



August 28, 2023

Kiley Gibson
Manager, System Environmental Assessment
Canadian Pacific Kansas City
7550 Ogden Dale Rd SE
Calgary, Alberta T2C 4X9

Dear Kiley Gibson

**Re: Vancouver Fraser Port Authority Project Permit No. 20-095
Amendment 01 - Cascadia Rail Expansion Phase 4 amendment for pile installation**

The Vancouver Fraser Port Authority (the “port authority”) has received a request from Canadian Pacific Kansas City (the Applicant) to amend Project Permit PER No. 20-095 to include the installation and removal of temporary piles.

The port authority understands the Applicant is preparing to construct the habitat offsetting as part of PER No. 20-095 Cascadia Rail Expansion Phase 4. The Applicant is requesting a permit amendment to install eight temporary piles along the northern extent of the Berry Point habitat offsetting area. They will be steel piles between 24” and 36” in diameter. The piles will be installed with a vibratory hammer until they reach refusal. No impact pile driving is anticipated to be required. A silt curtain will be affixed to the pile to reduce turbidity during construction.

The piles will also provide mooring points for material scows, the marine derrick, and other vessels. Navigation aid lights will be installed on the piles and on any vessels moored overnight so that they will be visible to other marine users. The piles are anticipated to be installed over a five-day period during the least risk window for fish. The piles will be removed after the habitat offsetting construction is complete.

The port authority has undertaken and completed a review of the requested amendment in accordance with the *Canada Marine Act*, section 5 of the Port Authorities Operations Regulations, and section 82 of the *Impact Assessment Act*. To meet the requirements of the *Impact Assessment Act* the port authority considered the factors set out in section 84.

The port authority has relied upon the following sources of information in its review of the amendment:

- July 14, 2023, Viterra Cascadia Terminal Expansion Phase 4 Offsetting – Pile Driving Amendment
- All correspondence with the Applicant from June 20, 2023, to August 22, 2023

For this permit amendment review, we undertook the following consultation and engagement activities:

.../2

- **Indigenous consultation:** Best efforts were made to consult with Musqueam Indian Band, Tsleil-Waututh Nation, S'ólh Téméxw Stewardship Alliance and Squamish Nation. A notification letter and package was sent to Indigenous groups to review and comment. Two Indigenous groups responded to the port authority that they did not have any comments for this amendment.
- **Adjacent tenant notification:** A notification letter was sent to Tidewater Transportation Canada Inc. and Shell Canada Products on July 26, 2023, notifying them of the proposed amendment. Both tenants responded, noting they had no concerns with the proposed amendment.
- **Public engagement:** The port authority posted a description of the amendment and notice of public participation to the Canadian Impact Assessment Registry (Registry) to meet requirements of section 86 of the *Impact Assessment Act*. The public was provided 30-calendar days from July 27 to August 26, 2023 to comment on the amendment and provide community knowledge. At the close of the Registry public comment period, no comments were received.
- **Marine users:** A referral letter was sent to the BC Coast Pilots, Pacific Pilotage Authority, and the Council of Marine Carriers on July 26, 2023, notifying them of the proposed works. The port authority received comments from Paul Hilder with the Council of Marine Carriers on July 26, 2023, requesting the piles and vessels moored alongside be adequately lit. The port authority received comments from Neal Henne with the BC Coast Pilots on August 22, 2023, requesting that the piles be lit to allow for safe night navigation. A condition has been added to this amendment to require piles and vessels be adequately lit.

We determined that adverse impacts to Aboriginal or Treaty rights are not expected from this permit amendment.

We concluded that the requested permit amendment, with revised and/or supplementary conditions, is not likely to cause significant adverse environmental effects. Accordingly, the port authority authorizes an amendment to Project Permit PER No. 20-095 to include the supplementary conditions, as shown in the below table.

No.	SUPPLEMENTARY CONDITIONS
45.	Sediments contained within piles after driving shall be left in place. If it is determined that they must be removed for engineering reasons, the Permit Holder shall consult the Port Authority for review and authorization prior to initiating the proposed physical activities.
46.	Piles shall be driven with a vibratory or drop hammer. Piles shall not be installed using a diesel or hydraulic hammer or other technology such as drilling without review and authorization by the Port Authority.
47.	Vibratory pile installation shall be used as the primary method used for pile installation works, where possible. The Permit Holder shall follow the avoidance and mitigation measures provided in section 6 of the Viterra Cascadia Terminal Expansion Phase 4 Offsetting – Pile Driving Amendment.
48.	The Permit Holder shall cap any exposed hollow pipe piles to prevent wildlife entrapment.
49.	The Permit Holder shall ensure temporary piles and vessels moored alongside are adequately lit.

K. Gibson
Amendment PER No. 20-095-01

This amendment has been assigned Amendment PER No. 20-095-01. Thank you for your cooperation throughout our review. Should you have any questions regarding this approval, please contact Mary Smulders at mary.smulders@portvancouver.com.

Yours truly,

ORIGINAL COPY SIGNED

Andrea MacLeod
Director, Project and Environmental Review
Vancouver Fraser Port Authority

cc Chris Bishop, Manger: Project and Environmental Review, Vancouver Fraser Port Authority
Mary Smulders, Supervisor, Environment: Project and Environmental Review, Vancouver Fraser Port Authority
Dean Richards, Compliance Monitoring Specialist: Project and Environmental Review, Vancouver Fraser Port Authority
Barbara Yandel, Manager, Infrastructure Real Estate, Vancouver Fraser Port Authority
Joe Walker, Ports & Infrastructure Lead – West, Ausenco

encl (1) Project Permit PER No. 20-095



**PORT of
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**VANCOUVER FRASER PORT AUTHORITY
PROJECT AND ENVIRONMENTAL REVIEW
PROJECT PERMIT**

PER No.:	20-095
Tenant:	Canadian Pacific Railway Company
Project:	Cascadia Rail Expansion Phase 4
Project Location:	South shore of Burrard Inlet, between Second Narrows and the Shellburn facility, Burnaby, BC
Vancouver Fraser Port Authority SID No.:	BBY086, BBY087, BBY088, BBY089, BBY091
Land Use Designation:	Port Terminal, Port Water
Permit Holder(s):	Canadian Pacific Railway Company
Category of Review:	C
Date of Approval:	AUGUST 22, 2022
Date of Expiry:	AUGUST 31, 2025

PROJECT DESCRIPTION

For the purposes of this project permit, (the "Permit"), the Project is understood to include the following works on Vancouver Fraser Port Authority ("Port Authority") property:

- Establishing access to equipment and material laydown areas, including vegetation clearing, mobilization, and creation of temporary barge ramps to serve as unloading areas for marine scows and derricks
- Excavating material for toe construction and preparing the area within the proposed embankment footprint for fill placement, as needed
- Placing structural fill on the seaward side of the existing rail mainline to support rail sidings
- Placing approximately 48,000 cubic metres of riprap to stabilize filled sections of the shoreline
- Extending approximately 18 culverts
- Grading and sub-ballast construction, including installing a pile foundation at the Rainbow Creek concrete box culvert
- Installing approximately 1,500 meters of rail track
- Constructing facilities and control points associated with new rail track
- Reconfiguring existing rail tracks associated with the Parkland Refinery
- Constructing approximately 18,900 square meters of habitat offsetting

PROJECT AND ENVIRONMENTAL CONDITIONS

The Port Authority has undertaken and completed a review of the Project in accordance with the *Canada Marine Act* and Section 5 of the *Port Authorities Operations Regulations* and, as applicable, Section 82 of the *Impact Assessment Act*.

If at any time the Permit Holder fails to comply with any of the project and environmental conditions set out in the Permit below, or if the Port Authority determines that the Permit Holder has provided any incomplete, incorrect or misleading information in relation to the Project, the Port Authority may, in its sole and absolute discretion, cancel its authorization for the Project or change the project and environmental conditions to which such authorization is subject.

Pursuant to Section 29 of the *Port Authorities Operations Regulations*, the Port Authority may also cancel its authorization for the Project, or change the project and environmental conditions to which such authorization is subject, if new information is made available to the Port Authority at any time in relation to the potential adverse environmental and other effects of the Project.

The following are the project and environmental conditions that must be followed by the Permit Holder to mitigate potential or foreseeable adverse environmental and other effects.

Port Authority Guidelines and Record Drawing Standards referenced in this document can be located at: <https://www.portvancouver.com/permitting-and-reviews/per/project-and-environment-review-applicant/guidelines/>.

