of BC 2020b).

Sc'ianew First Nation has signed a framework agreement under the *First Nation Land Management Act*. Sc'ianew First Nation has been operating under the *First Nations Land Management Act* since the ratification and has been operating under their Land Code since August 1st, 2003 (Sc'ianew First Nation 2020).

7.2.2 Cowichan Tribes

The asserted traditional territory of the Cowichan Tribes includes the region around Cowichan Lake, the Cowichan and Koksilah River drainages, the areas around Shawnigan Lake, Maple Bay, and Cowichan Bay, the southern Gulf Islands, and the region of the South Arm and mouth of the Fraser River. The identified traditional territory includes the Project area.

Cowichan Tribes is part of the Hul'qumi'num Treaty Group, which has transitioned into Stage 5 of the BC Treaty Process (Final Agreement) (Government of BC 2020b). Cowichan Tribes is also a part of the Cowichan Nation Alliance, a group of Indigenous Groups who represent their members in rights and title negotiations.

In 2019, Cowichan Tribes signed a framework agreement under the *First Nation Land Management Act* and voted to adopt a new land code (Quw'utsun Tumuhw)(Cowichan Tribes 2020c).

7.2.3 Ditidaht First Nation

The Ditidaht First Nation is part of the Nuu-chah-nulth Tribal Council. The traditional territory is generally west of Port Renfrew and east of Barkley Sound. The traditional territory includes areas of the Project's associated marine shipping and marine interests.

The Ditidaht First Nation has been negotiating at a common table with Pacheedaht First Nation since 1996 (Nitinaht 2020). The treaty table is in Stage 5 negotiations to finalize a treaty. Completed agreements include the Ditidaht and Pacheedaht Agreement-in-Principle – 2019, and the Ditidaht Incremental Treaty Agreement – 2013 (Government of BC 2020b).

The Ditidaht First Nation signed a framework agreement in 2019 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.4 Esquimalt Nation

The Esquimalt First Nation is a First Nations government of the Esquimalt people. The traditional territory extends throughout Greater Victoria and the San Juan Islands. The traditional territory includes areas of the Project's associated marine shipping and marine interests.

What is now Victoria used to be shared by five other communities: the Cheko'nein, the Chilkowetch, the Swenghwung, the Hwyuwmilth, and the Teechamitsa. They spoke the same language and, to a large extent, shared the bounty the land and sea had to offer. When the British (under James Douglas) arrived in the territories, ancestors – led by Esquimalt First Nation ancestor Sisunuq and others – greeted him. A treaty signed with Governor Douglas in 1850, guaranteed continued access to fishing and hunting, and maintenance of our spiritual relationship with the land, the resources, and our ancestors (Esquimalt 2020).

According to the Government of BC website, the Province is working with Esquimalt First Nation on land and resource issues outside the BC Treaty Process (Government of BC 2020b).

The Esquimalt First Nation has not signed a framework agreement under the *First Nation Land Management Act* (Indigenous and Northern Affairs Canada 2014).

7.2.5 First Nations of Maa-nulth

The Maa-nulth First Nations villages/territories are located on the west coast of Vancouver Island surrounding Barkley Sound and Kyuquot Sound. The traditional territory includes areas of the Project's associated marine shipping and marine interests.

The Maa-nulth First Nations Final Agreement is Vancouver Island's first modern-day treaty and the first multi-nation treaty under the BC Treaty Commission process. The Treaty came into effect on April 1, 2011. Its contents include:

- That no federal or provincial project will proceed without the consent of the Maa-nulth First Nations;
- The ways in which the Maa-nulth First Nations will participate in any federal environmental assessment process; and
- The ways in which the Maa-nulth First Nations will participate in any provincial environmental assessment process.

The governance of the Maa-nulth First Nations is based on the *Maa-nulth First Nations Final Agreement Act*. The *Maa-nulth First Nations Final Agreement Act* operates within the framework of the Constitution of Canada and the *Canadian Charter of Rights and Freedoms* applies to the Maa-nulth First Nation governments. With the exception of determining Indian status, after a transition period, the *Indian Act* will no longer apply to the Maa-nulth First Nations, their lands or members. Instead, constitutionally-protected self-government provisions will enable each Maa-nulth First Nation to make its own decisions about matters related to the preservation of its culture, the exercise of its treaty rights and the operation of its government (Maa-nulth First Nations 2020).

7.2.6 Halalt First Nation

The asserted traditional territory of the Halalt First Nation is in the Cowichan Valley (at the southeastern edge of the City of Duncan) and on Willy Island (off the mouth of the Chemainus River). The identified traditional territory includes the Project area.

Halalt First Nation is part of the Hul'qumi'num Treaty Group, which has transitioned into Stage 5 of the BC Treaty Process (Final Agreement) (Government of BC 2020b). Halalt First Nation is also a part of the Cowichan Nation Alliance, a group of Indigenous groups who represent their members in rights and title negotiations.

Halalt First Nation has not signed a framework agreement under the *First Nation Land Management Act* (Indigenous and Northern Affairs Canada 2014).

7.2.7 Katzie First Nation

The asserted traditional territory of the Katzie First Nation includes Pitt Meadows, Maple Ridge, Coquitlam, Surrey, Langley, and New Westminster. This territory overlaps with asserted traditional territories from other First Nations, including TFN, Musqueam, Stó:lo, and Tsleil-Waututh Nation, as well as the Hul'qumi'num Treaty Group. The identified traditional territory is in close proximity to the Project area.

The Katzie First Nation is negotiating its land treaty independently, and is not part of either Sto:lo tribal councils (the Stó:lo Nation and the Stó:lō Tribal Council). It is in Stage 4 of the BC Treaty Process (negotiating an Agreement in Principle with Canada and the province; Government of BC 2020b).

Katzie First Nation recently signed a framework agreement under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.8 Kwantlen First Nation

Kwantlen traditional territory extends from Richmond and New Westminster in the west, to Surrey and Langley in the south, east to Mission, and to the northernmost reaches of Stave Lake (Kwantlen 2020). The identified traditional territory is in close proximity to the Project area.

Until 2018, Kwantlen First Nation was part of the Stó:lō Tribal Council. Kwantlen First Nation is not currently involved in treaty negotiations with the Province of BC and the Government of Canada (Government of BC 2020b). Stó:lō Tribal Council is working on land and resource agreements with BC outside of the treaty process.

Kwantlen First Nation has signed a framework agreement under the *First Nation Land Management Act (*First Nations Land Management Resource Centre 2020).

7.2.9 Kwikwetlem First Nation

Kwikwetlem First Nation (kʷikʷəƛ̓əm) is situated along the Coquitlam River in Coquitlam, BC. It includes two reserves: Coquitlam IR1 and Coquitlam IR2. The name, kʷikʷəƛ̓əm, refers to a small red fish – “Red Fish Up the River” (Kwikwetlem First Nation 2019). The identified traditional territory is in close proximity to the Project area.

Kwikwetlem First Nation is not participating in the BC Treaty Process (Government of BC 2020b).

Kwikwetlem First Nation recently signed a framework agreement under the *First Nation Land Management Act (*First Nations Land Management Resource Centre 2020). They are currently working to ratify the Kwikwetlem First Nation Land Code (Kwikwetlem First Nation 2019).

7.2.10 Lake Cowichan First Nation (Ts'uubaa-asatx Nation)

The asserted traditional lands of the Lake Cowichan First Nation (Ts'uubaa-asatx Nation) are in the Lake Cowichan area, the Salish Sea, the South Arm of the Fraser River, and up to Squamish Nation areas. Ts'uubaa-asatx have always made their primary home on Cowichan Lake. The English translation of the name Ts'uubaa-asatx is "People of the Lake" (Ts'uubaa-asatx Nation 2020). The identified traditional territory includes the Project area.

The Lake Cowichan First Nation is affiliated with the Hul'qumi'num Treaty Group. The Hul'qumi'num Treaty Group is involved in treaty negotiations on behalf of its member First Nations and has transitioned into Stage 5 of the BC Treaty Process (Final Agreement) Treaty Process (Government of BC 2020b).

Lake Cowichan First Nation has signed a framework agreement under the *First Nation Land Management Act (*First Nations Land Management Resource Centre 2020).

7.2.11 Leq' á:mel First Nation

The asserted traditional territory of the Leq'á:mel First Nation includes everything above and below the land, as far as the eye can see from Leq'á:mel, south to the Nooksack River, east to the Harrison knob, northwest to the north shore of Stave Lake, southwest to the northern shores of Alouette Lake and down the west side of Silver Creek (Leq'á:mel First Nation 2020a). The traditional territory is in close proximity to the Project area.

Leq'á:mel is a member of the Stó:lō Xwexwilmexw Treaty Association negotiating in the B.C. treaty process on behalf of 6 of 11 bands in the Stó:lō Nation. Stó:lō Xwexwilmexw Treaty Association is in Stage 5 of the Treaty process (Government of BC 2020b).

Leq'á:mel First Nation has signed a framework agreement under the *First Nation Land Management Act* (Leq'á:mel First Nation 2020c).

7.2.12 Lyackson First Nation

The Lyackson First Nation core traditional territory includes a portion of southern Vancouver Island from north of Ladysmith, west to Lake Cowichan, east to the Gulf Islands. The marine traditional territory spans across the Strait of Georgia to include a narrow corridor on the mainland. The identified traditional territory includes the Project area.

Lyackson First Nation is part of the Hul'qumi'num Treaty Group, which has transitioned into Stage 5 of the BC Treaty Process (Final Agreement) (Government of BC 2020b). Lyackson First Nation is also a part of the Cowichan Nation Alliance, a group of Indigenous groups who represent their members in rights and title negotiations.

Lyackson First Nation has not signed a framework agreement under the *First Nation Land Management Act* (Indigenous and Northern Affairs Canada 2014).

7.2.13 Malahat Nation

The Malahat Nation is a member nation of the Naut'sa mawt Tribal Council. They have traditional territories on the Saanich Peninsula, Gulf Islands, San Juan Islands and surrounding area. The traditional territory includes areas of the Project's associated marine shipping and marine interests.

Malahat Nation is a member of the Te'mexw Treaty Association, which is negotiating with Canada and BC in the BC Treaty Process on behalf of its five member bands: Malahat, Sc'ianew (Beecher Bay), Songhees, Snaw-aw-as (Nanoose) and T'sou-ke First Nations. They are in Stage 5 (Final Agreement Negotiations). Completed agreements include the Te'mexw Treaty Association Agreement-in-Principle (AiP) – 2015 and Malahat Nation Incremental Treaty Agreement – 2013 (Government of BC 2020b).

The Malahat Nation recently signed a framework agreement in 2019 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.14 Matsqui First Nation

The Matsqui First Nation is located in the Central Fraser Valley region of BC, Canada. Their band government is the Matsqui First Nation, a member of the Stó:lō Nation Tribal Council. According to the BC Assembly of First Nations website, the core traditional territory of the Matsqui stretches along the Fraser River from Crescent Island to Sumas Mountain, and southward beyond the Canada-US border. The traditional territory is in close proximity to the Project area.

