



PORT of
vancouver

Vancouver Fraser
Port Authority

Project and Environmental Review Report

PER No. 20-055 Portside Blundell Road Improvements

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PER No.:	20-055
Tenant/Permit Holder:	Vancouver Fraser port authority (port authority), Infrastructure Projects
Project:	Portside Blundell Road Improvements
Project location:	Portside Road, and the intersection of No. 8 Road and Blundell Road, Richmond
Land use designation:	Industrial
Applicant:	Vancouver Fraser Port Authority, Infrastructure Projects
Category of review:	C
Recommendation:	That PER No. 20-055 for Portside Blundell Road Improvements be approved.

1. Introduction

The Vancouver Fraser Port Authority (the “port authority”), a federal port authority, manages lands under the purview of the *Canada Marine Act*, which imparts responsibilities for environmental protection. The port authority accordingly conducts project and environmental reviews of works and activities undertaken on these lands to ensure that the works and activities will not likely cause significant adverse environmental effects. This report documents the port authority’s project and environmental review of PER No. 20-055: Portside Blundell Road Improvements (the “Project”) proposed by the Vancouver Fraser Port Authority Infrastructure Projects (the “Applicant”).

This project and environmental review was carried out to address the port authority’s responsibilities under the *Canada Marine Act*, and to meet the requirements of the *Impact Assessment Act*, as applicable. The proposed Project is not a “designated project” under the *Impact Assessment Act* and an impact assessment as described in the *Impact Assessment Act* is not required. However, port authority authorization is required for the proposed Project to proceed and in such circumstances, where applicable, Section 82 of the *Impact Assessment Act* requires federal authorities to assure themselves that projects will not likely cause significant adverse environmental effects. The project and environmental review process is designed to provide that assurance. In addition, the port authority considers other interests, impacts and mitigations through the project and environmental review.

The project and environmental review considered the application along with supporting studies, assessments and consultations carried out or commissioned by the Applicant, as well as other information provided by the Applicant. In addition, this project and environmental review considered other information available to the port authority and other consultation carried out by the port authority. A full list of information sources germane to the review is provided in Appendix B.

This project and environmental review report is NOT a project authorization. This project and environmental review report summarizes the review outcome, and provides the basis for approval or denial. Should the project be approved, the report is accompanied by a project permit (the “Permit”) and the conclusions described in this report require compliance with the conditions in the Permit.

2. Project description

The Applicant proposes the Portside Blundell Road Improvements to address congestion issues and to improve safety associated with the existing railway crossing of Portside Road at Blundell Road, in the Fraser Richmond Industrial Lands area. The Project is to grade-separate the rail crossing while increasing road capacity at the intersection, to add a multi-use pathway west from the overpass along Portside Road, and to widen Blundell Road from two lanes to four lanes, west of the No. 8 Road Intersection. The Project includes various road lane upgrades, signage, and utility replacements.

Vehicle traffic at this primary intersection within the Fraser Richmond Industrial Lands currently experiences significant delays due to high traffic volumes and stoppages from rail crossings related to the at grade crossing of a rail line on the south leg of the intersection. The majority of vehicles affected are heavy vehicles such as container trucks.

This Project is part of a larger infrastructure project in the area, which includes increasing the road capacity of Blundell Road by doubling the number of lanes and building a bridge over the No. 7 Canal at the west end of Portside Road. Construction of the bridge over the No. 7 Canal was reviewed by the port authority separately as Portside Road Extension No. 7 Canal Bridge - PER No. 19-210, and much of the Blundell Road widening project scope is outside of the port authority's jurisdiction.

The Project is composed of the following components:

- Portside Road overpass: a new two-lane bridge spanning Blundell Road, the CN rail line, and Portside Road, with a loop on either end to connect the bridge to Blundell Road and to Portside Road. The proposed location is approximately 150 to 200 metres west of the current rail crossing and spans multiple tracks (the existing crossing is of a single track, but at the proposed overpass location there are several tracks to span as this location is the end of a rail yard). A new signalized intersection would be constructed at the intersection of the new overpass with Blundell Road, with two through lanes and turning lanes in each direction to connect the overpass loop to Blundell Road.
- Blundell Road widening: parts of the north and south edges of the road widening, and at the York Road intersection, as well as at driveway locations between No. 8 Road and No. 7 Road.
- A multi-use pathway across the overpass, and along the south side of Portside Road to No. 7 Canal.

Note that the majority of the works to expand Blundell Road occur outside of port authority jurisdiction, on City of Richmond roadways. However, some utility relocations and road works along the north and south edges of this work area are on port authority lands and are thus included in this Project scope. The location plan provided in Appendix 1 illustrates the aspects of the project within the port authority lands and on City of Richmond lands.

2.1. Proposed works

Demolition/removal

- Demolition and removal of the existing at grade level crossing
- Removal of trees and roadside vegetation along Portside Road to install a multi-use pathway
- Removal of various utilities to make way for Project components, and relocation of utilities where necessary

Temporary works – during construction

- Installation of a frontage road (detour) to divert traffic off Portside Road around the worksite
- Installation of pedestrian foot paths around the construction site on the north side of Blundell Road
- Diverted access for businesses on port authority lands along north side of Blundell Road
- Excavation and removal of unsuitable soils in some locations
- Placement of fill, and preload in various locations, and settlement monitoring instruments
- Laydown areas within the overpass footprint, in Area V (southwest of the proposed overpass, in currently unused areas)

Permanent works

- Installation of the Portside Road overpass – two lane bridge with a loop on either end, including
 - Ramps/abutments consisting of fill, and mechanically stabilized earth walls
 - 12 1372mm diameter steel pipe piles
 - Steel superstructure including girders, stingers, concrete panels

- Installation of the Portside Road multi-use pathway, crossings, and sidewalks throughout the Project area
- Installation of a new ramp access from the north side of Blundell Road to the Adesa site
- Re-establishment of driveway access from the south side of Blundell Road to the City of Richmond lift station and BC Hydro station
- Utility installations and relocations, including:
 - storm water swales, pipes, and oil water separators
 - electrical system modifications
 - sanitary system modifications
 - telecommunications infrastructure
 - gas infrastructure
- Signage including roadside and overhead, throughout
- Removal of temporary works required for construction
- Landscaping including replacement trees, and possible hydroseeding of slopes near the overpass.