No.	GENERAL CONDITIONS
1.	The Permit Holder must have a valid lease, licence, or access agreement for the Project site prior to accessing the Project site or commencing construction or any other physical activities on the Project site. This Permit shall in no way limit any of the Permit Holder's obligations, or the Port Authority's rights, under such lease, licence, or access agreement.
2.	The Permit Holder shall at all times and in all respects, comply with and abide by all applicable statutes, laws, regulations and orders from time to time in force and effect, including all applicable environmental, labour and safety laws and regulations.
3.	This Permit in no way endorses or warrants the design, engineering, or construction of the Project and no person may rely upon this Permit for any purpose other than the fact that the Port Authority has permitted the construction of the Project, in accordance with the terms and conditions of this Permit.
4.	The Permit Holder shall indemnify and save harmless the Port Authority in respect of all claims, losses, costs, fines, penalties or other liabilities, including legal fees, arising out of: (a) any bodily injury or death, property damage or any loss or damage arising out of or in any way connected with the Project; and (b) any breach by the Permit Holder of its obligations under this Permit.
5.	The Permit Holder is responsible for locating existing site services and utilities, including any located underground. The Permit Holder shall provide an Infrastructure Surveyed Data Drawing that includes topographic and utility locate data based on surveys in accordance with the Port Authority's Record Drawing Standards. The Permit Holder is responsible for repair or replacement of any damage to existing site services and utilities, to the satisfaction of the Port Authority, that result from construction and operation of the Project.
6.	The Permit Holder shall undertake and deliver the Project to total completion in a professional, timely and diligent manner in accordance with applicable standards and specifications set out in the sections above entitled Project Description and Information Sources, including the attached plans and drawings numbered PER No. 20-095 A to G . The Permit Holder shall not carry out any other physical activities unless expressly authorized by the Port Authority.
7.	The Permit Holder shall cooperate fully with the Port Authority in respect of any review by the Port Authority of the Permit Holder's compliance with this Permit, including providing information and documentation in a timely manner, as required by the Port Authority. The Permit Holder is solely responsible for demonstrating the Permit Holder's compliance with this Permit.
8.	The Permit Holder shall review the Permit with all employees, agents, contractors, licensees and invitees working on the Project site, prior to such parties participating in any construction or other physical activities on the Project site. The Permit Holder shall be solely responsible for ensuring that all such employees, agents, contractors, licensees and invitees comply with this Permit.
9.	The Permit Holder shall make available upon request by any regulatory authority (such as a Fishery Officer) a copy of this Permit.
10.	Unless otherwise specified, the Permit Holder shall provide plans, documents, and notices required under this Permit to the following email address: per@portvancouver.com and referencing PER No. 20-095 .
11.	Unless otherwise specified, all plans, schedules, and other Project-related documentation that the Permit Holder is required to provide under this Permit, and any subsequent updates, must be to the Port Authority's satisfaction.
12.	The Permit Holder shall prepare and submit a self-report form to the Port Authority demonstrating compliance with conditions at each of the following project phases:

	<ul style="list-style-type: none"> a) Prior to construction Conditions (self-report shall be submitted a minimum of 15 business days prior to the commencement of construction, or any physical activities, to a maximum of 90 business days prior to construction, or any physical activities) b) Construction Conditions (self-report shall be submitted at 50% of construction) c) Conditions Upon Project Completion (self-report shall be submitted within 60 business days of completion of construction) 	
13.	The Port Authority shall have unfettered access to environmental compliance documentation and the Project site at all times during construction without notice.	
14.	The Permit Holder must maintain and retain any records associated with, or produced by, actions or activities undertaken to achieve compliance or that indicate non-compliance with project permit conditions. These records must be made available at the request of the Port Authority.	
15.	All conditions in this Permit which expressly or by their nature survive expiration or termination of this Permit will remain in effect after the expiration or termination of this Permit.	
	CONDITIONS - PRIOR TO COMMENCING CONSTRUCTION OR ANY PHYSICAL ACTIVITIES	SUBMISSION TIMING (business days)
16.	The Permit Holder shall submit Issued For Construction Drawings for proposed works in accordance with the Port Authority's Record Drawing Standards. These drawings shall be signed and sealed and approved for construction by a professional engineer licensed to practice in the Province of British Columbia. In addition, these drawings shall be submitted in both AutoCAD and PDF format and shall be named according to the record drawing index numbering system set out at Section 2.10 of the Port Authority's Record Drawing Standards.	5 business days before commencing construction or any physical activities
17.	The Permit Holder shall provide a draft construction notification to the Port Authority's satisfaction in accordance with the Port Authority's Public Engagement Guidelines.	20 business days before commencing construction or any physical activities
18.	The Permit Holder shall distribute a construction notification to residents and businesses on the south shore of Burrard Inlet within 500 meters of the track expansion site, as specified in the project and environmental review report. This shall be completed to the Port Authority's satisfaction. The Permit Holder shall notify the Port Authority when such distribution has been completed.	10 business days before commencing construction or any physical activities
19.	Prior to the commencement of any vessel-related activities, the Permit Holder shall contact Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS), (email: NAVWARN.MCTSPrinceRupert@innav.gc.ca ; Phone: 250-627-3070) regarding the issuance of a Navigational Warning (NAVWARN) to advise the marine community of potential hazards associated with the Project. The Port Authority's Marine Operations department shall be copied on the request (navigation.review@portvancouver.com).	As per Coast Guard requirements
20.	The Permit Holder shall submit a marine construction and staging plan to the Port Authority's satisfaction, which includes: <ul style="list-style-type: none"> a) Identification of navigation related hazards and risk mitigation measures b) Staging and construction areas c) Dates and hours of operations d) Description of activities taking place e) Participating equipment and vessels (dimensions must be included) f) Method of preferred communication with marine users g) Method of communicating updates to relevant marine users 	30 business days before commencing any vessel related activities

	<p>h) Emergency call out plan in case of barges breaking free from moorage both during working hours and after working hours</p> <p>i) Special requests and/or additional information</p> <p>The Permit Holder shall carry out the Project in accordance with the marine construction and staging plan, including any subsequent updates made to the Port Authority's satisfaction.</p>	
21.	<p>Prior to the commencement of any vessel-related activities, the Permit Holder shall:</p> <p>a) Notify the BC Coast Pilots (email: bccp@bcpilots.com and directors@bcpilots.com)</p> <p>b) Notify the Council of Marine Carriers (email: Philder@comc.cc and cmc@comc.cc)</p> <p>c) Post notification at boat launches and marinas within Indian Arm and Burrard Inlet</p> <p>Providing them with the following information:</p> <p>i. Staging and construction areas</p> <p>ii. Dates and hours of operations</p> <p>iii. Description of activities taking place</p> <p>iv. Participating equipment and vessels</p> <p>v. Method of preferred communication with marine users</p> <p>vi. Method of communicating updates to relevant marine users</p> <p>If any concerns are raised by the BC Coast Pilots or the Council of Marine Carriers, these concerns must be addressed prior to commencing any vessel-related activities.</p>	30 business days before commencing any vessel related activities
22.	<p>Prior to the commencement of any vessel-related activities for the habitat offsetting, the Permit Holder shall inform Shellburn Terminal providing them with the following information:</p> <p>a) Staging and construction areas</p> <p>b) Dates and hours of operations</p> <p>c) Description of activities taking place</p> <p>d) Participating equipment and vessels</p> <p>e) Method of preferred communication with marine users</p> <p>f) Method of communicating updates to relevant marine users</p>	30 business days before commencing any vessel related activities for the habitat offsetting
23.	<p>The Permit Holder shall provide a Project schedule to the Port Authority showing the anticipated start dates for all major phases of the Project as identified by the Port Authority. The Permit Holder shall notify the Port Authority of any material changes to the Project schedule and, upon request, shall provide an updated Project schedule.</p>	20 business days before commencing construction or any physical activities
24.	<p>If there is potential to affect birds and/or their active nests and eggs, or bats and their potential roosting sites, the Permit Holder shall conduct nest/roost surveys. For any nests or roosts identified in surveys, a qualified environmental professional shall confirm that the nest/roost is not occupied by a species protected at that time of year under applicable legislation. To reduce the risk of Project-related harm, the Permit Holder should avoid certain physical activities during the general bird breeding season, which falls between April 1 and July 31, or outside of this time span if occupied nests are present.</p>	Immediately prior to activities with the potential to affect birds and/or their active nests and eggs or bats and their active roosting sites
CONDITIONS - DURING CONSTRUCTION OR ANY PHYSICAL ACTIVITIES		
25.	<p>The Permit Holder shall notify the Port Authority upon commencement of construction, or any physical activities (e.g., mobilization to the Project site).</p>	