The Matsqui First Nation is one of 11 Sto:lo Nation bands negotiating land and resource issues outside the BC Treaty Process (Government of BC 2020b).

In 2019, the Matsqui First Nation filed a claim against the federal government for the sale of almost their entire reservation land over 150 years ago by the Colony of BC. The claim states 99 percent of the 9,600 acres administered to the Matsqui by the colonial government in 1864 was sold out from under them to incoming settlers in the Fraser Valley. The claim is being made under Canada's Specific Claim Policy which states that Indigenous bands who historically suffered under colonial government treaty breaches are entitled to compensation from today's federal government (CBC 2019).

Matsqui recently signed a framework agreement in 2019 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.15 Métis Nation of British Columbia

According to the Métis Nation of British Columbia website, it is not involved in treaty negotiations. However, in 2006 the Métis Nation of British Columbia and the Province of BC signed the Métis Nation Relationship Accord to signify a positive working relationship for the self-identified Métis in BC (Métis Nation British Columbia 2020).

7.2.16 Musqueam Indian Band

Musqueam's ancestors have lived in the Fraser River estuary for thousands of years. Today, portions of Musqueam's traditional territory are called Vancouver, North Vancouver, South Vancouver, Burrard Inlet, New Westminster, Burnaby, and Richmond (Musqueam 2020). The traditional territory is in close proximity to the Project area.

The Musqueam Declaration States:

THE MUSQUEAM DECLARATION Vancouver June 10, 1976

We, the Musqueam people openly and publicly declare and affirm that we hold aboriginal title to our land, and aboriginal rights to exercise use of our land, the sea and fresh waters, and all their resources within that territory occupied and used by our ancestors, namely:

- The lands, lakes and streams defined and included by a line commencing at Harvey Creek in Howe Sound and proceeding Eastward to the height of land and continuing on the height of land around the entire watershed draining into English Bay, Burrard Inlet and Indian Arm; South along the height of land between Coquitlam River and Brunette River to the Fraser River, across to the South or left bank of the Fraser River and proceeding downstream taking in the left Bank of the main stream and the South Arm to the sea, including all those intervening lands, islands and waters back along the sea shore to Harvey Creek; AND the sea, its reefs, flats, tidal lands and islands adjacent to the above described land and out to the centre of Georgia Straight.

We, the Musqueam people, are members of the Musqueam Indian Band and/or persons of one quarter Musqueam Indian Ancestry descended from those hən̓q̓əmiń əm̓ speaking people who from time immemorial occupied used and gained their livelihood from those lands, waters and seas described above (Musqueam 1976).

The Musquem have established aboriginal rights as affirmed by the Supreme Court of Canada in R. v. Sparrow, [1990] 1 S.C.R. 1075.

The Musqueam Indian Band has signed a Collaborative Management Agreement for the management of Crown tenures in the Fraser River Transition Area. Currently in Stage 4 of the Treaty Process, the Musqueam are negotiating independently with Canada and BC; however, negotiations are currently on hiatus.

Musqueam Indian Band has signed a framework agreement under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.17 Pacheedaht First Nation

Pacheedaht territory includes the lands and waters along the southwest coast of Vancouver Island between Bonilla Point and Sheringham Point. The name “Pacheedaht” translates to English as “Children of the Sea Foam” (Pacheedaht First Nation 2013). The traditional territory includes areas of the Project’s associated marine shipping and marine interests.

According to the BC Assembly of First Nations website, the Pacheedaht First Nation is currently negotiating with Canada and BC in the BC Treaty Process at a common treaty table with the Ditidaht First Nation. It is at Stage 5 of the Treaty Process. Completed agreements are the Ditidaht and Pacheedaht Agreement-in-Principle (2019) and Pacheedaht Incremental Treaty Agreement (2013) (Government of BC 2020b).

Pacheedaht First Nation has not signed a framework agreement under the *First Nation Land Management Act* (Indigenous and Northern Affairs Canada 2014).

7.2.18 Pauquachin First Nation

According to the BC Assembly of First Nations website (2020), the traditional territories of the Pauquachin First Nation are located in the Greater Victoria area of Vancouver Island. The traditional territory includes areas of the Project's associated marine shipping and marine interests.

The Pauquachin First Nation is not participating in the BC Treaty Process (Government of BC 2020b).

The Pauquachin First Nation has not signed a framework agreement under the *First Nation Land Management Act* (Indigenous and Northern Affairs Canada 2014).

7.2.19 Penelakut Tribe

The traditional core territory of the Penelakut Tribe involves land on southern Vancouver Island that extends north from Ladysmith, west to Lake Cowichan, and east to the Gulf Islands. The traditional territory goes across the Strait of Georgia, includes a corridor on the mainland, and the Project area.

The Penelakut Tribe is part of the Hul'qumi'num Treaty Group, which has transitioned into Stage 5 of the BC Treaty Process (Final Agreement). The Statement of Intent of the Hul'qumi'num Treaty Group includes both its core territory and a marine territory (Government of BC 2020b). The Penelakut Tribe is also part of the Cowichan Nations Alliance, an association of Indigenous groups that represents their members in rights and title negotiations. The Cowichan Nations Alliance began legal action in 2019 to reclaim the historic village site of Tl'uqtinus and other lands in what is present-day Richmond and Delta including the right to fish in the South Arm of the Fraser River, which includes the Project area.

The Penelakut Tribe recently signed a framework agreement in 2020 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.20 People of the River Referral Office

The People of the River Referral Office (RPPO) was formed on June 12, 2012, PRRO is an office of technical staff from Stó:lō Nation (Stó:lō Research and Resource Management Centre), Stó:lō Tribal Council, and the Ts'elxweyeqw Tribe. The PRRO provides administrative, research, and technical support throughout the referrals review process to several Stó:lō Communities within S'ólh Téméxw. (Stó:lō Research and Resource Management Centre 2016).

The Strategic Engagement Agreement sets out the process for review and advising the Province on adverse effects that a project may have on Stó:lō Nations and sets out timeframes for each party to respond. (Stó:lō First Nations and Government of BC 2019).

7.2.21 Popkum First Nation

The Popkum First Nation is located near the community of Bridal Falls close to the Fraser River, northeast of Chilliwack. The asserted traditional territory of Popkum First Nation is located west of Chilliwack, south to the Chilliwack River, up to the northwest end of Harrison Lake and east to Spuzzum and the Coquihalla Summit. (Government of BC 2016). The traditional territory is in close proximity to the Project area.

Popkum First Nation does not have a Framework Agreement under the *First Nations Land Management Act* and is not in the BC Treaty process.

7.2.22 Seabird Island Band

The Seabird Island First Nation, or Seabird Island Band, is a band government of the Sto:lo people located on Sea Bird Island in the Upper Fraser Valley region, near Agassiz, BC (Seabird Island Band 2020). They are a member government of the Stó:lō Tribal Council. The traditional territory is in close proximity to the Project area.

The Seabird Island First Nation is not participating in the BC Treaty Process (Government of BC 2020b).

Seabird Island Band has recently signed a framework agreement in 2020 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.23 Semiahmoo First Nation

The Semiahmoo First Nation is primarily located on the 12-acre Semiahmoo Indian Reserve between the boundary of White Rock, BC and the Canada–US boundary. The Project falls in close proximity to the traditional territories claimed by the Semiahmoo First Nation.

The territory of the Semiahmoo included the eastern shore of Point Roberts, the shores of Boundary Bay, the drainage basins of Dakota, California, and Terrell Creeks, the shores of Semiahmoo Bay and Drayton Harbour, and the shores of Birch Bay. To the north of the Semiahmoo was a small Halkomelem speaking group call the Snokomish. Their territory included the shores of Boundary Bay, and the drainage basins of the Serpentine, Nicomekl and Campbell Rivers. They intermarried with the Semiahmoo, shared a weir site near the mouth of the Campbell River, and shared a common hunting territory. This was perhaps stimulated by trade with Fort Langley as the trade route went through Snokomish territory. Shortly before 1850 the Snokomish were almost entirely wiped out by a smallpox epidemic.

"... it seems likely that the Derby people, who we might call "Sokomish", occupied both a segment on the Fraser and a bit of saltwater shore-line at Mud Bay, together with the two streams that make canoe navigation from one place to the other possible with only one short portage. After the Snokomish were wiped out, the Semiahmoo took over the salt-water section of their territory..."

The few Snokomish survivors joined the Semiahmoo and the Semiahmoo became heirs to the Snokomish territory at the mouths of the Nicomekl and Serpentine Rivers (Brown J. 2014).

Semiahmoo First Nation is not currently involved in treaty negotiations with the Province of BC and the Government of Canada.

Semiahmoo First Nation has not signed a framework agreement under the *First Nation Land Management Act* (Indigenous and Northern Affairs Canada 2014).

7.2.24 Shxw'ow'hamel First Nation

The Shxw'ow'hamel First Nation as a member of the Stó:lō Tribal Council is working with Province of BC on land and resource issues outside of the B.C. treaty process. The traditional territory is in close proximity to the Project area.

The Shxw'ōwhámel First Nation was a signatory member of the Strategic Engagement Agreement between Stó:Lō First Nations and the Province of BC (Stó:lō SEA) from April 1, 2014, to March 31, 2019. As of April 1, 2019, they are no longer members. Stó:lō SEA is managed by the People of the River Referral Office.

The Shxw'ow'hamel First Nation recently signed a framework agreement in 2020 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.25 Songhees Nation

Songhees Nation, a member of the Te'mexw Treaty Association and the Naut'sa Mawt Tribal Council. Their traditional language is Lekwungen, a dialect of the North Straits Salish language. The traditional territory includes areas of the Project's associated marine shipping and marine interests.

The Songhees Nation is involved in negotiations through the Te'mexw Treaty Association, which is negotiating with Canada and BC in the BC Treaty Process on behalf of its 5 member bands: Malahat, Sc'ianew (Beecher Bay), Songhees, Snaw-aw-as (Nanoose) and T'sou-ke First Nations. They are in Stage 5 (Final Agreement Negotiations). Completed agreements include the Te'mexw Treaty Association Agreement-in-Principle (AiP) – 2015 (Songhees Nation 2020b).

Songhees Nation has signed a framework agreement under the *First Nation Land Management Act* and the Songhees Land Code was passed in 2010 (Songhees Nation 2020c).

7.2.26 Sq'éwlets

The tribal name 'Sq'éwlets' comes from the word 'q'éw', meaning 'to go around the bend in the river': the ancient home of our Sq'éwlets community is where the Harrison River rounds the bend and flows into the Fraser River (Stó:lō Research and Resource Management Centre/Stó:lō Nation 2016). The traditional territory is in close proximity to the Project area.

Through funding from the Virtual Museum of Canada, and in collaboration with many universities, an exhibit titled Sq'éwlets: A Stó:lo-Coast Salish community in the Fraser River Valley was produced. The site is intended to bring together the history of the community and to educate the next generation. The Sq'éwlets ask that the site be respected and acknowledged and not reinterpreted. The virtual exhibit was launched in January 2017 at http://www.digitalsqewlets.ca/ (Stó:lō Research and Resource Management Centre/Stó:lō Nation 2016).