2.2. Proposed construction methods and timing

The Project area is underlain by fill ranging in depth from 1 to 4 metres thickness, followed by municipal waste and wood debris ranging to 9 metres below grade, followed by peat, silt, sand, and clay. As a result, a combination of excavation, densification, surcharge (preload), and other methods are proposed to prepare the approach and overpass footprints. A portion of the overpass is a ramp, and a portion pile supported. The pile supported section crosses Portside Road, the rail yard envelope, Blundell Road, and an access road.

The Project area would be cleared using excavators. If clearing is required to be completed during bird nesting season, pre-clearing bird surveys would be required. Preload would be placed using trucks and bulldozers. Excavated soil would be tested and removed for off-site disposal.

Equipment used to construct the Project would include typical construction equipment, including loaders, 500 tonne cranes, various dump trucks, compaction equipment, excavators, and smaller mobile equipment such as manlifts or telehandlers.

General sequencing is as follows:

- Preload or surcharge using river sand
- Ground improvements using rapid impact compaction
- Pile driving using a track mounted rig
- Placement of bridge spans and beams using a crane
- Excavation and utility works using excavators, loaders, tracked vehicles
- Paving, line painting, signage installation and landscaping/finishing

The Project is anticipated to take approximately 18 months to construct, commencing in 2024 and completing in 2025 or 2026. However, given schedule uncertainties, the Applicant has requested a validity window for the permit of four years.

Works would largely be constructed Monday to Friday from 7:00 a.m. to 5:00 p.m., with certain works requested to be constructed outside of those hours, during night shifts. These works would include placement of structural steel, beams, and girders for the overpass, and paving for the Project, which are proposed to occur from Monday to Saturday from 8:00 p.m. to 7:00 a.m. (overnight), and full day Sundays and holidays throughout the duration of construction.

The contracting method would be “design build” meaning the selected contractor will evolve the design, complete the design, and then construct the project. As such, the design considered as a part of this review is subject to change. Significant changes in scope or methods may require that the Permit be amended.

3. Technical review

The port authority has reviewed the application and has the following Project considerations.

3.1. Planning

The port authority has reviewed the application and has the following land use comments.

The Project proposes to add road infrastructure within the Fraser Richmond Industrial Lands, which would improve safety and reduce congestion on the road network. The multi-use pathway would improve the experience for cyclists, pedestrians, and other non-motorized users.

3.1.1. Land Use Designation

The proposed use of the area for infrastructure upgrades including roadway lanes, and a grade separated overpass, conforms to the designation of “Industrial” and “Port Terminal” in Vancouver Fraser Port Authority’s Land Use Plan. It supports existing and future industrial use in the area, and any future terminal use in the area.

The proposed Project meets the port authority requirements, based on the primary considerations of the land use designation and current land use policies.

3.1.2. Building Permit requirements

A building permit is not required for the Project. An existing building located on CN owned land immediately to the east of the proposed overpass is not affected by the Project. Existing buildings along Blundell Road are not directly affected by the proposed widening, however several hydrants providing fire protection to these buildings do require relocation. Any relocations would consider travel distance between buildings and hydrants, and will not have their compliance with the Fire Code compromised. Should any buildings, structures or proposed interior changes to buildings that are reviewable under the National Building Code and National Fire Code be proposed, an application for a port authority Building Permit would be required.

3.2. Engineering

The proposed Project scope includes upland construction activities typical of a road infrastructure project, including ground preparation and preloading to prepare the site for a road and overpass, the relocation of some utilities and the installation of others, and the installation of new infrastructure such as an overpass, pile supported abutments and piers, road surfaces and supporting components including fire hydrants, signage, and line painting.

Many components of the Project are located on City of Richmond land, and the Applicant progressed the design of the Project with their input over the course of 3 years. There are a number of existing City of Richmond utilities within or close to the Project site, which require relocation or upgrade.

There is a high potential for liquefaction of the granular soil deposits that underlie the Project site during the design earthquake events. Seismic evaluations to be undertaken for the Project would consider the 2020 National Building Code of Canada (NBCC 2020) design earthquake. Value analysis of the

geotechnical design was completed and the proposed solution to meet the geotechnical design requirements included a revised abutment span configuration, extended pile lengths, and full-height cellular concrete approach embankments that removed an identified risk with deep ground improvement (i.e., stone columns). Rapid impact compaction and preload are also proposed as part of the ground improvement work.

Various utility works such as removal, relocation and/or replacement of existing gas, communications, electrical, water, sewer and storm mains is proposed. The Project also includes the installation of new stormwater catch basins and leads, and street lighting.

The submission of a certificate of substantial completion would be required to confirm that the Project is fit for its intended use or completed to an operational condition. This would capture requirements such as lighting, signage, and any other components that would ensure safe use of the new overpass and connecting roads.

The port authority has reviewed the application and requires the Applicant to adhere to the following:

- Ensure that the final design is in compliance with the most current edition of the applicable codes and standards
- Submit Issued for Construction drawings detailing the final design, 20 business days prior to the commencement of construction of Project phases
- Remove all abandoned utilities
- Submit a certificate of substantial completion, certifying that the contractor has completed the work in accordance with the contract, and that the Project is fit for its intended use
- Submit record drawings detailing the final constructed Project, within 40 days of completion

These are reflected in Permit conditions.