26.	<p>Where possible, general construction and physical activities related to the Project shall be conducted from Monday to Saturday between the hours of 7:00 a.m. and 8:00 p.m. No construction and physical activities shall take place on Sundays or holidays.</p> <p>Some construction and physical activities are dependent on tidal conditions, therefore, work may need to take place outside of standard construction hours (Monday to Saturday 7:00 a.m. to 8:00 p.m., excluding Sundays or holidays). The Permit Holder shall submit a written request in line with the Guideline for Construction Outside of Regular Work Hours, to the Port Authority's satisfaction, no less than 30 business days prior to the desired start date of these activities. No pile driving activities shall take place outside of the standard construction hours noted above.</p>
27.	<p>The Permit Holder shall notify the Port Authority within two business days of any complaints received from the community and stakeholders during construction and indicate how the Permit Holder has responded to such complaints.</p>
28.	<p>The Permit Holder shall remove all abandoned utilities from the Project site, both underground and aboveground. At locations of connection to municipal works (i.e., at property lines), the abandoned utilities shall be capped. The Permit Holder shall provide detailed drawings of abandoned utilities and capped connections in both AutoCAD and PDF format in accordance with the Port Authority's Record Drawing Standards.</p>
29.	<p>The Permit Holder shall carry out the Project in accordance with the Port Authority's Archaeological Chance Find Procedure, or a similar Archaeological Chance Find Procedure accepted in writing by the Port Authority at least five business days prior to groundbreaking activities, and any subsequent updates made to the Port Authority's satisfaction.</p>
30.	<p>The Permit Holder may place temporary construction trailers on the Project site while this permit remains in effect, provided such trailers meet all of the criteria set out in the Port Authority's Temporary Construction Trailer Criteria, available at: https://www.portvancouver.com/permitting-and-reviews/building-permits/. Should one or more of the criteria not be met, a Port Authority Building Permit is required.</p>
31.	<p>The Permit Holder shall ensure a standby tug of adequate size and power is onsite during any vessel-related construction activities, including unloading scows and derricks, but not including moorage.</p>
32.	<p>During any vessel-related activities, the Permit Holder shall:</p> <ol style="list-style-type: none"> Position vessels and equipment associated with the Project in such a manner so as not to obstruct line of sight to navigational aids or markers Exhibit the appropriate lights and day shapes at all times Monitor the VHF channel used for MCTS communications in the respective area at all times and participate as necessary Be familiar with vessel movements in areas affected by the Project Plan and execute the Project in a manner that will not impede navigation or interfere with vessel operations During night hours, unless working 24 hours per day, ensure that the rig and associated equipment is moored outside the navigation channel and lit in accordance with all applicable regulations
33.	<p>The Permit Holder shall obtain a Fisheries and Oceans Canada (DFO) <i>Fisheries Act</i> Authorization ("DFO Authorization") prior to conducting works that require this Authorization. A copy of the DFO Authorization shall be submitted to the Port Authority within ten business days of receipt.</p>
34.	<p>The Permit Holder, or their contractor, 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 underway that have the potential to adversely affect fish or fish habitat.</p>

35.	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.	
36.	The Permit Holder shall provide environmental monitoring reports to the Port Authority 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 30 days of the conclusion of the monitoring period.	
37.	The Permit Holder shall manage invasive plants in a manner that prevents their spread. Invasive plants and potentially affected materials, such as soil, shall be appropriately contained, collected and disposed of.	
38.	Without limiting the generality of permit condition #2, if suspect contaminated materials are encountered, the Permit Holder shall contain, test and dispose of such materials at appropriate licensed off-site facilities and maintain records of off-site disposal. The Port Authority shall be notified of such activities and provided relevant documentation upon completion.	
39.	The Permit Holder shall dispose of any soils excavated from the Project site that are not suitable for backfill at appropriate off-site facilities and maintain records of off-site disposal.	
40.	Without limiting the generality of permit condition #2, 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.	
	CONDITIONS - UPON COMPLETION	SUBMISSION TIMING (Business Days)
41.	The Permit Holder shall notify the Port Authority upon completion of the Project.	Upon substantial completion
42.	The Permit Holder shall provide record drawings, including a Project site plan that clearly identifies the location of works, in both AutoCAD and PDF format (with an Engineers stamp where applicable) in accordance with the Port Authority's Record Drawing Standards. All drawings shall be named according to the record drawing index numbering system set out at Section 2.10 of the Port Authority's Record Drawing Standards.	Within 40 business days of completion
43.	The Permit Holder shall ensure a qualified archaeological monitor conducts a post-construction site visit to DhRr-216 so that in the unforeseen event that a site alteration occurred during construction it can be appropriately documented. Appropriate authorities shall be notified, as necessary.	Within 40 business days of completion
44.	The Permit Holder shall contact the Database Information Office of the Canadian Hydrographic Service (CHS) at (250) 363-6360 or chsdatacentre@dfo-mpo.gc.ca to arrange for the relevant CHS charts to be updated. The Port Authority's Marine Operations department shall be copied on the request (navigation.review@portvancouver.com).	Upon substantial completion
The Port Authority reserves the right to rescind or revise these conditions at any time that new information warranting this action is made available to the Port Authority.		
LENGTH OF PERMIT VALIDITY		
The Project must be completed no later than August 31, 2025 (the "Expiry Date").		

AMENDMENTS
<ul style="list-style-type: none">• Details of any material proposed changes to the Project, including days and hours when construction and any physical activities will be conducted, must be submitted to the Port Authority for consideration of an amendment to this Permit.• For an extension to the Expiry Date, the Permit Holder must apply in writing to the Port Authority no later than 40 business days prior to that date. <p>Failure to apply for an extension as required may, at the sole discretion of the Port Authority, result in termination of this Permit.</p>

PROJECT AND ENVIRONMENTAL REVIEW DECISION

In completing the project and environmental effects review, the Port Authority has reviewed and taken into account relevant information available on the proposed Project and has considered any adverse impact that the Project may have on the rights of Indigenous peoples, Indigenous knowledge, community knowledge, comments received from the public, and measures that would mitigate any significant adverse environmental effects of the Project. We conclude that with the implementation of proposed mitigation measures and Permit conditions, the Project is not likely to cause significant adverse environmental effects.

The Port Authority concludes that the Project has appropriately addressed all identified concerns subject to conformance with the project and environmental conditions in the Permit.

Project Permit PER No. 20-095 is approved by:

ORIGINAL COPY SIGNED

ANDREA MACLEOD
DIRECTOR, PROJECT AND ENVIRONMENTAL
REVIEW

August 22, 2022

DATE OF APPROVAL

CONTACT INFORMATION

Vancouver Fraser Port Authority
100 The Pointe, 999 Canada Place,
Vancouver BC V6C 3T4 Canada

Project and Environmental Review
Tel.: 604-665-9047
Fax: 1-866-284-4271
Email: PER@portvancouver.com
Website: www.portvancouver.com

After normal business hours:

In the event of any land or marine construction incidents or concerns related to works carried out on-site under this permit, please contact the 24/7 Port Operations Centre 604-665-9086. In the event of an emergency requiring 'First Responders', please call 911 first.



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PROJECT AND ENVIRONMENTAL REVIEW REPORT

**PER NO. 20-095
CASCADIA RAIL EXPANSION PHASE 4**

Prepared for: Director, Project and Environmental Review

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 PORT of vancouver Vancouver Fraser Port Authority		VANCOUVER FRASER PORT AUTHORITY PROJECT AND ENVIRONMENTAL REVIEW REPORT
PER No.:	20-095	
Tenant:	Canadian Pacific Railway Company	
Project:	Cascadia Rail Expansion Phase 4	
Project Location	South shore of Burrard Inlet, between Second Narrows and Shellburn Terminal, Burnaby, BC	
Vancouver Fraser Port Authority SID No.:	BBY086, BBY087, BBY088, BBY089, BBY091	
Land Use Designation:	Port Terminal, Port Water	
Applicant(s):	Canadian Pacific Railway Company	
Applicant Address:	1670 Lougheed Highway, Building 9, Port Coquitlam	
Category of Review:	C	
Recommendation:	That PER No. 20-095 for Cascadia Rail Expansion Phase 4 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. 20-095: Cascadia Rail Expansion Phase 4 (the “Project”) proposed by the Canadian Pacific Railway Company (“CP Rail” or 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 to extend their existing rail track leading to the Cascadia Terminal, Vancouver. The proposed extended service track would run along the south shore of Burrard Inlet between Second Narrows and Berry Point in Burnaby. The Project would increase the length of the existing track by approximately 1,500 meters and allow for assembly of 2,600 meter trains clear of the mainline track, reducing delays for other trains serving freight and passengers to and from Vancouver.

To extend the track, the Applicant proposes to widen the existing rail bed by placing clean, engineered fill material in the riparian area and marine environment. The widened embankment will encroach into Burrard Inlet by approximately 18 to 24 metres. The proposed rail track extension will largely be situated within the CP Rail right-of-way. The proposed works extending beyond the right-of-way and into Port Authority jurisdiction include reconfiguring existing tracks associated with the Parkland Refinery, widening sections of the embankment, constructing a riprap toe, extending existing culverts through the embankment, and constructing fish habitat offsetting features.