Sq'éwlets as a member of the Stó:lō Tribal Council is working with Province of BC on land and resource issues outside of the B.C. treaty process.

Sq'éwlets has signed a framework agreement under the *First Nation Land Management Act* (Indigenous and Northern Affairs Canada 2014).

7.2.27 Squamish Nation

Squamish Nation traditional territory is located in the Lower Mainland region of BC. Prior to, and following the arrival of Europeans in the late 1700s, the lands and waters we used and occupied either exclusively, or jointly with our First Nation neighbours, were as follows: from Point Grey on the south to Roberts Creek on the west; then north along the height of land to the Elaho River headwaters including all of the islands in Howe Sound and the entire Squamish valley and Howe Sound drainages; then southeast to the confluence of the Soo and Green Rivers north from Whistler; then south along the height of land to the Port Moody area including the entire Mamquam River and Indian Arm drainages; then west along the height of land to Point Grey (Squamish Nation 2020).

The Skwxwú7mesh stelmexw (Squamish People) are the descendants of the Coast Salish Aboriginal Peoples who continue to reside in the area now described as the lower Mainland of BC. The largest proportion of Squamish Nation members reside on several urban reserves in the city of Vancouver, North and West Vancouver and the municipality of Squamish, B.C. The Nation's population is scattered among nine communities stretching from North Vancouver to the northern area of Howe Sound (Squamish Nation 2020). The traditional territory is in close proximity to the Project area.

The Squamish Nation is seeking a resolution for the long outstanding claim to our traditional territories. Squamish Nation's Statement of Intent to negotiate was accepted by the BC Treaty Commission in December 1993. This is the first of six stages of the BC treaty process. Presently, Squamish Nation is in the third stage of the process (Squamish Nation 2020).

Squamish Nation status is inactive regarding a framework agreement under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.28 Stz'uminus First Nation

The main Stz'uminus (Chemainus) First Nation community is located near Ladysmith, BC. The asserted traditional territory of the Stz'uminus First Nation goes from the Town of Ladysmith on Vancouver Island to Yale on the lower Fraser River. The traditional territory includes the Project area.

The Stz'uminus First Nation has engaged in the Treaty Process both as a member of the Cowichan Nation Alliance and with the Hul'qumi'num Treaty Group. The Hul'qumi'num Treaty Group has transitioned into Stage 5 of the BC Treaty Process (Final Agreement) (Government of BC 2020b).

The Stz'uminus have signed a framework agreement under the *First Nations Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.29 Tsartlip First Nation

The Tsartlip First Nation is a First Nation located on the Saanich Peninsula, in Saanich territory on Vancouver Island. The traditional territory covers the Saanich Peninsula and the Gulf Islands (Government of BC 2020b). The traditional territory includes areas of the Project's associated marine shipping and marine interests.

Tsartlip First Nation is in negotiation with the Province outside the BC Treaty Process. The Province of BC and Tsartlip First Nation signed an Interim Reconciliation Agreement on March 23, 2017. The Tsartlip First Nation is noted as short term inactive regarding a framework agreement under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.30 Tsawout First Nation

The Tsawout First Nation is one of five bands that constitute the Saanich Nation. The other bands of the Saanich Nation are Tsartlip, Tseycum, Malahat and Pauquachin. The traditional territory includes the Saanich Peninsula, south to Mount Douglas, across to Mount Finlayson and Goldstream. In addition, the Southern Gulf Islands, reaching to Point Roberts, and San Juan Islands (Tsawout First Nation 2020). The traditional territory includes areas of the Project's associated marine shipping and marine interests.

That Tsawout First Nation is not involved in the BC Treaty Process (Government of BC 2020b). Tsawout First Nation has signed a framework agreement under the *First Nation Land Management Act (*Tsawout First Nation 2020a).

7.2.31 Tsawwassen First Nation

The TFN inhabit the lands nearest to the Project but have used traditional lands over a much wider area. According to the TFN website:

> Our land base is deeply connected to our identity. Our traditional territory is bordered on the northeast by the watersheds that feed into Pitt Lake, down the Pitt River to the city of Pitt Meadows, where they empty into the Fraser River. It includes Burns Bog and part of New Westminster, following the outflow of the Fraser River just south of Sea Island. From Sea Island, it cuts west across the Salish Sea to Galiano Island and includes all of Saltspring, Pender and Saturna Islands. From there, our territory continues northeast to include the Point Roberts Peninsula and the watersheds of the Serpentine and Nicomeckl rivers. (Tsawwassen First Nation ND).

In 2007 the TFN signed a modern treaty with Canada. The treaty came into effect on April 3, 2009. The TFN is the only treatied nation with direct interests in the Project and is the Indigenous group closest to the Project. The Project is located adjacent to the lands and water lots owned by the TFN as part of TFN Final Agreement between the nation, Canada and the Province of BC (Tsawwassen First Nation ND). The Project also falls within or adjacent to water bodies considered for traditional and economic use by the TFN in the TFN Harvest Agreement which forms part of the final agreement.

The TFN has not signed a framework agreement under the *First Nation Land Management Act*.

GCT signed a Memorandum of Understanding with TFN in 2010. The Memorandum of Understanding outlines Principles of Collaboration to work together with transparency, honesty, and integrity, including participation in joint economic development opportunities, collaborate to develop new strategies to enhance local and regional economies, and adopt a respectful communication protocol among other principles.

7.2.32 Tseycum First Nation

The Tseycum First Nation government is located on southern Vancouver Island near Victoria. Tseycum (Union Bay Indian Reserve No.4) is one of the four Saanich villages of Southern Vancouver Island, we are at the centre of Patricia Bay on the Saanich Peninsula. In the Sencoten language, Tseycum is spelled Wsikem and means Land of Clay (Tseycum First Nation ND). The traditional territory includes areas of the Project's associated marine shipping and marine interests.

Tseycum First Nation is negotiating land and resource issues with BC outside of the BC Treaty Process (Government of BC 2020b).

The Tseycum First Nation recently signed a framework agreement in 2019 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.33 Tsleil-Waututh Nation

The Tsleil-Waututh Nation (People of the Inlet) state that:

The heart of our community is now centred on Burrard Inlet, between Maplewood Flats and Deep Cove in North Vancouver. But traditional use studies and archaeological evidence show our ancestors occupied a vast area, about 1,865 square kilometres (190,000 hectares). Our traditional territory encompasses wilderness watersheds northwards to Mount Garibaldi, Coquitlam Lake in the east, and Howe Sound to the west.

This territory was a land of plenty, with abundant fish and game to sustain the Tsleil-Waututh and our neighbours, other First Nations we partnered with through marriage or protocol. We shared resources to provide for all and maintain the area's abundance.

We never ceded or relinquished our responsibility for this territory. But its resources have been exploited and damaged through industrialization and urbanization. Our nation holds Aboriginal title over what is now a highly urbanized area, which we share with many private and public interests. Our land claim under the treaty process is complex for this reason; nevertheless, we:

- Seek a treaty that prescribes Tsleil-Waututh inclusion in all decisions involving our traditional territory; and
- Assert our constitutionally protected Aboriginal rights over our traditional territory

Our birthright and obligation as Tsleil-Waututh people is to care for the lands and waters of our territory to ensure future generations can thrive here (Tsleil-Waututh Nation ND).

The Project falls with the consultative boundaries of the Tsleil-Waututh Nation but not within the Tsleil-Waututh Nation's statement of claim.

Tsleil-Waututh Nation has been in Stage 4 of the BC Treaty Process for many years, but nothing has been finalized to date (Government of BC 2020b).

Tsleil-Waututh Nation recently signed a framework agreement in 2019 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.34 T'Sou-ke Nation

The T'sou-ke Nation of the Coast Salish peoples, is a band government whose reserve community is located on Vancouver Island, BC. Its traditional territory includes an area from west of the Saanich Inlet to the southern tip of Vancouver Island, but also includes the traditional territory claimed by the Te'mexw Treaty Association, which includes land from Port Alberni east to Parksville and marine and land areas south into Washington State. In the SENĆOŦEN language, the word T'Sou-ke is the name of the Stickleback fish that live in the estuary of the river (T'Sou-ke Nation 2018). The traditional territory includes areas of the Project's associated marine shipping and marine interests.

T'sou-ke First Nation is a member of the Te'mexw Treaty Association, which is negotiating with Canada and BC in the BC Treaty Process on behalf of its 5 member bands: Malahat, Sc'ianew (Beecher Bay), Songhees, Snaw-aw-as (Nanoose) and T'sou-ke First Nations. They are in Stage 5 (Final Agreement Negotiations). Completed agreements include the Te'mexw Treaty Association Agreement-in-Principle (AiP) – 2015 and T'sou-ke Nation Incremental Treaty Agreement – 2013 (Government of BC 2020b).

T'sou-ke First Nation recently signed a framework agreement in 2020 under the *First Nation Land Management Act* (First Nations Land Management Resource Centre 2020).

7.2.35 Other Agreements

Douglas Treaty First Nations

The Douglas Treaties, also known as the Vancouver Island Treaties, were signed between 1850 and 1854 by James Douglas, chief factor of Fort Victoria and governor of the colony of Vancouver Island.

There were 14 treaties signed with aboriginal people around Victoria, Saanich, Sooke, Nanaimo and Port Hardy and covers approximately 927 square kilometres.

Eight of the Douglas Treaty First Nations are included in the engagement and consultation for the Deltaport Expansion - Berth Four Project. Of the 8 First Nations, the modern-day Esquimalt Nation has three of the Douglas Treaties, Songhees Nation has two of the Douglas Treaties, Tsawout First Nation and Tsartlip First Nation are combined under one Treaty, and Pauquachin First Nation and Tseycum First Nations are also combined under one Treaty. Beecher Bay (Sc'ianew) First Nation and T'Sou-ke Nation each have a separate Treaty.

Under the Douglas Treaties, First Nations have retained the right to fish and hunt as formerly and retain existing village lands and fields for their use. The Douglas Treaties have held up as treaties in court and have successfully been used to uphold the rights of First Nations.

There have been a number of court cases that have confirmed the rights under the Douglas Treaties (Isaac 2016), these include:

- *R. v. White and Bob*, was decided in 1964. The B.C. Court of Appeal (affirmed by the Supreme Court of Canada) held that the agreements were treaties under the federal Indian Act, and therefore the hunting provisions took priority over provincial game laws.
- *R. v. Bartleman* in 1984. Another hunting case, it affirmed that the Saanich treaty right to hunt on unoccupied public or private land included lands anywhere in the traditional hunting territory of the tribe, whether they were within the lands ceded by this particular First Nation's treaty or not.
- *Saanichton Marina Ltd. v Claxton* in 1989. Tsawout Band successfully obtained a permanent injunction restraining the construction of a marina in Saanichton Bay on the grounds that the proposed facility would interfere with fishing rights promised to them by their 1852 treaty.
- *R. v. Morris in 2005.* The Supreme Court of Canada was asked to decide a very narrow issue: Was a provincial ban on hunting at night a justifiable infringement on the Saanich treaty right to hunt? The court found that night hunting was not inherently dangerous, so the Saanich people could exercise their treaty right to hunt at night as long as they did so in a safe manner.