The proposed Project meets port authority engineering and asset management requirements, subject to adherence to the listed project and environmental review conditions in the Permit.

3.3. Transportation

The proposed Project intends to address congestion issues and to improve safety associated with the existing railway crossing of Portside Road at Blundell Road, in the Fraser Richmond Industrial Lands.

The Project would improve safety for road traffic, primarily through grade separating an existing rail crossing, but also by improving intersection performance, the construction of additional lanes, turning lanes, and signalization improvements. The construction of a multi-use pathway benefits non-motorized users, and separates this traffic from the general road lanes.

Removal of the crossing will improve safety and capacity for the Canadian National (CN) railway at a location immediately adjacent to a medium-sized railyard (Ewen Yard). As crossings may not be blocked by stationary rail traffic for more than 5 minutes under any circumstance, per Canada's Grade Crossing Regulations (GCR), the grade separation has potential capacity benefits for the yard. Once the grade separation is in place, it will eliminate traffic congestion related to rail crossing blockages.

The port authority has reviewed the application and requires the Applicant to adhere to the following:

- Submit a Construction Traffic Management Plan prior to commencement of construction activities to address sequencing of construction and mitigation of impacts to existing tenants in the area during construction

The proposed Project meets port authority transportation planning requirements, subject to adherence to the listed project and environmental conditions in the draft Permit.

3.4. Environment

The environmental review of the proposed Project is summarized in Section 7, Environmental effects review.

4. Stakeholder consultation

The proposed Project was assessed to have potential impacts to stakeholders and consultation activities were determined to be required. The following sections describe the stakeholder engagement activities undertaken by the port authority as part of the project and environmental review.

4.1. Municipal consultation

The proposed Project was assessed by the port authority to have potential impacts to municipal interests. A referral letter was sent to the City of Richmond on August 8, 2023 notifying them of the proposed Project. The City responded on August 15 to confirm that they had been providing input to the design process on the Project using the City's ePlans software. The City confirmed that the Applicant will need to enter into an Agreement with the City regarding the Project and the City may provide additional input prior to construction.

The Applicant has confirmed that no municipal comments have been received as a result of municipal consultation undertaken through PER.

4.2. Adjacent tenant consultation

The proposed Project was assessed to have potential impacts to adjacent port authority tenant operations. A referral letter was sent to the following port authority tenants on August 9, 2023 notifying them of the proposed Project:

- Piret – 7031 York Road Holdings Inc.
- Piret – 16111 Blundell Road Holdings Inc.
- Piret – 16133 Blundell Road Holdings Inc.
- Piret – 16160 Blundell Rd Holdings Inc.
- 16100 Blundell Nominee Inc.
- Adesa Auctions Canada Corporation
- EuroAsia Transload Inc.
- Portside Equities Inc.
- Canadian National Railway Company
- Lulu Island Terminal Limited Partnership (Coast 2000)
- Simard Westlink Inc.
- Prudential Transportation Ltd.
- Sandhar Trucking Ltd.
- Fraser River Pile and Dredge

Triovest (property manager for 16100 Blundell Nominee Inc.) asked about Project timing, and whether the Portside extension and bridge project was still anticipated to be constructed.

OP trust (leaseholder for 16100 Blundell Nominee Inc.) met with the port authority to discuss concerns they had for their property along Blundell Road, which included concerns about loss of their leased lands, loss of access, and traffic during project construction:

- Loss of leased lands. The port authority clarified that Project impacts would be temporary and limited primarily to non-operational areas outside their fenced yard.

- Loss of access. The port authority clarified that OP trust's driveway along Blundell Road would be temporarily disrupted as the driveway connects to the expanded roadway. The disruption would occur to one lane, or side, of the driveway at a time and would take several days. During this time one side of the driveway would have to serve as both the ingress and egress and the port authority would coordinate with OP trust regarding the disruption.
- Traffic during Project construction. Traffic impacts from construction activities would be limited as Blundell Road will stay open throughout the duration of construction. As there is room for two additional lanes within the roadway, construction can proceed without the need for alternating lanes.

No other comments were received from consulted stakeholders.

5. Public engagement

The port authority has determined that the mitigations and draft Permit conditions developed for this Project will adequately address any potential concerns from the public.

The Applicant has carried out public engagement activities on the proposed Project in phases: from July 8 to 22, 2020 (early engagement on traffic management strategies during construction), and from June 20 to July 25, 2022 (engagement on draft designs, construction staging and traffic management). After reviewing the public engagement reports for each phase (available on the Applicant's [website](#)), and the Applicant's plans to undertake a third round of engagement on final design and construction next steps, the port authority determined no additional public engagement would be required as part of the project and environmental review process.

The port authority has reviewed the record of public engagement executed outside the project and environmental review process, including all comments received and the Applicant's response to comments.

5.1. Canadian Impact Assessment Registry

To meet requirements of section 86 of the *Impact Assessment Act*, the port authority posted a description of the Project and notice of public participation to the Canadian Impact Assessment Registry to provide the public 30 calendar days to comment on the Project and provide community knowledge, in a combined posting with Transport Canada.

The comment period ran from April 27 to May 26, 2023. At the close of the 30-calendar day public comment period, no comments were received.

5.2. Construction notification requirements

The proposed Project was assessed by the port authority to have potential impacts to community interests in the surrounding area during construction. These include potential impacts such as traffic disruption and the implementation of detours.