The placement of fill material into Burrard Inlet to widen the existing rail embankment will result in the permanent alteration and permanent loss of fish habitat in the marine environment. The Applicant proposes to construct a reef structure in the shallow subtidal zone and enhance intertidal sandflat habitat as habitat offsetting in support of a *Fisheries Act* Authorization for the Project. The proposed habitat offsetting will be constructed on the east side of Berry Point, west of Shellburn Terminal.

The proposed Project will not result in an increase in operations, only additional train car storage length. The track extension will provide sufficient track capacity to hold a full indexed grain train without the need to split cars or occupy the main tracks as currently required. No additional locomotives will be added to service the Cascadia Terminal based on current grain throughput volumes.

2.1 Proposed Works

- Establishing access to equipment and material laydown areas, including vegetation clearing, mobilization, and creation of temporary barge ramps to serve as unloading areas for marine scows and derricks
- Excavating material for toe construction and preparing the area within the proposed embankment footprint for fill placement, as needed
- Placing structural fill on the seaward side of the existing rail mainline to support rail sidings
- Placing approximately 48,000 cubic metres of riprap to stabilize filled sections of the shoreline
- Extending approximately 18 culverts
- Grading and sub-ballast construction, including installing a pile foundation at the Rainbow Creek concrete box culvert
- Installing approximately 1,500 meters of rail track
- Constructing facilities and control points associated with new rail track
- Reconfiguring existing rail tracks associated with the Parkland Refinery
- Constructing approximately 18,900 square meters of habitat offsetting

2.2 Proposed Construction Methods

Construction access for transport of construction materials, equipment, and supplies to and from the Project area will be primarily by marine barge and include the construction of two temporary barge ramps. Debris, wastes, and other materials will also be removed by barge. Heavy machinery such as excavators, front-end loaders, and rollers, are anticipated to work and be stored overnight on the embankment. Access from the upland using a newly constructed road from the Parkland Refinery or via the existing rail tracks will also be used, where available.

Following completion of construction, the two temporary barge ramps will be removed and the habitat beneath them restored to pre-construction conditions. Offsetting construction will consist of placement of concrete railroad ties and rock in water by water-based equipment (derrick and crane with supply barge).

Construction is estimated to take up to 18 months. Where possible, construction activity is anticipated to take place during standard construction hours (Monday to Saturday 7:00 a.m. to 8:00 p.m., excluding Sundays and holidays). However, some activities are dependent on tidal conditions, therefore, work may need to take place outside of standard hours. The Applicant must submit a written request, to the Port Authority's satisfaction, no less than 30 business days prior to the desired start date of these activities. The Applicant is also required to prepare a construction notification to be sent 10 business days before commencing works outside of standard construction hours.

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 is located on the south shore of Burrard Inlet, within the City of Burnaby, and is part of the main rail transportation corridor along the south shore. The Project is adjacent to Burrard Inlet to the north and Parkland Refinery, trees, and park areas to the south. Further south are residential properties, the closest of which are approximately 170 metres from the rail tracks. The CP Rail mainline tracks continue to the east and west of the proposed track extension, with Berry Point to the east and Second Narrows and the Cascadia Terminal to the west.

Where projects are in close proximity to residential areas along the south shore, the Vancouver Fraser Port Authority Land Use Plan requires that careful planning and collaboration between the Port Authority and adjacent municipalities and Indigenous groups take place to reduce the potential for conflicts between port-related and non-industrial uses. Sections 4, 5, and 6 of this report detail the engagement that has taken place to meet this requirement.

The proposal meets Port Authority requirements, based on the primary considerations of the land use designation and current land use policies.

3.1.1 Land Use Designation

The Project site is designated as Port Terminal and Port Water in the Vancouver Fraser Port Authority Land Use Plan.

Transportation infrastructure is permitted in all land use designation areas where compatible with primary uses. Shipping and transportation of goods is also a primary use for Port Terminal designations. The rail tracks support the transportation of goods along the south shore, and to and from port terminals. The expansion of the tracks is proposed to improve rail operations for existing Port of Vancouver rail customers on the south shore of Burrard Inlet, and is therefore considered to be compliant with the land use plan designation.

Habitat offsetting is a conditional use within the Port Terminal land use designation. Conditional uses are permitted subject to consideration of their appropriateness in the context of specific sites. Determination of a suitable location for habitat offsetting in relation to this proposal involved consideration of the environment, marine navigation, and access for adjacent tenants. The location proposed is considered suitable for habitat construction and enhancement and the use is therefore considered compliant with the land use plan designation.

3.1.2 Existing Land Use Policies

The transportation policy in the land use plan requires any new and upgraded transportation infrastructure within the Port Authority's jurisdiction to comply with all transportation regulations and standards applicable to the Port Authority, and consider the applicable policies, guidelines, and designs of the connecting road and rail authorities. Transportation infrastructure projects should also generally meet the following objectives:

- Support the goals, objectives, and policy directions contained within the Vancouver Fraser Port Authority Land Use Plan
- Encourage the orderly and efficient development of port lands over the long term in support of Canada's trade priorities
- Ensure the long-term ability to efficiently manage port-related road and rail traffic.

In line with these objectives, the land use plan notes that the anticipated future uses of this area should support continued growth of port-related uses in all commodity sectors and further intensification of port-related industrial users on existing sites. Investment in rail infrastructure to improve operational efficiencies for the movement of goods, including CP Rail capacity expansion, is noted as a key feature for the south shore. The expansion of the rail tracks would support the intensification of use in the area by improving storage capacity and rail logistics, supporting the efficient management of rail traffic in the long-term.

The track extension will provide sufficient track capacity to hold a full indexed grain train without the need to split cars or occupy the main tracks as currently required. The majority of rail infrastructure is proposed within the CP Rail right-of-way and outside of the Port Authority's jurisdiction. Access to the Project site during construction will be primarily via marine barge, but will also include using the existing rail tracks and/or a newly constructed road from the Parkland Refinery.

The proposal meets Port Authority requirements, subject to adherence to the project and environmental conditions in the Permit.

3.1.3 Building Permit Requirements

A building permit is not required for the Project.

3.2 Engineering

The proposed Project intends to extend the existing rail embankment including rip-rap and shoreline protection. Approximately 18 culverts within the Project area will be extended or replaced. The proposed Project has been designed by professional engineers licensed to practice in the Province of British Columbia and has been designed to applicable engineering standards.

The Port Authority has reviewed the application and requires the Applicant to:

- Submit issued for construction and record drawings
- Remove and cap abandoned utilities at locations of connection to municipal works.

These are reflected in conditions no. 16, 28 and 42 in the Permit.

The proposal meets Port Authority engineering requirements, subject to adherence to the listed project and environmental conditions in the Permit.

3.3 Marine Operations

Access to the Project site for construction activities is proposed to be primarily via marine barge and will include construction of two temporary barge ramps. Barge operations will be managed following Transport Canada requirements to minimize potential interference with active commercial and recreational navigation. A marine construction and staging plan was provided as part of the application submission and will be updated, as needed.

The Applicant submitted a Hydraulic Process and Alteration Report as part of their application submission given the potential for the proposed infill to impact local hydraulics, particularly as the Project is within the Second Narrows Traffic Control Zone (TCZ-2). The report concludes that the effect on flow hydraulics, if any, within TCZ-2 is expected to be unnoticeable for navigational purposes.

Impacts to marine navigation were considered in the development and location of the proposed habitat offsetting, including comments received during the engagement detailed in Section 4 of this report.

The Port Authority has reviewed the application and requires the Applicant to:

- Submit a marine construction and staging plan to the Port Authority's satisfaction
- Submit a request for a Navigational Warning (NAVWARN) to advise the marine community of potential hazards associated with the Project
- Carry out marine notifications
- Have a standby tug onsite during vessel-related activities
- Arrange for relevant updates to Canadian Hydrographic Service charts

These are reflected in conditions no. 19, 20, 21, 22, 31, 32 and 44 in the Permit.

The proposal meets Port Authority marine operations requirements, subject to adherence to the listed project and environmental conditions in the 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 the local community and consultation activities were determined to be required. The following sections describe the stakeholder and public engagement activities undertaken by the Applicant and 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 Burnaby on April 20, 2022 notifying them of the proposed Project. No comments were received from the City of Burnaby.

4.2 Federal, Provincial, Regional Agency Consultation

The proposed Project was assessed by the Port Authority to be of potential interest to other regulatory agencies. A referral letter was sent to Metro Vancouver on April 20, 2022 notifying them of the proposed Project. No comments were received from Metro Vancouver.

The proposed Project requires a Section 35 *Fisheries Act* Authorization due to the potential to result in the death of fish or in harmful alteration, disruption, or destruction to fish habitat. Condition no. 33 requires the Applicant to provide the Port Authority a copy of their *Fisheries Act* Authorization prior to commencing construction or any physical activities requiring this Authorization.