7.3 Summary of Preliminary Engagement with Indigenous Groups

At the outset of the Project, GCT retained the services of Indigenous community relations advisors. With their assistance, and including that of an experienced strategic advisor who is also a member of a local Indigenous group, GCT developed its engagement and consultation approach with Indigenous groups, which has been adapted over time, and continues to be adapted, to the needs and interests of each group involved.

GCT began early engagement with Indigenous groups, government agencies, and community stakeholders in 2016 in order to inform the DP4 Project. GCT is continuing to undertake early engagement activities on the Project through the development of the Initial Project Description.

The preliminary engagement undertaken by GCT, in sequential order, is as follows:

- Early engagement with Tsawwassen First Nation administration about the proposed Project in the fall of 2016;
- In-person presentation to Tsawwassen First Nation Executive Council on October 12, 2016;
- Update presentation to Tsawwassen First Nation Executive Council on February 8, 2017;
- Tour of GCT Deltaport with Tsawwassen First Nation and discussions on proposed DP4 Project in December 2018;
- GCT shared an advance copy of the Preliminary Project Enquiry (PPE) with TFN in February 2019;
- The initial preliminary presentation of the Project and PPE to Musqueam Indian Band in February 2019;
- The initial presentation of GCT and PPE to Semiahmoo First Nation in February 2019;
- Initial presentation of DP4 to Tsleil-Waututh Nation in June 2019;
- Meeting and formal introduction of the Project with Tsleil-Waututh Nation in August 2019; further meeting with Tsleil-Waututh took place on June 4, 2020. The meeting included an update and a discussion of a project schedule and possible capacity support for the next phase of the project;
- Project discussion with Semiahmoo First Nation in August 2019;
- Update to Tsawwassen First Nation on the Project in October 2019;
- Presentation to Kwantlen First Nation on April 15, 2020;
- Meeting with council for Tsawwassen First Nation on April 22, 2020;
- Meeting with Seabird Island Band on May 11, 2020 to provide an overview of the Project;
- Presentation to Ashley Doyle, Land Manager of Kwantlen First Nation on May 22, 2020;
- Meeting with First Nations of Maa-Nulth on June 25, 2020 to provide an overview of the Project;
- Meeting with Esquimalt Nation on July 13, 2020 to provide an overview of the Project and related reports;
- Meeting with staff at Katzie First Nation on July 17, 2020 to provide an overview of the Project;
- Meeting with Cowichan Tribes, Halalt First Nation, Lyackson First Nation, Penelakut Tribe and Stz'uminus First Nation on July 29, 2020 to provide a first presentation on the Project and to address questions and issues;

- Meeting with Esquimalt Nation on July 30, 2020 to discuss how they would like to approach funding arrangements for due diligence review or capacity funding;
- Meeting with Pauquachin First Nation on July 31, 2020 to provide an overview of the Project;
- Conference call with the First Nations of Maa-Nulth on July 31, 2020 to discuss negotiation funding; and
- Ongoing discussions with Penelakut Tribe, Halalt First Nation, Stz'uminus First Nation, Cowichan Tribes, and Lyackson First Nation regarding the categories of near-term activities that can be considered for capacity funding.

Engagement via email and/or phone to each Indigenous group occurred between February 24, 2020 and September 2020, to all Indigenous groups.

Follow up phone calls, e-mails and visits to Indigenous group offices were conducted to ensure receipt of the information and to answer any preliminary questions. Where contact information was not available, GCT made requests to the Indigenous groups for appropriate contact regarding engagement for the Project. Project presentation materials were provided to each group for review and follow up conference calls with GCT were offered. Responses from some Indigenous groups ranged from identifying appropriate engagement contacts, identifying engagement processes relevant to each group, capacity funding, preliminary identification of issues and interests.

Preliminary engagement has focused primarily on information sharing about the Project, the next steps in regulatory review will be responding to questions and recording concerns. And, more importantly, using that input to shape the engagement process through the life of the Project. The intention of these activities was to support the Indigenous groups in understanding the proposed Project at an early stage and ensuring fulsome input and participation by those groups. Further details are provided in the GCT DP4 Early Engagement Plan.

In keeping with GCT's commitment to progressive Indigenous relations, we expect to ensure fulsome, early-stage consultation and engagement with potentially affected Indigenous groups in and near the Project area. The input of Indigenous groups will continue to shape GCT's interactions throughout the Project.

7.3.1 Key Interests or Issues Identified

Table 26 summarizes only the key issues or interests identified by Indigenous groups as a result of the early engagement and is not an exhaustive list of all Indigenous groups GCT has attempted to engage with as outlined in Table 25.

GCT is committed to working with and engaging identified Indigenous groups throughout the environmental assessment process and beyond to identify appropriate information needs and requirements and to incorporate Indigenous knowledge both in the identification and assessment of potential Project effects. As additional feedback is received it will be incorporated into the Detailed Project Description, particularly as it relates to frequency and method of engagement. Where in-person presentations have been requested, GCT will endeavour to hold these via video conference or telephone until in-person meetings are permitted.

Table 26: Summary of Key Issues Raised by Indigenous Groups to Date.

Indigenous Group	Interests/Issues Raised[1]
Beecher Bay (Sc'ianew) First Nations	Concerned about adverse environmental impacts. They indicated that they would also like to know about the opportunities available to engage and what benefits and opportunities there could be for the community. Sc'ianew is undertaking a further assessment of Project and will determine how they would like to proceed.
Cowichan Tribes	Cowichan Tribes has advised that they are setting up an informal table of related First Nations that would include Halalt First Nation, Stz'uminus First Nation, Penelakut Tribe, and Lyackson First Nation. Capacity funding is currently being discussed. Natalie Anderson, Referral Officer is now the primary contact for the Cowichan Tribes.
Ditidaht First Nation	Chief Tate indicated that he would present the information to Council when he was next back in the village of Nitinaht and would advise GCT how they would like to proceed. Shelley Chester, Treaty Coordinator, indicated that it was best talk to Jeneen Hunt Executive Director for the Band.
Esquimalt Nation	Important components for Esquimalt include, certainty, environmental and cultural impacts, role in governance and managements in the Salish Sea, protecting their waters and how they might benefit economically from the Project. Esquimalt Nation indicated that they would be requesting negotiation funding to conduct a review of the Project.
First Nations of Maa-Nulth	Initial concerns of increased commercial marine traffic were identified. First Nations of Maa-Nulth requested a discussion on the Project and Negotiation Funding. Any funding provided would cover the five communities that are a part of the First Nations of the Maa-nulth Treaty Society Nation and would be required to agree before any agreement could move forward with GCT. First Nations of Maa-Nulth requested several reports and studies referenced in the Project presentation, which were provided by GCT.
Halalt First Nation	Halalt First Nation is determining how they would like to be involved. GCT to engage with Caroline Gladstone, General Manager. Halalt First Nation has significant concerns about the cumulative effects of increased shipping in the Salish Sea and the impact on fisheries and gathering. They are a part of the informal table of related First Nations that would include Cowichan Tribes, Halalt First Nation, Stz'uminus First Nation, Penelakut Tribe, and Lyackson First Nation.
Katzie First Nation	Recent band council elections have taken place. Katzie First Nation requested additional information on the Project and staff entered into preliminary discussions with GCT regarding the Project. Katzie First Nation does not consider early engagement by GCT formal engagement and will wait to hear from the IAAC through the formal process once the IPD is filed.

[1] All Indigenous Groups listed in alphabetical order in Table 25 were contacted during early engagement and GCT is in ongoing discussions and meetings to better understand capacity requirements, engagement process and Project interests and concerns.

Table 26: (Cont'd.)

Indigenous Group	Interests/Issues Raised[1]
Kwantlen First Nation	Kwantlen First Nation identified the following issues/interests: • Additional volume of container traffic; • Road and rail traffic; • Emissions; • Support for cumulative effects; • Capacity funding; and • Environmental impacts and mitigation particularly in relation to the Fraser River and dredging. The following information and documents were requested by Kwantlen First Nation, and GCT has provided them: • Road and rail traffic studies that have been completed for RBT2; • Further information on fill and dredge requirements; • Copies of studies GCT has done to date; and • Further detail on the construction stages of DP4; and • Information on capacity funding Kwantlen First Nation has received further information from GCT on submitting a capacity funding request.
Lyackson First Nation	Shannon Gammie, Director of Operations, will be the key contact at this time. Lyackson First Nation is currently working on internal resourcing and considering how best to proceed with engagement. They are particularly interested in the off-setting measures that are proposed to mitigate impacts on Lyackson First Nation's interests and the capacity funding needed to properly assess their concerns. Other concerns included increased anchorage of ships near their reserve and in their traditional territory. Going forward, this Project will be taken to Chief and Council for direction. They are a part of the informal table of related First Nations that would include Cowichan Tribes, Halalt First Nation, Stz'uminus First Nation, Penelakut Tribe, and Lyackson First Nation.
Malahat Nation	Tristan Gale, Executive Director of Environment and Sustainable Development, was initially identified as the contact person for this file and is interested in organizing a conference call. Subsequently, Heather Adams, Lands and Referral Officer, is now the primary contact for this file. Project information was provided, and Malahat Nation have identified the following concerns: • continuation of a sustainable fisheries; • being able to fully utilize their commercial crab licenses; • maintaining and growth of marine mammals in the Salish Sea; • eco-systems for migratory birds; and • impacts on cultural practices.

[1] All Indigenous Groups listed in alphabetical order in Table 25 were contacted during early engagement and GCT is in ongoing discussions and meetings to better understand capacity requirements, engagement process and Project interests and concerns.

Table 26: (Cont'd.)

Indigenous Group	Interests/Issues Raised[1]
Matsqui First Nation	Indicated interest in participating in the environmental assessment for the Project. They are particularly concerned about the impact on waterways and fishing, the "referral" process from the federal/provincial governments with respect to First Nations involvement, and capacity funding. The decision-making body consists of 9 members of which three are elected. The elected members are the Chief and two Counsellors. The other 6 members are selected by each family in the community. A decision is made when at least 5 members approve or reject a project.
Métis Nation British Columbia	Interested in learning more about the proposed Project and would like to be involved in the engagement and consultation process. They were interested in additional information about the Project to share with internal team, which was provided, and a follow up meeting has been offered by GCT. GCT sent an introductory email to Daniel Fontaine, new CEO, regarding the Project and offering a briefing.
Pauquachin First Nation	Pauquachin First Nation expressed concerns about the long-term sustainability of the Salish Sea. They are also interested in opportunities related to capacity building and training. Chief David will provide a copy of GCT's Project presentation to Council to determine their interest in participating. If the decision is to move forward, they would be interested in entering into a Mutual Benefit Agreement with GCT and would look to the Federal agencies involved in the project to provide support for participation in the EA process.
Penelakut Tribe	Penelakut Tribe are a part of the informal table of related First Nations that would include Cowichan Tribes, Halalt First Nation, Stz'uminus First Nation, Penelakut Tribe, and Lyackson First Nation.
People of the River Referral Office	The People of the River Referral Office requires the completion of an online submission in order to commence engagement. People of the River Referral Office confirmed that GCT's submission has been received and requested that shapefiles to be submitted before the referral is fully accepted. The Office has received the Shapefiles and has changed the referral status to Analysis Stage.
Seabird Island Band	Chief Seymour indicated that he would discuss the Project with Daryl (Chuck) McNeil, Strategic Advisor, Seabird Island Band about how they should engage on this Project. The Band office remains open for essential services only, but they would like to engage on the Project via a Teams call and will provide an available time. Chief Seymour retired prior to the elections and former Counsellor Jim Harris was elected Chief. Seabird Island Band raised a number of issues on the video call, including increased rail and truck traffic, impacts on fisheries and capacity funding. Seabird Island Band has received further information on submitting a capacity funding request.