As a result, the Applicant is required to send a construction notification to adjacent residents and businesses in Richmond as shown in the map below. The notification area is within approximately 700 metres of the Project site. The construction notification shall be distributed by the Applicant at least 10 business days prior to the start of the works. The construction notification will be posted on the Applicant's website. This is a condition in the draft Permit.

6. Indigenous consultation

Based on the record of consultation, the port authority is of the view that the duty to consult has been met. As the summarized record below demonstrates, the port authority has made a meaningful effort to consult with all potentially affected Indigenous groups.

The port authority reviewed the proposed works and determined that the Project may have the potential to adversely impact Aboriginal or Treaty rights. The following Indigenous groups were consulted:

- Cowichan Tribes
- Halalt First Nation
- Katzie First Nation
- Kwantlen First Nation
- Lyackson First Nation
- Musqueam Indian Band
- Penelakut Tribe
- Semiahmoo First Nation
- S'ólhTéméxw Stewardship Alliance
 - Aitchelitz First Nation
 - Chawathil First Nation
 - Cheam First Nation
 - Kwaw'Kwaw'Apilt First Nation
 - Scowlitz First Nation
 - Seabird Island Band
 - Shxw'ow'hamel First Nation
 - Shxwha:y Village
 - Skawahlook First Nation
 - Skwah First Nation
 - Skowkale First Nation
 - Soowahlie First Nation
 - Squiala First Nation
 - Sumas First Nation
 - Tzeachten First Nation
 - Yakweakwoose First Nation
 - Yale First Nation
- Stz'uminus First Nation
- Tsawwassen First Nation
- Tseil-Waututh First Nation
- Ts'uubaa-asatx Nation (Lake Cowichan)

The following consultation activities were conducted:

- Provided a referral package for review, including a referral letter, key Project submissions, and participation funding agreement
- Indigenous groups that were notified received a notification letter and Project location map
- The port authority held meetings with Indigenous groups to review the proposed works
- Response tables were provided to Indigenous groups that provided comments on the referral package, including a second round of comments

- Reminder emails were sent to those who had not responded

Below is a table summarizing comments received by the port authority from Indigenous groups and how they were considered as part of the project and environmental review.

Issue	Mitigations and permit conditions	Rationale
<p>Concerns related to heritage/archaeological resources, including potential impacts from consolidated settlement on resources, a request to follow an Archaeological Chance Find Procedure, and requested edits to the Archaeological Chance Find Procedure</p>	<p>The following conditions address this concern:</p> <ul style="list-style-type: none"> • The Permit Holder shall adopt the Vancouver Fraser port authority Archaeological Chance Find Procedure. The Permit Holder shall carry out the Project in accordance with this Procedure, and any subsequent updates made to the port authority's satisfaction. • Prior to and/or during construction, should there be works impacting native soils, the Permit Holder shall conduct an Archaeological Impact Assessment completed by a professional archaeologist, in the form of archaeological monitoring. • Should there be works impacting native soils, the Permit Holder shall submit the results of an Archaeological Impact Assessment completed by a professional archaeologist, to the port authority's satisfaction. • If the Permit Holder encounters, expects to encounter, or should expect to encounter an actual or potential archaeological resource, the Permit Holder shall: <ul style="list-style-type: none"> ○ Immediately stop any activities that may disturb the archaeological resource or the site in which it is contained (Site); ○ Not move or otherwise disturb the archaeological 	<p>In response to the request for the Permit Holder to follow an Archaeological Chance Find Procedure and other archaeology related concerns, the port authority will require permit conditions related to following the Vancouver Fraser port authority Archaeological Chance Find Procedure, conducting archaeology monitoring, and submitting the results of that monitoring.</p> <p>As well, the Applicant applied the edits requested on the Archaeological Chance Find Procedure.</p>

Issue	Mitigations and permit conditions	Rationale
	<p>resource or other remains present at the Site;</p> <ul style="list-style-type: none"> ○ Stake or flag the Site to prevent additional disturbances; and, ○ Immediately notify the port authority by email and phone. 	
<p>Concern related to the potential impact of extended work hours on wildlife and birds</p>	<p>The following condition addresses this concern:</p> <ul style="list-style-type: none"> • The Permit Holder shall carry out the Project in accordance with the Construction Environmental Management Plan (CEMP) provided by the Permit Holder, and any subsequent updates made to the port authority's satisfaction. 	<p>Potential impacts from extended work hours to wildlife identified in the May 2022 biophysical assessment have been assessed by a qualified biologist and concluded to be minimal. Throughout the Project, wildlife in the area will be observed by the Environmental Monitor and if any additional mitigations are necessary, they will be included in the Project CEMP. Additionally:</p> <ul style="list-style-type: none"> • Noise reduction mitigations are provided in Section 3.5 of the Extended Work Hours document. • Section 5.5 of the CEMP indicates “light pollution will be reduced by pointing light down and placing light sources as close to the work area as possible and away from any sensitive receptors.” <p>General wildlife mitigations that are applicable to nighttime work are included in Section 5.8 of the CEMP.</p>
<p>Concern related to the source of fill</p>	<p>The following condition addresses this concern:</p> <ul style="list-style-type: none"> • Materials brought onto the Project site to be used for backfilling, site preparation, or other uses shall be from sources demonstrated to be clean and free of environmental contamination, invasive species and noxious weeds. The Permit Holder shall maintain records to verify this. 	<p>To mitigate concern related to the source of fill, the port authority will include a permit condition requiring it to be clean and free of environmental contamination, invasive species and noxious weeds. The Applicant confirmed that local Fraser River sand will be used as preload.</p>