The proposed Project requires authorization under the *Canadian Navigable Waters Act*. Transport Canada was consulted by the Port Authority during the review process to ensure consistency of information received and to review draft conditions.

4.3 Adjacent Tenant Consultation

The proposed Project was assessed to have potential impacts to adjacent Port Authority tenant operations. A referral letter was sent to Island Tug and Barge Marine Group Limited and Shell Canada Products Limited on April 20, 2022 notifying them of the proposed Project. The Port Authority did not receive any comments in response to the referral.

The Applicant had undertaken direct engagement with BC Coast Pilots and Shell Canada Products Limited during the location scouting stage of habitat offsetting development. The Applicant met with Shell Canada Products Limited to discuss the location and boundaries of the proposed habitat offsetting to ensure it would not interfere with their operations. The Applicant responded to their questions and concerns and revised the shape of the habitat offsetting along the edge of the Shell Canada Products Limited lease boundary east of Berry Point to ensure that vessel movements would not be impeded.

4.4 Marine Users Consultation

The proposed Project was assessed to have potential impacts to marine users. A referral letter was sent to the following marine users on April 4, 2022 notifying them of the proposed Project:

- Council of Marine Carriers
- BC Coast Pilots
- Pacific Pilotage Authority

Below is a table summarizing the comments received and how they were considered as part of the project and environmental review.

Issue	Mitigations and Permit Conditions
Council of Marine Carriers had concerns regarding contractors respecting oil barge movement during slack tide periods at Second Narrows when most of the moves occur, especially for Tier 1 vessels restricted to the 2-knot window. If construction barge movements through the area conflict, it was requested that commercial traffic be given priority.	The Applicant confirmed commercial traffic will be given priority.
BC Coast Pilots would like updates as the Project continues.	The Applicant will provide an updated Marine Construction Staging Plan to the BC Coast Pilots as required in condition no. 21.

5 PUBLIC ENGAGEMENT

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.

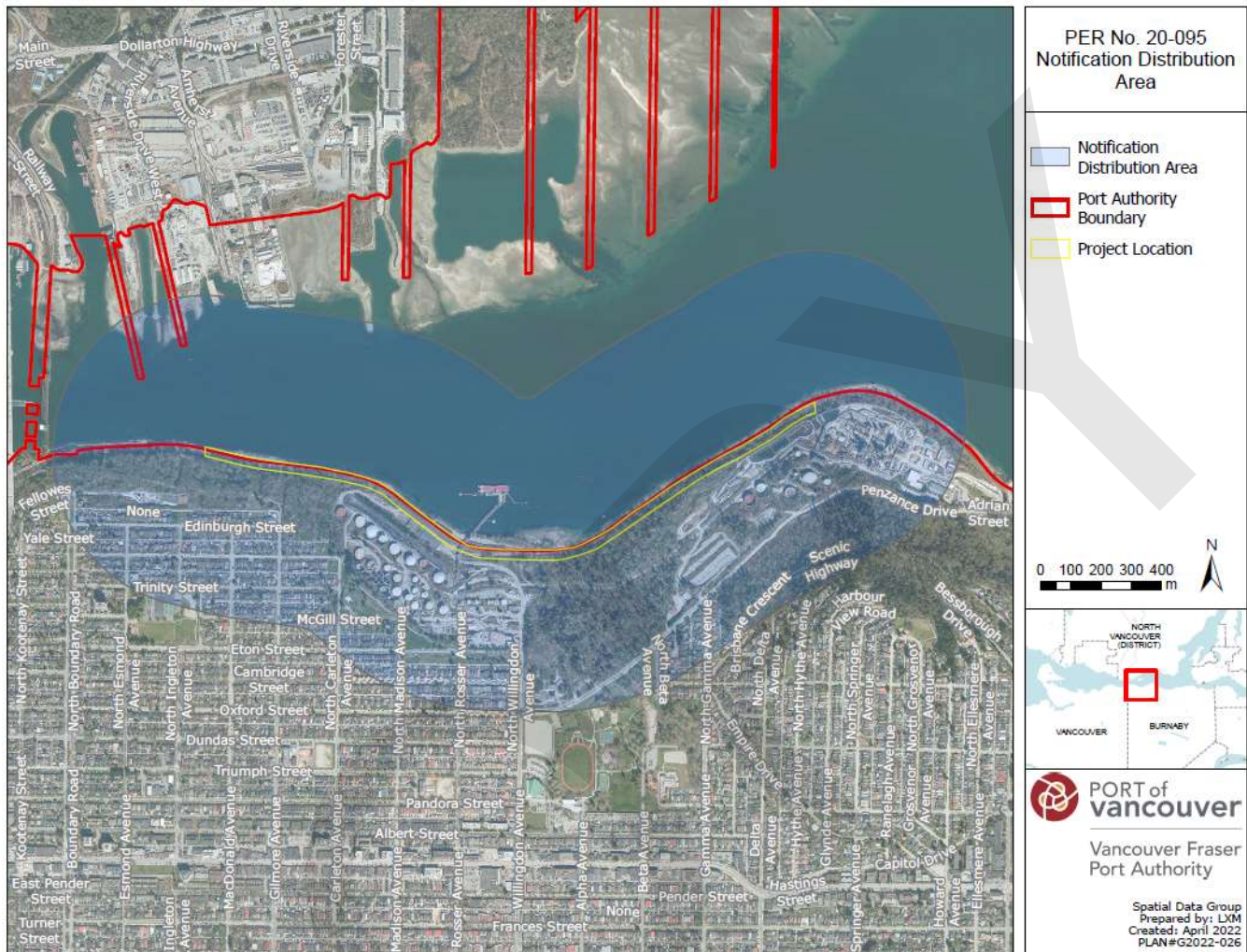
The comment period ran from March 21 to April 20, 2022. At the close of the 30 calendar day public comment period, no comments were received.

On April 29, 2022, Transport Canada notified the Port Authority that approval under the *Canadian Navigable Waters Act* would be needed. This required a new coordinated notice of intent to be posted to the Canadian Impact Assessment Registry, and a new 30 calendar day opportunity for public comment that ran from May 5 to June 3, 2022. At the close of the 30 calendar day public comment period, no comments were received.

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 on nearby residential areas from activities generating noise and exhaust.

The Applicant is required to send a construction notification to adjacent residents and businesses in Burnaby, as shown by the shaded areas on the south shore of Burrard Inlet in the map below. The notification area is within approximately 500 meters of the track expansion site on the south shore. 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 Port Authority’s and the Applicant’s websites. This is condition no. 18 in the Permit.

Map of notification area



6 INDIGENOUS CONSULTATION

The Port Authority reviewed the proposed works and determined that the Project may have the potential to adversely impact Aboriginal or Treaty rights.

Best efforts were made to consult with the following Indigenous groups:

- Musqueam Indian Band
- S'ólhTéméxw Stewardship Alliance (STSA)
- Squamish Nation
- Tsleil-Waututh Nation

For the proposed Project, the Port Authority delegated procedural aspects of Indigenous consultation to the Applicant. The Port Authority concurrently conducted consultation activities in relation to notifying Indigenous groups of the delegation process, providing participation funding, and liaising between the Applicant and an Indigenous group regarding a Project concern. The following consultation activities were conducted by the Port Authority and the Applicant:

- Pre-application engagement by the Applicant with interested Indigenous groups including document review, comment tables and responses, email updates and providing the draft project and environmental review (PER) application to Indigenous groups for review and comment prior to submission
- The Port Authority provided a referral package for review including a letter regarding the delegation of the procedural aspects of consultation to the Applicant, the Delegated Procedural Aspects of Consultation - Guide for Applicants and either a participation funding summary or a participation funding agreement
- Following the Port Authority’s referral package, the Applicant provided information packages to Indigenous groups which included confirmation of the delegation of the procedural aspects of consultation, website link to the relevant Project documents for review, the comment response date and a comment response document tracking template
- The Port Authority and the Applicant conducted meetings (virtually) with Indigenous groups when requested
- The Applicant provided regular Project updates via email
- The Port Authority conducted check-ins on the Project with Indigenous groups which have standing monthly PER sessions
- Response table provided to Indigenous groups who provided comments on the referral package

Below is a table summarizing comments received by the Port Authority from Indigenous groups and how these comments were considered as part of the project and environmental review.