[1] All Indigenous Groups listed in alphabetical order in Table 25 were contacted during early engagement and GCT is in ongoing discussions and meetings to better understand capacity requirements, engagement process and Project interests and concerns.

Table 26: (Cont'd.)

Indigenous Group	Interests/Issues Raised[1]
Semiahmoo First Nation	GCT met with Chief Harley Chappell on a number of occasions and he raised the following: • General concerns with the environmental assessment process for smaller nations; • Lack of baseline and cumulative effects understanding in South Salish Sea; • Capacity support issues by proponent and government; • Previous studies on Roberts Bank have not considered effects on Boundary Bay; • Loss of clamming; • Potential loss of crabbing; • How to develop effective methods internally to properly review the Project as a smaller nation; and • Indicated Traditional Use study (not specific to DP4) is in preliminary stages.
Stz'uminus First Nation	Stz'uminus First Nation are a part of the informal table of related First Nations that would include Cowichan Tribes, Halalt First Nation, Stz'uminus First Nation, Penelakut Tribe, and Lyackson First Nation.
Tsawout First Nation	Tsawout First Nation's Band Administrator indicated that they would discuss the Project internally and advise if they would like to proceed regarding further discussions.
Tsawwassen First Nation	TFN will advise if they would like to see a draft of the IPD before it is formally submitted but do not need to see a draft at this time. TFN also requested and GCT provided additional documentation and studies related to the Project. They are specifically interested in: • Public or private funds used for the Project; • Impact of invasive species to Roberts Bank as a result of port activity; • What specific habitat would be affected by DP4; • Impacts to "no float zones" of DP4; • Confirm habitat bank compensation needed for DP4; • Amount of dredging required for DP4; • Impacts on crabs and eelgrass; • Human health assessment, in particular as it relates to the closer proximity of DP4 to residential development; and • Boat access.

[1] All Indigenous Groups listed in alphabetical order in Table 25 were contacted during early engagement and GCT is in ongoing discussions and meetings to better understand capacity requirements, engagement process and Project interests and concerns.

Table 26: (Cont'd.)

Indigenous Group	Interests/Issues Raised[1]
Tsleil-Waututh Nation	Requested GCT open a file with the Nation per their protocol. Would like a greater focus on cumulative effects studies. During a meeting on June 4, 2020, Tsleil-Waututh Nation requested the following: • A project schedule to better plan for resourcing and necessary capacity support; • Any information received thus far from DFO; • Any maps of related to potential navigational or fishery closures; and • Copies of studies GCT has done to date. GCT has provided the requested documentation to Tsleil-Waututh Nation.
T'sou-ke Nation	The T'sou-ke Nation has made a request for capacity funding before initial conversations and meetings can be scheduled. GCT provided information on near-term capacity funding.

7.3.2 Summary of Planned Indigenous Engagement Activities

Based on our preliminary or early engagement with Indigenous Groups outlined in Section 7.3, GCT expects to carry out the following activities during the early engagement phase. These efforts will be coordinated with the regulatory agencies to ensure Indigenous groups are receiving the most current information about the EA process and the opportunities to engage:

- Continuous engagement with Indigenous groups during and beyond the regulatory agencies' review of the Initial Project Description and GCT DP4 Early Engagement Plan;
- Solicit further and ongoing feedback on the Project through follow up phone calls, emails, correspondence, topic-specific workshops, in-person presentations (if possible), or video presentations with interested Indigenous groups;
- Development of additional engagement tools as requested or directed by Indigenous groups;
- Schedule site tours of GCT Deltaport with interested Indigenous groups, if possible; and
- Understand and support the capacity required for all Indigenous groups to allow for robust participation in the EA process.

Local and traditional knowledge is critical to the development of the Initial Project Description and, through engagement activities, some Indigenous groups have provided comments related to their respective community not reflected in western science-based environmental studies, particularly related to cumulative effects. The Initial Project Description was updated to reflect these comments but GCT acknowledges that further discussion and analysis of this knowledge are required. Some nations may not yet have completed traditional use studies for the area or with specific relevance to the Project. GCT will work with Indigenous groups to ensure their level of analysis is sufficient for each Indigenous group to make informed decisions. Prior to engagement, GCT undertook a

[1] All Indigenous Groups listed in alphabetical order in Table 25 were contacted during early engagement and GCT is in ongoing discussions and meetings to better understand capacity requirements, engagement process and Project interests and concerns.

comprehensive review of any relevant agreements, memorandums of understanding, assessment protocols, treaties or other publicly available information of potentially affected Indigenous groups. Where information is available, GCT used assessment protocols or assessment bodies identified by Indigenous groups to conduct early engagement through the appropriate avenue and gather feedback on the Project.

GCT will continue to seek feedback on topics of interest, point-of-contact and identify group-specific consultation policies, protocols or preferences to better inform our engagement efforts. To support this work, GCT will ensure an appropriate level of internal resourcing and capacity funding is provided to Indigenous groups, when requested, that meets the needs of each Indigenous group.

Through early engagement efforts with Indigenous communities, GCT became aware of a confidential protocol agreements that may exist between VFPA and some Indigenous groups requiring them to first report to VFPA all interactions with terminal operators and their potential project proposals related to port lands. As such, it is unclear how the existence of such an agreement may impact GCT's ability to obtain early engagement and feedback from all potentially impacted Indigenous communities.

8 ENGAGEMENT AND CONSULTATION WITH GOVERNMENTS, THE PUBLIC AND OTHER PARTIES

8.1 Public and Stakeholder Engagement

GCT understands that the residents and stakeholders in the GCT community expect all Project communications to be transparent, timely and responsive to community hopes and concerns. GCT has been operating in Delta for more than 20 years and the company is focused on continuing to be a responsible neighbour by being open and engaged when responding to community requests and concerns. Regarding public and stakeholder engagement, GCT will:

- Ensure that opportunities to engage on the Project are made apparent to the public via local media, publicly accessible websites, and/or other available and appropriate means;
- Conduct public engagement in a way that removes as many barriers to participation as possible and captures a diverse range of feedback;
- Tailor engagement to the needs of the community by asking the right questions of the right people to gain meaningful feedback;
- Help the public better understand how to provide useful feedback on the Project; and
- Consider feedback provided during its Project design, plans and/or studies and communicate results of these considerations.

To ensure that engagement is focused and relevant, GCT has created a list of the groups, populations, or individuals that will be engaged with as part of public and stakeholder engagement. This includes all those who could be directly or indirectly affected by the Project such as residents from nearby communities, businesses and business groups, non-government organizations, academic institutions, community groups, recreation groups, tenure holders and other public stakeholders. The list of groups that were identified, engaged or consulted with in the preparation of the Initial Project Description are provided in Table 27.

As noted in Table 27, GCT has identified Hwlitsum First Nation as a potentially interested group in the Project. GCT understands that at this time, Hwlitsum has attempted to obtain recognition as an Indian Band but neither the federal nor provincial governments recognize them as a Band under the *Indian Act*.

Table 27: List of Public and Stakeholder Groups Identified for Engagement.

ORGANIZATION	RATIONALE	STATUS
Environmental, Community and Non-Governmental Organizations		
Against Port Expansion	Community group that previously expressed interest in developments at Roberts Bank. Members sit on various environmental committees in the region.	Engaged
Area I Crab Fisherman Association	Stakeholder group who previously expressed interest in developments at Roberts Bank.	Identified

Table 27: (Cont'd.)

ORGANIZATION	RATIONALE	STATUS
Environmental, Community and Non-Governmental Organizations (Cont'd.)		
BC Great Blue Heron Society	Stakeholder group who previously expressed interest in developments at Roberts Bank.	Identified
BC Nature: Delta Naturalists Society	Stakeholder group who previously expressed interest in developments at Roberts Bank.	Identified
Bird Studies Canada	Stakeholder group who previously expressed interest in developments at Roberts Bank.	Engaged
Boundary Bay Conservation Committee	Community group that previously expressed interest in developments at Roberts Bank.	Engaged
Burns Bog Conservation Society	Community group that is interested in the preservation of Burns Bog.	Identified
David Suzuki Foundation	Stakeholder group that previously expressed interest in developments at Roberts Bank.	Identified
Delta Farmers' Institute	Stakeholder group that previously expressed interest in developments at Roberts Bank.	Identified
Ecojustice	Local community group that previously expressed interest in developments at Roberts Bank.	Identified
Fraser Voices	Local community group that previously expressed interest in developments at Roberts Bank.	Engaged
First Nations Fisheries Council	The First Nations Fisheries Council works with and on behalf of BC First Nations to protect and reconcile First Nations rights and title as they relate to fisheries and the health and protection of aquatic resources.	Engaged
Georgia Strait Alliance	Environmental group with an interest in the protection of the Georgia Straight.	Identified
Hwlitsum First Nation	GCT understands that the Government of Canada and the Government of BC does not currently recognize Hwlitsum as a band under the *Indian Act*. GCT will continue engagement efforts until such time as GCT is able to hear their perspective on the Project.	Engaged
Port Community Liaison Committee	Local community group established by VFPA to discuss port expansion projects.	Engaged
Raincoast Conservation Foundation	Conservation group that previously expressed interest in developments at Roberts Bank.	Identified
Wilderness Committee	Stakeholder group that previously expressed interest in developments at Roberts Bank.	Identified

Table 27: (Cont'd.)