Issue	Mitigations and permit conditions	Rationale
<p>Concerns related to potential impacts from the Project on fish species</p>	<p>The following conditions address this concern:</p> <ul style="list-style-type: none"> The Permit Holder shall carry out the Project in accordance with the construction environmental management plan provided by the Permit Holder, and any subsequent updates made to the port authority's satisfaction. The Permit Holder shall submit an erosion and sediment control plan to the port authority's satisfaction. The Permit Holder shall carry out the Project in accordance with the erosion and sediment control plan, and any subsequent updates made to the port authority's satisfaction. 	<p>To protect aquatic resources and mitigate concerns related to impacts on fish species, erosion, and sediment control (ESC) measures would be implemented as outlined in the CEMP. Measures include preparation and implementation of an ESC plan prior to construction, reducing disturbance to existing vegetation, installing ESC measures such as drain guards, covering exposed soils, and environmental monitoring.</p>
<p>Interest in monitoring opportunities and receiving monitoring reports</p>	<p>The following conditions address this concern:</p> <ul style="list-style-type: none"> The Permit Holder shall engage a qualified environmental professional to monitor the Project in order to ensure that the works are carried out in compliance with this Permit. Monitoring events shall take place as required by the environmental monitor, the construction environmental management plan, or the port authority, provided that monitoring will be full time when works are under way that have the potential to adversely affect fish or fish habitat. The Permit Holder shall provide environmental monitoring reports to the port authority's satisfaction as specified in the construction environmental management plan or more frequently if the port authority requires. In addition, a summary report for the whole monitoring period shall be forwarded to the port authority within six weeks of the conclusion of 	<p>To satisfy interest in monitoring opportunities and receiving notice of environmental incidents, the port authority will require permit conditions related to providing environmental monitoring opportunities and reports.</p>

Issue	Mitigations and permit conditions	Rationale
	the monitoring period. <ul style="list-style-type: none"> The Permit Holder shall provide environmental monitoring reports to interested Indigenous Groups. 	
Concerns related to stormwater management including management and monitoring of pollutants in stormwater	The following conditions address this concern: <ul style="list-style-type: none"> The Permit Holder shall carry out the Project in accordance with the construction environmental management plan provided by the Permit Holder, and any subsequent updates made to the Port Authority's satisfaction. 	To mitigate concerns related to stormwater management, stormwater monitoring and management are detailed in the stormwater pollution and prevention plan within the CEMP.
Concerns with how operational noise may impact fishers and other members of community using the Fraser River for rights-based activities or commercial purposes.	N/A	During the assessment process, the potential for noise sensitive receptors on the Fraser River were not identified and noise levels at these locations were not quantified in the report. However, given that the area around the project site is relatively flat, changes in ground elevation are not expected to impact propagation paths and no increase in noise in fishing areas are anticipated.

Based on the above, the port authority has made a meaningful effort to consult with all potentially affected Indigenous groups. Based on the record of consultation, the port authority is of the view that the duty to consult has been met.

7. Environmental effects review

To fulfill its responsibilities under the *Canada Marine Act* and the *Impact Assessment Act*, the port authority must make a determination on the potential environmental effects of a proposed project on port authority managed lands and waters prior to authorizing those works to proceed. To make that determination, the port authority considers the residual adverse effects of the Project, that is, the effects after mitigation measures have been taken into account.

This section of the project and environmental review report summarizes the environmental effects review conducted for the Project and provides the environmental effects determination. The environmental review also considered the information provided in the previous sections of this report.

Based on the consideration of environmental effects in Section 7.2, the characterization in Section 7.3, the mitigation measures proposed by the Applicant, and the permit conditions, the residual adverse effects from the Project are predicted to be not significant.

7.1. Scope of Environmental Review

The environmental review includes consideration of the potential environmental effects of the proposed Project, taking into account mitigation measures to avoid or reduce those effects. This review considered the Project components and physical activities described in Section 2.

The temporal scope of the review includes Project construction and operation.

The environmental review considered potential adverse environmental and social effects of the Project on 14 environmental components (e.g., species with special status, aquatic species and their habitat, recreational interests, etc.) and from 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.

Section 7.2 summarizes the results of the environmental effects review and proposed mitigations.

7.2. Environmental effects and mitigation summary

The following table summarizes the potential environmental effects the Project could have on the identified environmental components.