Issue	Mitigations and Permit Conditions	Rationale
Impacts of invasive species within the project and habitat offsetting areas	<p>The following permit conditions are recommended to address this concern:</p> <p>The Applicant shall manage invasive plants in a manner that prevents their spread. Invasive plants and potentially affected materials, such as soil, shall be appropriately contained, collected and disposed of.</p> <p>Without limiting the generality of permit condition #2, 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 Applicant shall maintain records to verify this.</p>	<p>No invasive species have been identified within the planned offsetting habitat location. However, colonization by Himalayan blackberry has been noted along the CP Rail alignment.</p>
Impacts of development on archaeological resources	<p>The following permit conditions are recommended to address this concern:</p> <p>The Applicant shall carry out the Project in accordance with the Port Authority’s Archaeological Chance Find Procedure, or a similar archaeological chance find procedure accepted in writing by the Port Authority at least five business days prior to groundbreaking activities, and any subsequent updates made to the Port Authority’s satisfaction.</p> <p>The Applicant shall ensure a qualified archaeological monitor conducts a post-</p>	<p>No excavation will be conducted within the site boundaries of DhRr-895 at the track expansion location.</p> <p>No Project works are proposed within the site boundaries of DhRr-216 at the habitat offsetting location. The Applicant will be required to submit an archaeological chance find procedure to the Port Authority’s satisfaction which will be applicable at both the track expansion location and the</p>

Issue	Mitigations and Permit Conditions	Rationale
	construction site visit to DhRr-216 so that, in the unforeseen event that a site alteration occurred during construction, it can be appropriately documented. Appropriate authorities will be notified, as necessary.	habitat offsetting location. Additionally, a post-construction site visit to DhRr-216 by a qualified archaeological monitor will be required.
Concern regarding the number of years post-construction monitoring proposed for the Marine Habitat Offsetting Plan	None required.	<p>The Marine Habitat Offsetting Plan is the purview of Fisheries and Oceans Canada (DFO) as the Project will be carried out under a <i>Fisheries Act</i> Authorization (FAA). The Applicant designed the offsetting plan to meet offsetting objectives and to align with DFO’s guiding principles for offsetting. The Applicant is awaiting decision on the FAA from DFO.</p> <p>The Port Authority requested the Applicant add ‘Indigenous groups’ to the consultation list for section 8 – Contingency Planning in the Marine Habitat Offsetting Plan. This change to the plan was made and if there are future updates to the plan, Indigenous groups will be consulted.</p>

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.

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

Project information pertinent to the environmental review includes the following:

- Dive surveys identified numerous species of algae and invertebrates, including a bull kelp forest located adjacent to the western track expansion area. The eastern portion of the track expansion area and the habitat offsetting lie within the Eastern Burrard Inlet Rockfish Conservation Area. Rockfish conservation areas protect rockfish and rockfish habitats by prohibiting fishing, particularly ground fishing and bottom trawling.
- The Project will result in approximately 6,817 square meters of temporary disturbance, 8,724 square meters of permanent alteration, and 11,473 square meters of destruction of fish habitat. These impacts will be offset by constructing a contiguous and complex reef structure and enhancing intertidal sandflats east of Berry Point in compliance with a valid *Fisheries Act* Authorization.
- Terrestrial vegetation within the Project area consists of predominantly mixed salmonberry and Himalayan blackberry. Larger trees found throughout the area include red alder, western hemlock, black cottonwood, and bigleaf maple. Invasive species include Himalayan balsam, Himalayan blackberry, and English ivy. An estimated 5,218 square meters of riparian vegetation that has colonized the area seaward of the existing track will be removed and 64 square meters permanently altered. Loss of marine riparian vegetation has been included in the calculations for determining proposed offsetting under the *Fisheries Act*.
- Several federally listed bird and bat species are considered to have a moderate to high likelihood of occurring within the Project area while foraging or perching. Only minor interactions between these species and Project-related activities are expected. Targeted field surveys to assess habitat suitability for Pacific water shrew and the presence of osprey, bald eagle or great blue heron stick nests determined that the Project will have minimal to no interaction with these species.
- An archaeological impact assessment considered the track expansion location to have low archaeological potential primarily due to historical land alterations, but also relatively high-energy wave action which has resorted beach deposits and buried historical refuse at least 0.45 metres deep. While complete avoidance of site DhRr-895 is recommended, because the single artifact has been collected and Project activities in this location do not involve excavations, no further archaeological work (i.e., construction monitoring) is recommended. No Project works are proposed at the habitat offsetting location within the site boundaries of DhRr-216. An archaeological chance find procedure is included in the Project's construction environmental management plan and will be followed at the track expansion location and the habitat offsetting location. A post-construction site visit at DhRr-216 will be completed by a qualified archaeological monitor to ensure no inadvertent site alteration has occurred. Provincial site records will be updated, if applicable.

- The construction environmental management plan submitted as part of the application identified mitigation measures to be implemented during the Project, including: scheduling activities to occur within least-risk work windows, undertaking environmental monitoring by a qualified professional, implementing erosion and sediment control measures, monitoring water quality and implementing additional mitigations as needed, conducting a marine lifeform salvage, and implementing spill prevention and response procedures.
- A desktop qualitative assessment of the potential impacts of the Project on local, tidally induced hydraulics determined that flow disturbance is expected to be primarily confined to the areas adjacent to the embankment and result in a negligible change in the average velocity within the central area of the channel. The effect on flow hydraulics, if any, within the Second Narrows Traffic Control Zone is expected to be unnoticeable for navigational purposes.

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 on air quality during construction activities from equipment operation. Mitigation measures to reduce the potential for adverse effects will be implemented as detailed in the construction environmental management plan. This includes implementing idling reduction, turning off emission sources when not in use, covering loads of soil when transporting or stockpiling, and monitoring and managing dust-generating activities during high winds.</p> <p>The proposed Project will not result in an increase in operations, only additional train car storage length. No additional locomotives will be added to service the Cascadia Terminal based on current grain throughput volumes.</p> <p>With mitigation in place, residual adverse effects on air quality are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lighting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>No new permanent lighting will be installed as part of the Project.</p> <p>There is potential for adverse effects from temporary lighting during night-time construction works. Mitigation measures will be implemented to reduce those effects, including the use of directional lighting focused on the works area, and limiting night-time works when applicable.</p> <p>With mitigation in place, residual adverse effects from Project-related lighting are expected to be not significant.</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
Noise	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse noise effects during construction activities. Measures to reduce potential noise impacts are outlined in the construction environmental management plan and include turning off machinery and equipment when not in use, minimizing vehicle and equipment idling time, properly maintaining equipment to limit noise emissions, and positioning noise-generating stationary equipment as far from noise receptors as practical.</p> <p>The volume of rail traffic is not anticipated to increase during operation.</p> <p>With mitigation in place, residual adverse effects on noise are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to soil quality resulting from construction activities.</p> <p>Mitigation measures to reduce the potential for adverse effects will be implemented as detailed in the construction environmental management plan, including appropriate testing, containment, handling, and disposal of contaminated soils, and implementing a spill prevention and response plan prior to works.</p> <p>With mitigation in place, residual adverse effects on soil quality are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sediments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to sediment from suspension of sediments during in-water excavation and fill placement, and from surface water run-off.</p> <p>Mitigation measures outlined in the construction environmental management plan will be implemented, including monitoring for turbidity during in-water works, applying sediment and erosion control measures as soon as soil disturbance or vegetation clearing has occurred, covering stockpiles and exposed areas, and implementing a spill prevention, containment and clean-up plan.</p> <p>With mitigation in place, residual adverse effects on sediment quality are expected to be not significant.</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
Groundwater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to groundwater during construction activities.</p> <p>Mitigation measures outlined in the construction environmental management plan will be implemented, including appropriate testing, containment, handling, and disposal of contaminated soils, and implementing a spill prevention and response plan.</p> <p>With mitigation in place, residual adverse effects on groundwater quality are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Surface water and water bodies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on surface water and water bodies from in-water excavation and fill placement, surface run-off, and spills.</p> <p>Mitigation measures outlined in the construction environmental management plan will be implemented, including monitoring for turbidity during in-water works, implementing sediment and erosion control measures, and preventing sediment run-off from barges and temporary barge ramps.</p> <p>With mitigation in place, residual adverse effects on surface water and water bodies are expected to be not significant.</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/habitat with special status</p> <p>Assessed under section 79 of the <i>Species at Risk Act</i>, as applicable</p>	■	<input type="checkbox"/>	<p>The eastern portion of the Project is located within the Eastern Burrard Inlet Rockfish Conservation Area. Fishing is prohibited within the conservation area. Yelloweye rockfish are federally listed and may be present within Burrard Inlet. The potential presence of federally listed bird and bat species in the Project area is limited to foraging or perching activities. Nesting or roosting is not anticipated within Port Authority jurisdiction.</p> <p>The track expansion location is primarily dominated by mixed salmonberry and invasive species, with Himalayan blackberry being the most common. The dominant native tree species is black cottonwood. Mitigation measures to reduce the potential for adverse effects will be implemented as detailed in the construction environmental management plan. These include scheduling activities to occur within least-risk work windows, conducting pre-construction nest surveys, and undertaking environmental monitoring by a qualified professional.</p> <p>Mitigation measures included in the <i>Fisheries Act</i> Authorization will be implemented to avoid potential effects on rockfish and other aquatic species.</p> <p>With mitigation in place, residual adverse effects on species/habitat with special status are expected to be not significant.</p>	<input 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
Terrestrial resources (e.g., vegetation, wildlife, etc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Approximately 5,218 square meters of marine riparian vegetation will be removed and 64 square meters permanently altered by Project activities. Vegetation is predominantly mixed salmonberry and Himalayan blackberry. Bird and bat species may be present in the Project area when foraging or perching.</p> <p>Mitigation measures to reduce the potential for adverse effects on terrestrial vegetation and wildlife will be implemented as detailed in the construction environmental management plan. These mitigations include clearing vegetation outside the nesting season and/or conducting pre-construction nest and roost surveys, separating invasive plant parts from other organic material, minimizing bare soil exposure, and cleaning and inspecting equipment regularly.</p> <p>The permanent loss and alteration of riparian habitat will be mitigated through habitat offsetting as required under a <i>Fisheries Act</i> Authorization.</p> <p>With mitigation in place, residual adverse effects on terrestrial resources are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Wetland habitat is not anticipated to be affected by 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Project-related activities have the potential to disturb aquatic species and fish habitat (e.g., through induced turbidity and other changes to water quality, disruption to migrating fish populations, displacement of habitat for benthic organisms where fill will be placed, and accidental spills).</p> <p>Potential adverse effects will be reduced through the implementation of mitigation measures outlined in the construction environmental management plan, including environmental monitoring by a qualified professional, conducting a marine lifeform salvage prior to construction, and monitoring for marine mammals during in-water works.</p> <p>The permanent loss or alteration of habitat within the Project footprint will be mitigated through habitat offsetting as required under a <i>Fisheries Act</i> Authorization.</p> <p>With mitigation in place, residual adverse effects on aquatic resources are expected to be not significant.</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
Health and socio-economic conditions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Based on the very low magnitude of residual effects on air and noise, the Project is not expected to cause 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"/>	No Project works are proposed within the site boundaries of DhRr-216, located near the habitat offsetting location. While the track expansion location overlies site DhRr-895, the single artifact has been collected and Project activities in this location do not involve excavation. An archaeological chance find procedure will be implemented during construction and applicable at both locations. Additionally, a post-construction site visit to DhRr-216 by a qualified archaeological monitor will be conducted. With mitigation in place, residual adverse effects on archaeological, physical, and cultural heritage resources are expected to be not significant.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Accidents and malfunctions Assessed as required by the <i>Canada Marine Act</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is potential for adverse effects on surface water, ground water, soil, and sediment from accidental equipment leaks or spills. Mitigation measures outlined in the construction environmental management plan will be in place to reduce the potential for adverse, Project-related effects due to accidents. With mitigation measures in place, the effect of an accident or malfunction on the environment, if it were to occur, is predicted to be not significant.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