ORGANIZATION	RATIONALE	ENGAGED
Business, Labour and Trade Organizations		
Business Council of British Columbia	Stakeholder group with an interest in economic development.	Engaged
Canadian Chamber of Commerce	Stakeholder group with an interest in west coast container capacity.	Engaged
Delta Chamber of Commerce	Stakeholder group with an interest in economic development.	Engaged
Greater Langley Chamber of Commerce	Stakeholder group with an interest in economic development.	Identified
Greater Vancouver Board of Trade	Stakeholder group with an interest in economic development.	Engaged
Greater Vancouver Gateway Council	Stakeholder group with an interest in west coast container capacity.	Identified
Independent Contractors and Businesses Association	Stakeholder group with an interest in economic development.	Engaged
International Longshore & Warehouse Union	Labour group currently working at GCT Deltaport.	Engaged
Retail Council of Canada	Stakeholder group with an interest in economic development.	Identified
Richmond Chamber of Commerce	Stakeholder group with an interest in economic development.	Identified
Surrey Board of Trade	Stakeholder group with an interest in economic development	Engaged
Railroad and Shipping Stakeholders		
BC Rail	Stakeholder group with an interest in west coast container capacity.	Engaged
BC Trucking Association	Stakeholder group with an interest in the movement of goods to and from Roberts Bank.	Identified
Canadian Pacific Railway Ltd.	Stakeholder group with an interest in west coast container capacity.	Engaged
Chamber of Shipping	Stakeholder group with an interest in west coast container capacity.	Engaged
CN Rail	Stakeholder group with an interest in west coast container capacity.	Engaged
Shipping Federation of Canada	Stakeholder group with an interest in west coast container capacity.	Engaged
United Truckers Association	Stakeholder group with an interest in the movement of goods to and from Roberts Bank.	Identified

8.1.1 Summary of Early Public and Stakeholder Engagement

To date, engagement activities have been well received by the community and GCT holds regular informal and formal meetings with community groups and stakeholders through the development of the Initial Project Description and GCT DP4 Early Engagement Plan. Specific early engagement activities include:

- Project website: https://globalterminalscanada.com/projectupdates/;
- Annual newsletter to all Delta, Ladner and TFN residents regarding GCT's yearly activities and providing an update on the Project;
- Presentation to First Nations Fisheries Council;
- Presentations to the Port Community Liaison Committee;
- Presentations to Delta Chamber of Commerce;
- Presentations to Greater Vancouver Board of Trade Transportation and Infrastructure Committee;
- Presentations to Business Council of British Columbia;
- Presentations to supply chain partners;
- Social media and traditional print advertising;
- Individual and group meetings with local and provincial environmental groups;
- Voice message to all Delta residents regarding the Project;
- Review of feedback from groups in relation to previous port expansion projects; and
- Email to key stakeholder groups to solicit feedback on frequency and method of engagement.

8.1.2 Key Interest or Issues Identified

Table 28 further outlines the public's expressed interest in the proposed Project to date, such as concerns, potential benefits, Project design improvements, and how the public wishes to be engaged during the early engagement phase and the environmental assessment as a whole.

As mentioned above, GCT has been engaging with these organizations in relation to previous port expansion projects and has carefully considered their previous comments. Overall topic areas of engagement and feedback included the following:

- Human Health: light, noise, air quality, truck traffic, access to fisheries, and transportation infrastructure;
- Environment: biofilm, eelgrass, marine conservation and conservation areas, migratory birds, shorebirds, barn owls, appropriate habitat offsetting, marine invertebrates, Pacific Salmon, SRKW, marine traffic, and underwater noise; and
- Economy: container capacity requirements, Project funding, and mode of operations.

Table 28: Key Issues Raised by Public and Stakeholders.

Organization	Issues Raised
Various environmental groups	Biofilm and migratory shorebirds
Against Port Expansion	Light pollution and its effect on western sandpiper.
Business Council of British Columbia	Supportive of increased capacity on Canada's west coast.
Bird Studies Canada	Concerns about bird habitats that are being negatively affected by the expansion of port infrastructure. Interested in identifying and improving those options that maintain the health and function of the estuary. On June 9, Bird Studies Canada provided written feedback on the Project outlining areas where they have concerns. These include cumulative impacts, seabirds and seaducks along the shipping route, waterfowl and herons, shorebirds, raptors, land birds and the impact of the project on birdwatching in the area. Bird Studies Canada also suggested determining baseline populations and distributions of birds using the estuary.
Boundary Bay Conservation Committee	Location of existing power lines on the causeway and effect on migratory bird populations.
Chamber of Shipping	Questions regarding timeline and how long will EA and permitting take.
Delta Chamber of Commerce	General concerns regarding container capacity and procedure for approval. The Chamber also requested specific information about development on the east side of the causeway. GCT provided this information in the presentation in June 2020.
Delta community groups	General concerns regarding the Fraser River and Estuary, migratory bird populations, salmon, herring, crabs, eulachon and other wildlife of the Fraser River and estuary and the waters beyond, including the three resident killer whale pods, already listed as endangered.
Greater Vancouver Board of Trade	Supportive of increased capacity on Canada's west coast.
International Longshore & Warehouse Union	Level of automation and potential job loss.
Port Community Liaison Committee	Specific questions regarding the amount of capacity and cost of the Project. Concerns regarding the Projects effects on biofilm and migratory bird populations.
Railways	Supportive of the Project and would be interested in further engaging in the process in relation to railway infrastructure and configuration.

8.1.3 Planned Public and Stakeholder Engagement

To support further engagement of the Initial Project Description, GCT is considering the following planned public and stakeholder engagement activities:

- Update the Project website with engagement opportunities;
- Advertise public engagement opportunities with the local media and social media channels;
- Deliver a virtual community newsletter with information about the project, a link to the Project website and any government resources for engagement;
- Schedule several in-person or virtual town hall meetings to discuss the Project and allow for public feedback; and
- Schedule smaller in-person or virtual engagement sessions by issue, such as human health, the environment, and the economy.

As the public is familiar with GCT and its previous projects in the region, continuing to build on the positive reputation we have built with the community is important to GCT. As much of our workforce lives south of the Fraser River, we feel it is critical to consult the labour union International Longshore & Warehouse (ILWU Local 502) in the discussions about Project design and mode of operation.

GCT has considered potentially affected populations that may be underrepresented by traditional engagement methods, such as town halls. GCT is proposing the following measures to reach under-represented communities:

- Provide a variety of in-person and virtual engagement methods and locations;
- Offer multiple times of day for in-person and virtual engagement;
- All public locations will be as close as possible to public transit for increased accessibility;
- Any news releases will be distributed to relevant in-language media;
- Project materials will be in digital and print form; and
- All public venues chosen will be wheelchair accessible locations.

Further details on GCT's planned public and stakeholder engagement is provided in the GCT DP4 Early Engagement Plan.

8.2 Government Engagement

As a member of the Delta community, GCT will continue ongoing consultation and communications with the City of Delta, its neighbouring municipalities, the provincial government of BC, and the Government of Canada, among others. GCT has a long history of successful operations in the community and will continue to build on our previous engagement to ensure the Project meets the objectives of our neighbouring communities and government agencies. By incorporating feedback from these agencies during our 23 years in operations at Roberts Bank, we have established strong lines of communication and understand the needs of these municipalities, provincial and federal government agencies.

An initial list of federal, provincial and municipal agencies that GCT has identified or, engaged with in the preparation of the Initial Project Description is provided in Table 29 and includes the status of that engagement. Specific concerns or feedback, if any, are outlined in Table 30.

Table 29: List of Municipal, Provincial and Federal Agencies Identified for Engagement.

AGENCY	STATUS
Municipal Government	
City of Delta	Engaged
City of Langley	Identified
City of Richmond	Identified
City of Surrey	Identified
City of Vancouver	Engaged
Delta Fire & Emergency Services	Identified
Delta Police Department	Engaged
Metro Vancouver	Identified
Provincial Government	
Member of Legislative Assembly Delta North	Engaged
Member of Legislative Assembly Delta South	Engaged
Ministry of Environment & Climate Change Strategy	Engaged
Ministry of Transportation and Infrastructure	Engaged
Office of the Premier	Engaged
Provincial Government Agencies/Health Authorities	
BC Environmental Assessment Agency	Engaged
Fraser Health Authority	Identified
Federal Government	
BC Caucus of the Conservative Party of Canada	Engaged
BC Caucus of the Liberal Party of Canada	Engaged
Delta Member of Parliament	Engaged
Minister of Environment and Climate Change	Engaged
Minister of Fisheries and Ocean	Engaged
Minister of Transport	Engaged
Office of the Prime Minister	Engaged
Privy Council Office	Engaged
Federal Government Agencies	
Canadian Transportation Agency	Engaged
Environment and Climate Change Canada	Engaged
Health Canada	Identified
Impact Assessment Agency of Canada (IAAC)	Engaged
Parks Canada	Identified
Transport Canada	Engaged
Vancouver Fraser Port Authority	Identified

8.2.1 Summary of Early Government Engagement

Since 2015, GCT has been proactively meeting with municipalities and provincial and federal government agencies specifically in relation to the Project, as initially identified in Table 29.

Given our proximity to the City of Delta and surrounding municipalities, GCT has conducted multiple in-person meetings and presented to Mayor and Council as a whole to provide updates on the Project over the years. GCT hosted the Mayor and senior staff at an in-person briefing at Deltaport on March 6, 2019, followed by a tour of the terminal which allowed for an open dialogue on the Project location, environmental and community effects, and engagement opportunities. On May 13, 2020, GCT met virtually with the City of Delta to provide a further update on the Project and, in particular, the development of the Initial Project Description. GCT understands that the City of Delta wrote to the Minister of Environment and Climate Change in July 2020 requesting that the DP4 Project be assessed as a potential alternative to the proposed RBT2 Project[1].

Beginning in February 2016, GCT has been engaging provincially with Ministries, department staff and relevant agencies, and elected Members of the Legislative Assembly. These meetings offered a chance for GCT to describe the Project, solicit early feedback, and incorporate that feedback into its Initial Project Description and GCT DP4 Early Engagement Plan. Engagement included in-person meetings in Vancouver, Victoria and Delta; tours of GCT Deltaport; emails; and phone calls to provide an overview of the Project and answer any specific questions or concerns. GCT met with the BCEAO on March 20, 2020, to more formally initiate discussions in relation to the Project and obtain feedback on the GCT DP4 Early Engagement Plan and Initial Project Description under the *Environmental Assessment Act* (2018).

GCT has been actively engaged with federal officials, relevant Ministries, department staff and agencies since January 2015. This early engagement with the federal government has taken a number of forms, including in-person meetings in Vancouver and Ottawa, tours of GCT Deltaport, emails and formal correspondence with updates on the Project. GCT met with IAAC on March 11, 2020, to formally initiate discussions in relation to the Project and obtain feedback on the GCT DP4 Initial Project Description under the new IAA. GCT has engaged with DFO representatives at the federal level and provided a Project update to DFO's regional office on April 9, 2020.

Further details on previous municipal, provincial and federal engagement and contacts identified is provided in the GCT DP4 Early Engagement Plan.

8.2.2 Key Interest or Issues Identified

Table 30 provides a list of the key interests or issues raised by each organization, if any.

[1] https://delta.civicweb.net/document/197779?id=8e66b3ab-b5f7-4b17-8540-57444fec6cc4

Table 30: Key Issues Raised by Municipal, Provincial and Federal Agencies.