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
Air quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to air quality during construction and operations.</p> <p>During construction air emissions such as exhaust, dust, vapors, and greenhouse gases (GHG) are anticipated. The CEMP outlines mitigation measures to reduce air emissions such as maintaining equipment, covering stockpiles, using dust suppression agents, street sweeping, reducing engine idling and prohibiting burning of materials.</p> <p>During operations, emissions of pollutants are expected to either be the same as current emissions or slightly improved. Improved air quality is attributed to the turnover of the vehicle fleet with lower emissions. If the Project were not to proceed, emissions would likely increase due to increasing traffic congestion..</p> <p>With proposed mitigation measures and port authority permit conditions in place, residual adverse effects on air quality would be limited to approximately 18 months of Project</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			construction. The effects would be low in magnitude, local in geographic extent, temporary in duration, be sporadic in frequency, and reversible after construction is complete. These residual adverse effects are predicted to be not significant.		
Lighting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects due to lighting during construction and operations.</p> <p>During construction, temporary lighting may be used to illuminate construction areas. The CEMP outlines mitigation measures to reduce light pollution such as positioning lighting downward and focused on work areas.</p> <p>Permanent streetlights will be installed along Portside Road, the overpass, and Blundell Road. The lighting design is in accordance with applicable guidelines, codes, and standards. All light fixtures will be LED type to reduce energy consumption.</p> <p>With proposed mitigation measures and port authority permit conditions in place, residual adverse effects due to lighting would be low in magnitude, site-specific in geographic extent, long term in duration, continuous in frequency, and reversible if the Project was decommissioned and lighting removed in the future. These residual adverse effects are predicted to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise and vibration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects due to noise during Project construction and operations.</p> <p>Effects due to noise and vibration during construction are expected to be minimal as the nearest residence is approximately one kilometre away. During construction, noise and vibration are expected due to pile driving and the use of vehicles, machinery, and equipment. The CEMP outlines mitigation</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			<p>measures to reduce impacts due to noise and vibration such as scheduling pile driving during the daytime and using dampening pads/saddles, use of exhaust silencers and mufflers, use of noise shrouds, maintaining equipment, environmental monitoring and implementation of a stop work procedure. Indigenous groups were also concerned with how noise may impact fishers and other members of community using the Fraser River for rights-based activities or commercial purposes.</p> <p>The works proposed for night shifts include placement of structural steel, beams, and girders for the overpass portion of the project only, and paving for the Project, from Monday to Saturday from 8:00 p.m. to 7:00 a.m. (overnight), and full day Sundays and holidays (7:00 a.m. to 8:00 p.m.), for the entire duration of construction. These works are in a relatively isolated location, far from sensitive receptors (the works for overpass construction are approximately 1 kilometre from the nearest residence), and anticipated to generate low noise levels during this limited scope of activities.</p> <p>Future noise levels are predicted to increase approximately 7 dBA above the current modelled noise levels between 46 and 54 dBA. A similar increase is predicted even if the Project does not occur, indicating that future noise levels are expected to increase because of increased traffic volumes, rather than the Project and changes to the road alignment. Given this result, no further noise mitigation was proposed for Project operations.</p> <p>With proposed mitigation measures and port authority permit conditions in place, residual adverse effects on noise and vibration would</p>		