- Air quality
- Lighting
- Noise
- Soils
- Sediment
- Groundwater
- Surface water and waterbodies
- Species or habitat with special status
- Terrestrial resources
- Aquatic resources
- Archaeological resources
- Accidents and malfunctions

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

- Moderate in magnitude and primarily due to the presence of construction equipment in the intertidal and subtidal zones, removal of marine riparian vegetation, physical disturbance of seabed and shoreline areas, and associated potential effects on aquatic resources and water quality during temporary construction activities
- Local in geographic extent because effects will be limited to the Project area
- Short-term in duration as construction activities will be intermittent and temporary for approximately 18 months and unlikely to result in ongoing adverse effects on water quality or aquatic resources once construction is complete
- Continuous (daily to weekly) in frequency during Project construction
- Reversible/temporary because residual adverse effects of the Project would cease once Project construction is complete

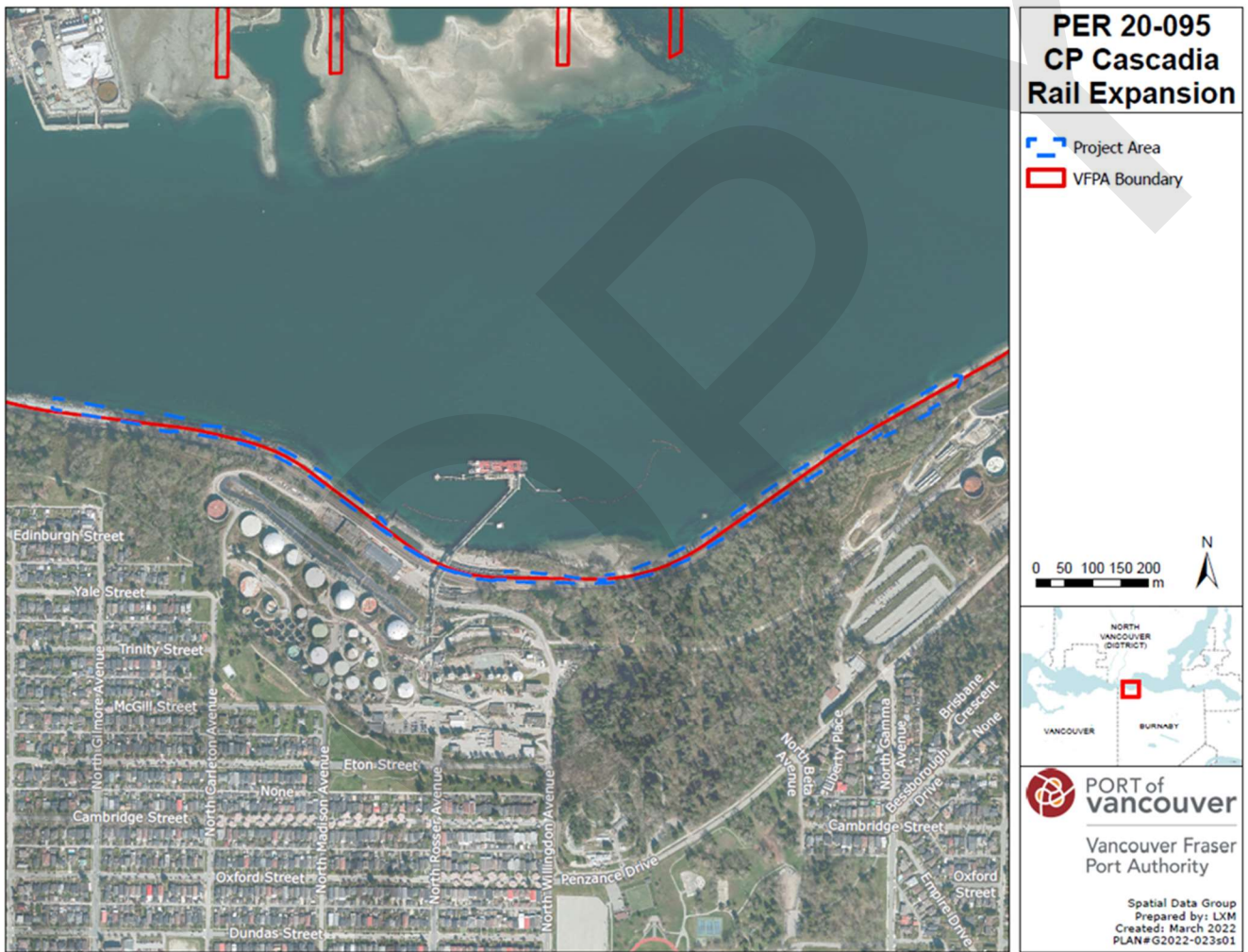
In conclusion, based on the characterization above, the mitigation measures proposed by the Applicant and the Permit conditions, the residual adverse effects from the Project are predicted to be not significant.