Organization	Issues Raised
BCEAO	Provided feedback on Initial Project Description and GCT DP4 Early Engagement Plan.
City of Delta	Project-related noise, light pollution, traffic congestion, and overall human health effects.
DFO	GCT has been engaging with DFO since 2016 on DP4. Recommended early engagement directly with pacific region representative. Regional Manager, David Carter, indicated that DFO prefers that a Request to Review be submitted subsequent to the project description being completed and will review the project in detail at that time. DFO suggested GCT review Section 73 of the *Species at Risk Act*.
ECCC	Concerns around potential Project effects on Biofilm
Impacts Assessment Agency of Canada (IAAC)	The IAAC encouraged cooperation and communication between GCT, IAAC and the BCEAO and would determine respective levels of involvement under the current IAAC-BCEAO collaboration agreement prior to submission of the final Initial Project Description to the IAAC and BCEAO.
Transport Canada	GCT has ongoing engagement with Transport Canada since 2015, issues discussed include port governance and intra-port competition, as well as studies on capacity projections.
VFPA	Issues raised that are subject to judicial review[1]

8.2.3 Planned Government Engagement

GCT has the following goals for engaging with municipalities and government agencies so that they can better understand the proposed Project, ask questions, and provide feedback:

- Provide email updates to municipalities and government agencies on the Project;
- Share the GCT Project website with Project updates and community engagement opportunities;
- Track concerns raised by municipalities and government agencies;
- Provide formal and timely responses to municipalities and government agencies related to Project concerns;
- Offer multiple in-person presentations to staff and council;
- Offer GCT Deltaport site tours;
- Request feedback on public and stakeholder engagement activities; and
- Consider feedback regarding Project design and communicate the results of these considerations.

In addition to the above, GCT will seek recommendations from municipalities and elected officials on how best to engage their community on the Project such as locations for the open house, or suggested community events to participate in. In addition to the demographic information publicly available, we will seek feedback from local government on reaching underrepresented populations to ensure engagement activities are inclusive and representative. Further details can be found in the GCT DP4 Early Engagement Plan.

[1] The VFPA's administrative, permitting and other powers with respect to the DP4 Project, including those related to port operations, are currently the subject of judicial review.

8.2.4 Adjusting Tools of Engagement

Given the evolving response and associated impacts of COVID-19, and the capacity of organizations and individuals to provide feedback at this time, GCT is proposing the following methods of digital engagement be used to ensure robust engagement still takes place. These methods will continue to be deployed for engagement purposes should in-person meetings be permitted in the future. Towards that end, GCT will:

- Establish Zoom for smaller groups and Facebook live for larger groups as the medium for video conferencing. Facebook Live can be recorded and reviewed by the Project team to catalogue feedback;
- Conduct telephone town halls for those without the capability to connect via the internet;
- Ensure the online engagement tools are well distributed and easily found on the Project website; and
- Consider and incorporate further methods, as directed or requested by individual Indigenous groups as needed.

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APPENDIX 1

BCEAA CONCORDANCE TABLE FOR PROJECT DESCRIPTION REQUIREMENTS

BCEAA CONCORDANCE TABLE FOR PROJECT DESCRIPTION REQUIREMENTS

Information Requirement	Initial Project Description Section	Tables/Figures
Executive Summary		
A plain language summary of the IPD that is clear and concise.	Summary of Initial Project Description (separate document)	
Project name;	1.1 Project Status and History	
Project location;	1.1 Project Status and History, 2.1 Project Location	Figure 1, Figure 3
Project industrial sector and type (e.g., open pit metal mine); and	1.1 Project Status and History	
Proponent name, mailing address, phone numbers, email address and website URL. Include the name and contact information of the primary representative for the EA.	1.2 Proponent Information	Table 1
Purpose and Rationale		
A general rationale for why the project has been proposed; and	1.3.2 Need for the Project and Rationale	Table 2, Figure 2
Potential project benefits.	1.3.3 Project Benefits	
Legislative and Regulatory Context		
The type and size of the project, with specific reference to EA Regulatory Triggers [e.g., the EAO Reviewable Project Regulations and *Impact Assessment Act* (Canada) thresholds];	1.4 Environmental Assessment Regulatory Requirements	Table 3
A list of anticipated authorizations and permits;	4.1 Permits, Licenses, Approvals and Authorizations	Table 10
Consider the requirements of any applicable agreements between the Province and Indigenous nations, including treaties;	1.5 Applicable Agreements and Policies	
Consider the requirements of any applicable international agreements between the Province and state or federal governments;	1.5 Applicable Agreements and Policies	
A description of relevant government policies that the project may not be compatible with; and	1.5 Applicable Agreements and Policies	
Proposed timing for conducting the provincial EA and federal EA, if applicable.	2.4 Project Schedule	Figure 5

Information Requirement	Initial Project Description Section	Tables/Figures
Project Status and History		
Project history, including past ownership;	1.1 Project Status and History	
State if it is a new project or a modification to an existing project;	1.1 Project Status and History	
A list of any existing permits or tenure in place;	1.1 Project Status and History	
A description of any previous proposal(s) for the project or a similar proposal and the outcomes and history of the proposal(s), if applicable; and,	1.1 Project Status and History	
If the project was previously declined or terminated, a description of how this proposal differs and how the issues for which the previous proposal was declined or terminated have been addressed.	1.1 Project Status and History	
Project Timing		
A list of proposed project phases (e.g. construction, operation, decommissioning, and reclamation) and the anticipated timing and duration of each phase; and	2.3 Project Activities, 2.4 Project Schedule	Figure 5
Include any known seasonal timing constraints.	2.4 Project Schedule	
Project Location, Activities and Components		
A description of the proposed project's location in a local and regional context, including proximity to communities or locations of interest to the public, government, or Indigenous nations, and key designated or protected areas such as parks or Wildlife Habitat Areas;	2.1 Project Location, 3.3 Proximity to Parks and Protected Areas, 5.4 Human Environment Setting, 7.1 Indigenous Groups	Figure 1, Figure 3, Figure 4
Proposed project activities and components;	2.2 Project Overview and Components, 2.3 Project Activities	Table 4, Figure 1, Figure 4
Proposed on and off-site facilities and equipment;	2.2 Project Overview and Components	Table 4
A brief description of proposed activities related to processing, transportation and/or shipping of materials to/from the site;	2.3 Project Activities	
A description of any other project(s) that are needed for the proposed project to proceed and be feasible (e.g. a pipeline would be needed for an oil and gas facility to proceed);	2.3.4 Physical Activities Incidental to the Project	
A description of the work that has been conducted to arrive at the proposed project as described in the IPD;	2.6 Alternative Means of Carrying out the Project	

Information Requirement	Initial Project Description Section	Tables/Figures
Project Location, Activities and Components (Cont'd.)		
A list of design or siting constraints that are flexible and those that are not flexible;	2.2 Project Overview and Components, 2.6 Alternative Means of Carrying out the Project	
A list of other design or siting options that may be considered; and	2.6 Alternative Means of Carrying out the Project	
Anticipated daily and annual maximum production or operational capacity of the project (if applicable).	2.2 Project Overview and Components, 2.3 Project Activities	Table 5, Table 6
Maps and Shapefiles		
Local and regional scale maps of the project showing its location and known off-site components;		Figure 1, 3 and 4
Shapefiles of the proposed project footprint and the footprint of known offsite components: • Shapefiles must be in ESRI format and include four file types: .shp, .shx, .dbf, and .prj; • Please also provide .KM Z files; • Shapefiles must be in BC Albers (NAD83) projection; • Shapefile polygons and their corresponding polygons on all maps must be identical in shape, size, and location; • Spatial features (.shp and .shx) must be represented as polygons, not as points or line features; • Shapefiles must be named in a way that clearly describes the contents; • To avoid having ArcGIS generate random errors, follow these best practices : avoid starting names by number, add an underscore instead of a space or dash, and do not include a symbol outside of the underscore; and, • Provide shapefiles demonstrating the overlap of known project components with any identified communities or locations of interest to the public. This may include information regarding specific sites of importance to an Indigenous nation or their territory, if this information is not confidential in nature and an Indigenous nation has agreed to allow the information to be shared.	Shapefiles to be provided separately	

Information Requirement	Initial Project Description Section	Tables/Figures
Maps and Shapefiles (Cont'd.)		
Maps must be presented in the required standard format with legible grids and suitable scaling (typically 1:100,000 to 1:150,000 for centralized projects such as a mine, and up to 1:1,500,000 or 1:1,250,000 scale for linear projects such as a pipeline or transmission line); and		Figures 1, 3, 4 and 6
Maps must also include a national Topographic System (NTS) Map number, latitude and longitude references, titles, a north arrow, and relevant legends.		Figures 1, 3, 4 and 6
Indigenous Nation Interests		
A description of the proximity of the proposed project to Indigenous nations' territory, communities, locations of interest, *Indian Act* reserve lands, lands subject to a Treaty, or other relevant agreements;	7.1 Indigenous Groups, 7.2 Summary of Indigenous Groups' Rights, Title Interests and Land Subject to a Land Claim Agreement or Self-government Agreement	
A description of potential project interactions with any identified Indigenous interests;	6.7 Potential Heritage Effects, 6.8 Potential Effects of Project-Related Changes on Indigenous Peoples	Table 22, Table 23, Table 26
A description of alignment of the IPD with Indigenous nation laws, customs and policies; and	6.8 Potential Effects of Project-Related Changes on Indigenous Peoples, 7.2 Summary of Indigenous Groups' Rights, Title Interests and Land Subject to a Land Claim Agreement or Self-government Agreement	
A list of any issues, concerns, or questions raised by Indigenous nations during engagement on the draft IPD or other information shared in relation to the proposed project.	7.3 Summary of Preliminary Engagement with Indigenous Groups	Table 26
Biophysical Environment		
A description of the natural setting characteristics, including coastal, foreshore, riparian, mountainous, watersheds, and agricultural land;	5.3 Biological Setting	
A description of disturbed area characteristics, including brown field; contaminated site(s), and any history of development;	5.2 Previous Disturbances	
Identification of sensitive or vulnerable species, ecosystems, and/or habitats in the project area; and	5.3 Biological Setting	

Information Requirement	Initial Project Description Section	Tables/Figures
Biophysical Environment (Cont'd.)		
A list of existing data, including monitoring reports, previous EAs, regional studies, and/or other sources of information that support the understanding of the existing biophysical conditions.	5.1 Past and Present Environmental Studies in the Region	Table 12
Human and Community Wellbeing		
A description of the proposed project's proximity to local communities, including seasonal or temporary residences;	5.4 Human Setting	
Identification of the municipalities within which the proposed project is located or where effects may occur;	5.4 Human Setting	
A description of the proposed project's proximity to important or sensitive community and natural places such as: municipal boundaries, parks, schools, hospitals, housing, water supplies, roads, railways, and protected and recreational areas;	3.3 Proximity to Parks and Protected Areas, 5.4 Human Setting	
Identification of any sensitive or vulnerable economic, social, heritage, or health values that may be affected by the project; and	6.5 Potential Socio-economic Effects, 6.6 Potential Effects on Human Health and Community Wellbeing and 6.7 Potential Heritage Effects	Table 20, Table 21, Table 22
A preliminary understanding of the anticipated size of the workforce for each project phase, where the workforce will be drawn from, and where the workforce will be housed. Refer to the *Human and Community Wellbeing Guidelines* for further information.	1.3.3 Benefits, 2.2 Project Overview and Components, 6.5 Potential Socio-economic Effects	Table 20
Emissions, Discharges, and Waste		
A high-level outline of anticipated direct project waste and emissions to land, air, and water, including estimated greenhouse gas (GHG) emissions. • This information would include direct emissions that are expected to be above provincial or national standards and emissions that have the potential to interact with Indigenous interests, the biophysical environment, and/or the human environment.	6.3 Atmospheric Emissions, 6.3.1 GHG Emissions, 6.4 Solid, Liquid and Hazardous Waste	Table 16, Table 17, Table 18, Table 19
A description of proposed mitigation measures and/or project design changes to address emissions, including GHGs.	6.3 Atmospheric Emissions, 6.3.1 GHG Emissions	Table 16