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			be low in magnitude, local in geographic extent, temporary in duration, be sporadic in frequency, and reversible after construction is complete. These residual adverse effects due to noise are predicted to be not significant.		
Soils and groundwater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on soils and groundwater during construction through the disturbance, exacerbation, or exposure of existing contamination.</p> <p>The Project site occurs over an infilled historic municipal landfill. The Environmental Site Assessments indicates that soil layers including upper sand fill, deeper sand/silt fill and landfill waste material as well as groundwater at the site exceed relevant guideline values (i.e., Canadian Council of Ministers of the Environment - Industrial criteria and the Federal Interim Groundwater Quality Guidelines).</p> <p>The CEMP outlines soil and groundwater management procedures including field screening and sampling to detect potential contamination, management procedures for handling contaminated soil or groundwater including monitoring, testing, storing, backfilling (soils), disposal, and emergency response procedures. The CEMP indicates that only clean topsoil from the site or imported clean fill will be used as backfill for the Project. Permit condition No. 38 requires that any excavated soils not suitable for backfill be disposed of off-site.</p> <p>At Project completion, Permit condition No. 46 requires the Applicant to cap areas with contaminated soil or waste with a minimum of one metre of clean fill or paved with asphalt/concrete.</p> <p>The Applicant would use methods to prevent the creation of new vertical groundwater</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			<p>preferential pathways for leachate to enter deeper aquifers such as the installation of groundwater monitoring wells. Prior to construction, Permit condition No. 25 requires the Applicant to confirm lateral preferential pathways would not be created by the Project, including new utility corridors. Furthermore, Permit condition No. 26 requires the Applicant to assess the potential for Project activities such as compacting, preload, and final surface cover to affect overall leachate production in the area.</p> <p>Field investigations identified elevated landfill gases within the Project area. A landfill gas monitoring and venting system are recommended to be in place during soil excavation to protect construction workers from potential explosion or inhalation of hazards posed by the buried waste, as described in the CEMP.</p> <p>With proposed mitigation measures and port authority Permit conditions in place, residual adverse effects of the Project on soils and groundwater are unlikely to occur. This includes the potential for the Project to expose or exacerbate existing contamination. If the effects occur they would be low in magnitude, local in geographic extent, long term in duration, sporadic in frequency, and partially reversible as any clean up efforts are unlikely to result in full remediation. If these effects were to occur they are predicted to be not significant.</p>		
Surface water and water bodies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No watercourses overlap the Project footprint. The No.7 Road Canal is approximately 15 metres to the west and the Fraser River approximately 350 metres to the south. Several ephemeral ditches occur within the	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			<p>Project Area and likely drain westward toward No. 7 Road Canal.</p> <p>The CEMP outlines mitigation measures to protect surface water and water bodies such as the preparation and implementation of erosion and sediment control (ESC) plan prior to construction, reducing disturbance to existing vegetation, installing drain guards, covering exposed soils, and environmental monitoring.</p> <p>A Stormwater Pollution Prevention Plan (SPPP) outlines mitigation measures during construction that will prevent potential pollutants from entering surface water and water bodies. The mitigation measures include ensuring any water discharge meets regional water quality guidelines, equipment and materials are in good condition and stored appropriately, and proper record keeping and storage of fuels on site. During operation, stormwater would be directed to existing drainage infrastructure which has been assessed as having sufficient capacity to maintain current service levels.</p> <p>With proposed mitigation measures and port authority permit conditions in place, no residual adverse effects on surface water or water bodies are anticipated.</p>		
<p>Species/habitat with special status</p> <p>Assessed under section 79 of the <i>Species at Risk Act</i>, as applicable</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There are no anticipated adverse effects on species that are extirpated, endangered, or threatened and/or their critical habitat that are protected under the <i>Species at Risk Act</i>.</p> <p>No areas designated as critical habitat overlap the Project footprint. Desktop assessment revealed that, based on habitat characteristics, two species at risk have the potential to occur within three kilometres of the Project site.:</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			<ul style="list-style-type: none"> • Streambank lupine (Endangered) • Barn swallow (Threatened) <p>Critical habitat for streambank lupine has been identified approximately 400 m east of No. 8 Road, outside the Project footprint. The Project Biophysical Overview Assessment identifies that a pre-construction assessment for streambank lupine will be carried out and onsite workers will be trained in basic streambank lupine recognition.</p> <p>Barn swallows nest on structures, typically buildings. As no buildings or bridges will be affected by the Project, effects on barn swallow are unlikely.</p> <p>The Biophysical Overview Assessment and CEMP requires bird nest surveys be carried out within the bird-breeding season and additional mitigation measures should a nest be identified. The CEMP outlines a stop work procedure should wildlife or a wildlife habitat feature be identified.</p> <p>With proposed mitigation measures and port authority permit conditions in place, no residual adverse effects on species/habitat with special status are anticipated.</p>		
Terrestrial vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on vegetation during construction. The Project will require removal herbaceous vegetation, including invasive species, and the removal of approximately 10 trees.</p> <p>The CEMP outlines mitigation measures to reduce impacts on vegetation such as limiting vegetation and tree removal where possible, revegetating, and reseeded exposed soils with weed-free seed mix. To minimize the establishment and spread of invasive species, a survey will be conducted to determine the presence of invasive species, an invasive</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			<p>species management plan will be developed, machinery and equipment will be washed prior to mobilizing to the site, and exposed soils will be reseeded or revegetated.</p> <p>The Arborist Assessment identifies measures to protect retained trees such establishing a tree protection zone with restrictions on activities within this zone, and isolating trees from construction with a tree protection barrier.</p> <p>With proposed mitigation measures and port authority Permit conditions in place, residual adverse effects of the Project on vegetation are predicted to be low in magnitude, site-specific in geographic extent, permanent in duration where vegetation is replaced by Project infrastructure, occur once in frequency, and be reversible if the Project were decommissioned in the future. These residual adverse effects are predicted to be not significant.</p>		
Terrestrial wildlife	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Potential effects during construction on terrestrial wildlife are anticipated to be minimal. The Project site generally lacks wildlife habitat features.</p> <p>The CEMP outlines mitigation measures to reduce impacts on wildlife including proper storage and disposal of attractants, preventing wildlife entrapment, and conducting nest and raptor surveys.</p> <p>With proposed mitigation measures and port authority Permit conditions in place, residual adverse effects of the Project on terrestrial wildlife are not anticipated.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No wetlands occur within or adjacent to the Project site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			Effects on wetlands are not anticipated during construction or operations of the Project.		
Sediments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>No in-water works are proposed for the Project and no watercourses occur within the Project footprint.</p> <p>The No.7 Road Canal is approximately 15 metres to the west and the Fraser River approximately 350 metres to the south. Several ephemeral ditches occur within the Project area and likely drain westward toward No. 7 Road Canal.</p> <p>The CEMP outlines mitigation measures to protect surface water and water bodies such as the preparation and implementation of an erosion and sediment control plan prior to construction, reducing disturbance to existing vegetation, installing drain guards, covering exposed soils, and environmental monitoring.</p> <p>With proposed mitigation measures and port authority Permit conditions in place, residual effects on sediments (aquatic) are not anticipated during construction or operations of the Project.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Aquatic resources (e.g., aquatic plants, fish and fish habitat, waterbirds, marine mammals, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>No in-water works are proposed for the Project and no watercourses occur within the Project footprint.</p> <p>The No.7 Road Canal is approximately 15 metres to the west and the Fraser River approximately 350 metres to the south. Several ephemeral ditches occur within the Project area and likely drain westward toward No. 7 Road Canal.</p> <p>The CEMP outlines mitigation measures to protect surface water and water bodies such as the preparation and implementation of erosion and sediment control plan prior to construction, reducing disturbance to existing</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			vegetation, installing drain guards, covering exposed soils, and environmental monitoring. With proposed mitigation measures and port authority Permit conditions in place, residual effects on aquatic resources are not anticipated during construction or operations of the Project.		
Health and socio-economic conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	During construction the Project will result in temporary impacts on air quality and noise. During operations effects on air quality and noise are expected to be negligible. Mitigation measures are in place as outlined in the CEMP related to air quality and noise for the Project (as outlined in the air quality and noise sections above). During operations, air emissions are expected to be comparable to existing conditions. Any effects on air quality and noise are predicted to be negligible and no impacts on human health are anticipated. Based on the very low magnitude of residual effects on air and noise, the Project is not expected to cause residual adverse effects on health or socio-economic conditions of people, including Indigenous people.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Archaeological, physical, and cultural heritage resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is potential for adverse effects on archaeological, physical, and cultural heritage resources during Project construction. A site-specific geotechnical investigation for the Project site was carried out in June 2022 by Ledcor. The investigation found that the fill was ~6.8m below grade depending on the location. An Archaeological Overview Assessment (AOA) was completed in 2020. The AOA confirms that there are no known	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			<p>archaeological sites within the proposed Project area with the recommendations that:</p> <ul style="list-style-type: none"> No further archaeological assessment is recommended if construction activities are conducted entirely within the existing fill, or within any new fill added in addition to existing fill. Additional archaeological assessment in the form of construction monitoring be undertaken where construction impacts are expected to extend into the native, undisturbed sediments underlying the existing fill. Should cultural materials be encountered during the proposed upgrades of the Project, the project Archaeological Chance Find Procedure should be followed. <p>As recommended by the AOA and Indigenous groups, construction monitoring will occur if excavation occurs in native sediments underlying the existing fill and an Archaeological Chance Find Procedure will be followed.</p> <p>With proposed Permit conditions and mitigation measures in place, the Project is not expected to cause residual adverse effects on archaeological, physical, and cultural heritage resources.</p>		
<p>Accidents and malfunctions</p> <p>Assessed as required by the <i>Canada Marine Act</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to soils due to accidental equipment leaks, spills, or the release of deleterious substances (e.g., concrete wash).</p> <p>Mitigation measures to reduce potential adverse, project-related effects due to accidents and malfunctions are outlined in the CEMP and includes management plans for</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
			<p>concrete, waste, and fuel. The CEMP also includes a spill and emergency response plan.</p> <p>With mitigation measures and Permit conditions in place, the effect of an accident or malfunction on the environment, if it were to occur, would be low in magnitude, local in extent if groundwater were impacted, and be partially reversible due to limitations of remediation efforts. If these effects were to occur they are predicted to be not significant.</p>		