Information Requirement	Initial Project Description Section	Tables/Figures
Public and Environmental Safety		
A description of potential malfunctions or accidents associated with the industry or specific to the proposed project and how they will be managed. • Include any proposed outreach to help Indigenous nations, governments and the public better understand the risks and mitigations; and	6.9 Public and Environmental Safety, 7.3 Summary of Preliminary Engagement with Indigenous Groups, 8.1 Public and Stakeholder Engagement, 8.2 Government Engagement	Table 24
• Include any issues raised about public and environmental safety during engagement with Indigenous nations, the public, provincial and federal government agencies, and stakeholders and how issues were considered in developing any mitigation measures or design changes.		
Alternative Means of Carrying Out the Project		
A high-level description of the alternative options for the proposed project, including a rationale for the preferred option that demonstrates how positive and negative effects and/or issues raised during engagement have been considered;	2.6 Alt. Means of Carrying out the Project	
The alternative means of undertaking the proposed project may include information related to: • the use of best available technologies; • the technical and economic feasibility; • the potential effects, risks and uncertainties of those alternatives; • the preferred option and a rationale for this preference; and, • the different options for the project location, project routing, technologies, mitigation, or design.	2.6 Alt. Means of Carrying out the Project	
Effects of the Environment on the Project		
An overview of potential effects of natural hazards or processes and climate change on the proposed project.	6.10 Effects of the Environment on the Project	
Land and Water Use		
An outline of the anticipated project footprint and proposed area of disturbance;	2.2 Project Overview and Components	Figure 1, Figure 3

Information Requirement	Initial Project Description Section	Tables/Figures
Land and Water Use (Cont'd.)		
A description of the land required for the proposed project, including whether the project is located on private lands, provincial or federal Crown lands, or Indian Reserve lands;	3.1 Land Ownership and Tenures	Table 8, Figure 6
Include the applicable zoning, Agriculture Land Reserve designation, land and resource management plans, and other land use designations (e.g. parks and protected areas) and the legal land descriptions and/or tenure numbers of those lands, if known;	3.2 Planning Context and Zoning, 3.3 Proximity to Parks and Protected Areas	
A description of past uses of the land required for the proposed project, including whether the site has been previously developed; and,	3.1 Land Ownership and Tenures, 5.2 Previous Disturbances	
A description of water requirements for the proposed project, if applicable, and the proposed source of water.	2.3.2 Operations	
Land Use Plans		
A list of all relevant land use plans, including provincial land use plans, Indigenous land use plans, and relevant municipal plans; and,	3.2 Planning Context and Zoning	
An identification of any rezoning or changes in land designations that would be required for the proposed project.	3.2 Planning Context and Zoning	
Project Interactions		
A description of potential interactions between the proposed project environments, including Indigenous interests. It may be helpful to present this information in a table format, refer to the *Effects Assessment Policy* for examples of interaction tables;	6.0 Potential Effects of the Project	Tables 13 – 16, and Tables 19-24
A summary of any biophysical feasibility studies undertaken that may be pertinent to understanding potential interactions, if applicable;	5.1. Past and Present Enviro. Studies in the Region	Table 12
A list of any activities proposed to be undertaken during the Early Engagement period to inform the development of the DPD or the Application, should the project proceed to an EA; and,	7 Indigenous Engagement, 8 Engagement and Consultation with Governments, The Public and Other Parties	
An identification of existing cumulative effects in the region that the project may interact with. Refer to the *Effects Assessment Policy* for more information.	6.11 Potential Cumulative Effects	

APPENDIX 2

IAA CONCORDANCE TABLE FOR PROJECT DESCRIPTION REQUIREMENTS

IAA CONCORDANCE TABLE FOR PROJECT DESCRIPTION REQUIREMENTS

Information Requirement	Document Section	Tables/Figures
Part A – General Information		
1 The project's name, type or sector and proposed location.	1.1 Project Status and History	
2 The proponent's name and contact information and the name and contact information of their primary representative for the purpose of the description of the project.	1.2 Proponent Information	Table 1 – Proponent Information
3 A summary of any engagement undertaken with any jurisdiction or other party, including a summary of the key issues raised and the results of the engagement, and a brief description of any plan for future engagement.	8.0 Engagement and Consult. With Gov't. Public and other Parties	Tables 27 - 30
4 A list of the Indigenous groups that may be affected by the carrying out of the project, a summary of any engagement undertaken with the Indigenous peoples of Canada, including a summary of key issues raised and the results of the engagement, and a brief description of any plan for future engagement.	7.0 – 7.3.2 Indigenous Engagement	Table 25 + 26,
5 Any study or plan, relevant to the project, that is being or has been conducted in respect of the region where the project is to be carried out, including a regional assessment that is being or has been carried out under section 92 or 93 of the Act or by any jurisdiction, including by or on behalf of an Indigenous governing body, if the study or plan is available to the public.	5.1 Past and Present Enviro. Studies in the Region	Table 12
6 Any strategic assessment, relevant to the project, that is being or has been carried out under section 95 of the Act.	5.1 Past and Present Enviro. Studies in the Region	
Part B – Project Information		
7 A statement of the purpose of and need for the project, including any potential benefits.	1.3.1 Purpose, 1.3.2 Need for the Project and Rationale, 1.3.3 Benefits	Table 2, Figure 2
8 The provisions in the schedule to the Physical Activities Regulations describing the project, in whole or in part.	1.4 EA Regulatory Requirements	Table 3

Information Requirement	Document Section	Tables/Figures
Part B – Project Information (Cont'd.)		
9 A list of all activities, infrastructure, permanent or temporary structures and physical works to be included in and associated with the construction, operation and decommissioning of the project.	2.2 Project Overview and Components, 2.3 Project Activities	Table 4
10 An estimate of the maximum production capacity of the project and a description of the production processes to be used.	2.2 Project Overview and Components	Tables 4, 5, and6
11 The anticipated schedule for the project's construction, operation, decommissioning and abandonment, including any expansions of the project.	2.3 Project Activities, 2.4 Project Schedule	Figure 5
12 A list of		
(a) potential alternative means of carrying out the project that the proponent is considering and that are technically and economically feasible, including through the use of best available technologies; and	2.6 Alt. Means of Carrying out the Project	
(b) potential alternatives to the project that the proponent is considering and that are technically and economically feasible and directly related to the project.	2.5 Alternatives to the Project	
Part C – Local Information		
13 A description of the project's proposed location, including		
(a) its proposed geographic coordinates, including, for linear development projects, the proposed locations of major ancillary facilities that are integral to the project and a description of the spatial boundaries of the proposed study corridor;	2.1 Project Location	Figure 1, Figure 3
(b) site maps produced at an appropriate scale in order to determine the project's proposed general location and the spatial relationship of the project components;	2.1 Project Location	Figure 1, Figure 3
(c) the legal description of land to be used for the project, including, if the land has already been acquired, the title, deed or document and any authorization relating to a water lot;	3.1 Land Ownership and Tenures	Figure 6
(d) the project's proximity to any permanent, seasonal or temporary residences and to the nearest affected communities;	2.1 Project location, 5.4.2 Human Health Setting, 7.1 Indigenous Groups	Figure 1, Figure 3, Figure 4

Information Requirement	Document Section	Tables/Figures
Part C – Local Information (Cont'd.)		
(e) the project's proximity to land used for traditional purposes by Indigenous peoples of Canada, land in a reserve as defined in subsection 2(1) of the Indian Act, First Nation land as defined in subsection 2(1) of the First Nations Land Management Act, land that is subject to a comprehensive land claim agreement or a self-government agreement and any other land set aside for the use and benefit of Indigenous peoples of Canada; and	7.1Indigenous Groups	Table 25, Figures 1,3 and 4
(f) the project's proximity to any federal lands.	3.1 Land Ownership and Tenures	Figure 6
14 A brief description of the physical and biological environment of the project's location, based on information that is available to the public.	5.3 Biological Setting	
15 A brief description of the health, social and economic context in the region where the project is located, based on information that is available to the public or derived from any engagement undertaken.	5.4 Human Setting	
Part D – Federal, Provincial, Territorial, Indigenous and Municipal Involvement		
16 A description of any financial support that federal authorities are, or may be, providing to the project.	1.1 Project Status and History	
17 A list of any federal lands that may be used for the purpose of carrying out the project.	3.1 Land Ownership and Tenures	Figure 6
18 A list of any jurisdictions that have powers, duties or functions in relation to an assessment of the project's environmental effects.	1.4 EA Regulatory Requirements 4.1 Permits, licences, approvals and authorizations	Table 3, Table 10 and 11
Part E – Potential Effects of the Project		
19 A list of any changes that, as a result of the carrying out of the project, may be caused to the following components of the environment that are within the legislative authority of Parliament:	6.1 Potential Effects in Relation to IAA Requirements	Table 13
(a) fish and fish habitat, as defined in subsection 2(1) of the Fisheries Act,	6.1 Potential Effects in Relation to IAA Requirements	Table 13
(b) aquatic species, as defined in subsection 2(1) of the Species at Risk Act; and	6.1 Potential Effects in Relation to IAA Requirements	Table 13

Information Requirement	Document Section	Tables/Figures
Part E – Potential Effects of the Project (Cont'd.)		
(c) migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994.	6.1 Potential Effects in Relation to IAA Requirements	Table 13
20 A list of any changes to the environment that, as a result of the carrying out of the project, may occur on federal lands, in a province other than the province in which the project is proposed to be carried out or outside Canada.	6.2 Potential Environmental Effects on Federal Lands etc.	Tables 14 and 15
21 With respect to the Indigenous peoples of Canada, a brief description of the impact-that, as a result of the carrying out of the project, may occur in Canada and result from any change to the environment-on physical and cultural heritage, the current use of lands and resources for traditional purposes and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada.	6.7 Potential Heritage Effects, 6.8 Potential Effects of Project-Related Changes on Indigenous Peoples, 7.2 Summary of Indigenous Groups' Rights, Title Interests and Land Subject to a Land Claim Agreement or Self-government Agreement	Tables 22, 23, 25 and 26
22 A brief description of any change that, as a result of the carrying out of the project, may occur in Canada to the health, social or economic conditions of Indigenous peoples of Canada, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada.	6.5 Potential Socio-economic Effects, 6.6 Potential Effects on Human Health and Community Wellbeing, 6.8 Potential Impacts of Project Related Changes on Indigenous Peoples,	Tables 20 - 23
23 An estimate of any greenhouse gas emissions associated with the project.	6.3.1 Greenhouse Gas Emissions	Tables 17 and 18
24 A list of the types of waste and emissions that are likely to be generated-in the air, in or on water and in or on land- during any phase of the project.	6.3 Atmospheric Emissions, 6.4 Solid, Liquid and Hazardous Waste	Table 16 and 19
Part F – Summary		
25 A plain-language summary of the information that is required under items 1 to 24 in English and in French.	Executive Summary	