7.3. Characterization of effects

Residual adverse effects (i.e., effects that remain with mitigation in place) were identified for the following environmental components:

- Air quality
- Lighting
- Noise and vibration
- Soils and groundwater
- Terrestrial vegetation

Overall, the residual adverse effects of the Project on all of the environmental components are characterized as:

- Low in magnitude due to impacts site contamination and potential impacts on soils and groundwater.
- On-site to local in geographic extent: Most effects would occur within the Project area, however some effects (e.g., noise and air emissions) could extend to the local study area (i.e., within 1 kilometer of the Project site).
- Duration and frequency of effects ranges from temporary/intermittent for approximately 18 months during construction to long-term/continuous during operations:
 - During construction, effects would be temporary in duration with intermittent frequency: the effects during construction would occur during the construction period and occur at sporadic intervals.
 - During operations, effects on lighting would be long-term, continuous in frequency and would last until the infrastructure is removed or the lifespan of the infrastructure has been met.
- Partially reversible: Effects from construction such as the potential impacts due to construction noise and air emissions will cease once construction is complete. Any effects on soil or groundwater due to contamination would be partially reversible as any clean up efforts are unlikely to result in full remediation. It is unlikely that the Project infrastructure removal be required, however should it be required, infrastructure could be removed and the site restored, any impacts due to air and noise would cease.

Based on the characterization above, the mitigation measures proposed by the Applicant, and the permit conditions, the residual adverse effects from the Project are predicted to be not significant.

8. Conclusion

It is the recommendation of staff that this application be approved subject to conformance with the project and environmental conditions listed in project permit **PER No. 20-055**.

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Appendix 1: Location plan



Appendix 2: List of information sources

The port authority has relied on the following sources of information in the project and environmental review of the Project:

- Application form and materials submitted by Applicant on March 7, 2023, and documents submitted prior to and after this date
- Project correspondence from March 2023 to October 2023
- All plans and drawings labelled PER No.20-055 A to F
- “Arborist Report for Portside Overpass / Blundell Widening Project”, December 21, 2022, McElhanney
- “Portside Blundell Road Improvements Environmental Noise Review”, July 11, 2023, BKL
- “Portside-Blundell Road Improvements Project Archaeology and Heritage Chance Find Procedure”, July 14, 2023, WSP
- “Portside/Blundell Road Improvements Project Stormwater Pollution Prevention Plan”, July 31, 2023, Ledcor
- “Portside Blundell Road Improvements – Table of Concordance”, July 14, 2022, Vancouver Fraser Port Authority
- “Portside Blundell Road Improvements Project Attachment B1 Structural Drawings”, October 12, 2022, Vancouver Fraser Port Authority
- “Portside Blundell Road Improvements Project Attachment B2 Civil Drawings”, November 18, 2022, Vancouver Fraser Port Authority
- “Portside / Blundell Rd Improvements Project Geotechnical Report Framework”, November 25, 2022, Vancouver Fraser Port Authority
- “Portside/Blundell Road Improvement Project (PBRIP) Preload impact on underground utilities and CN Rail”, November 23, 2022, EXP
- “Portside / Blundell Road Improvements Project Geotechnical Consideration for Waste Layers; Material Re-use and Subgrade Preparation for ADESA Berm (Update)”, November 25, 2022, EXP
- “Portside/Blundell Road Improvement Project (PBRIP) Single Pile design for axial capacity under static and seismic conditions”, November 28, 2022, EXP
- “Portside/Blundell Road Improvement Project (PBRIP) Construction Environmental Management Plan - Geotechnical”, June 8, 2022, EXP
- “Portside / Blundell Road Improvements Project Stormwater Pollution Prevention Plan” June 30, 2022, Vancouver Fraser Port Authority
- “Portside Blundell Road Improvement Project Level 1 Air Quality Assessment” April 8, 2021, Alex Schutte
- “Portside Blundell Road Improvements Environmental Noise Review”, May 26, 2021, BKL
- “Portside - Blundell Road Improvements Richmond, BC Archaeological Overview Assessment”, March 3, 2021, Wood
- “Portside Blundell Road Improvements Project Construction Environmental Management Plan R2” April 4, 2023, Ledcor CMI Ltd.
- “Portside Blundell Road Improvements Biophysical Overview Assessment” May 30, 2022, McElhanney
- “Portside-Blundell Road Improvements Project Archaeological and Heritage Chance Find Procedure” January 31, 2020, Wood
- “Portside / Blundell Road Improvements Project Indicative Design Construction Schedule Narrative” February 22, 2023, Vancouver Fraser Port Authority
- “PER 20-055 Portside / Blundell Road Improvements Project Portside Overpass / Blundell Widening Component Request for Construction Outside of Regular Work Hours” January 19, 2023, Vancouver Fraser Port Authority
- “Construction Phasing Overpass” Undated, Vancouver Fraser Port Authority