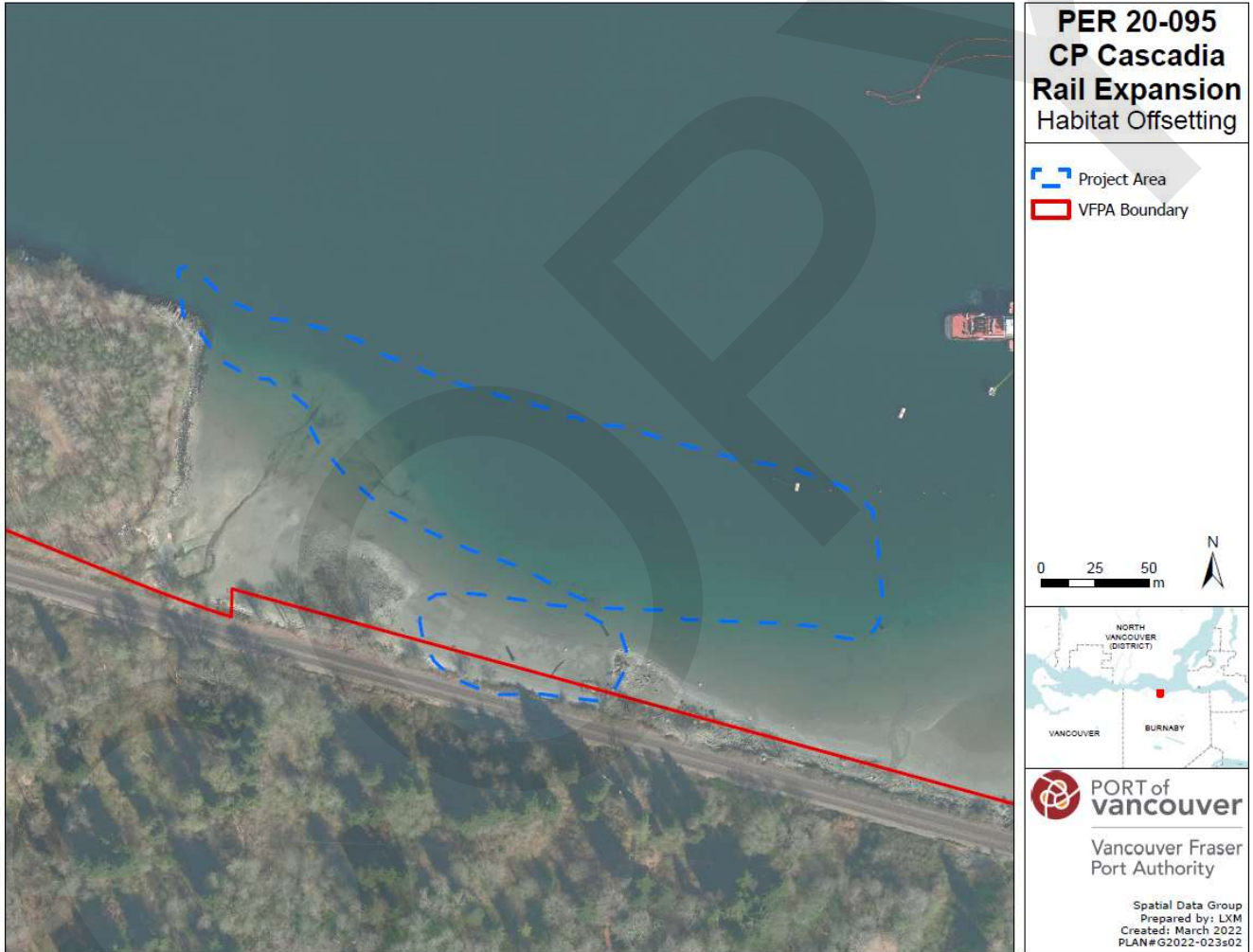
8 CONCLUSION

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.** 20-095.



APPENDIX A
Location Plans





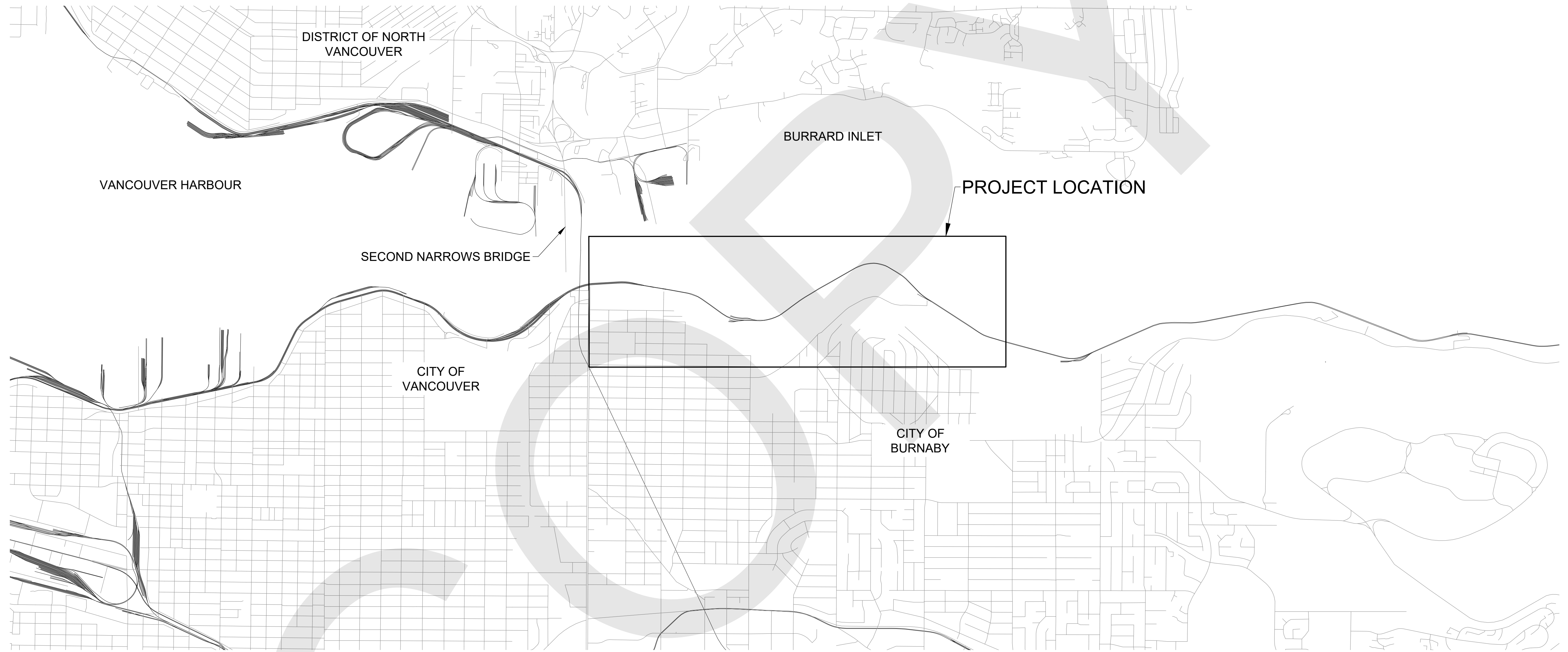
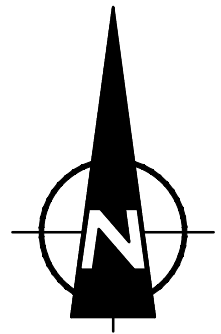
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APPENDIX B
List of Information Sources

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 17, 2022
- Project correspondence from March 17, 2022 to August 2, 2022
- Plans and drawings labelled PER No.20-095 A to G

CASCADIA EAST EXTENSION - PHASE 4 PROPOSED K09 EXTENSION WESTERN REGION - VANCOUVER DIVISION REISSUED FOR 30% DESIGN REVIEW



MILE 123.07 TO MILE 124.17 CASCADE SUBDIVISION EXTENSION



ENGINEERING PROJECTS - WEST



PROJECT No: H362379
H362379-GA-100-S0-0000 REV C

MARCH 19, 2021

VANCOUVER FRASER PORT AUTHORITY
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NOT FOR CONSTRUCTION



SITE LOCATION PLAN



	ZONE 1 (11+140 TO 11+753)	ZONE 2 (10+713 TO 11+140)	ZONE 3 (10+000 TO 10+713)
TRACK LENGTH (ft)	2,011	1,401	2,339
FILL (RIPRAP AND ROCKFILL) ABOVE HWM (m3)	11,566	335	15,687
FILL (RIPRAP AND ROCKFILL) BELOW HWM (m3)	9,915	0	13,024
LENGTH (ft) / TYPE OF RETAINING STRUCTURE	NONE	328 TWall	NONE
LENGTH (ft) / TYPE OF BRIDGE STRUCTURE	NONE	43 CANTILEVER UTILITY BRIDGE	NONE

K09 CAPACITY MEASUREMENTS		
FROM DUMPER TO EXISTING SWT PT DERAIL (ft)	FROM EXISTING SWT PT DERAIL (MILE 124.174) TO 10ft WEST OF PROPOSED SWT PT DERAIL (MILE 123.141) (ft)	TOTAL CAPACITY (ft)
4,168	5,427	9,595

Mor 17, 2021, 4:40pm Login name: KIM79037 Drawing Name: C:\pwworking\kim79037\d0693850\H362379-CA-100-S0-0001.dwg

VANCOUVER FRASER PORT AUTHORITY
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HATCH
 METRIC DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED
 DESIGNED BY: T.I. DATE: 19-03-21
 CHECKED BY: J.C. DATE: 19-03-21
 HATCH PROJECT No: H362379 DWG SCALE(FULL SIZE): 1:3000

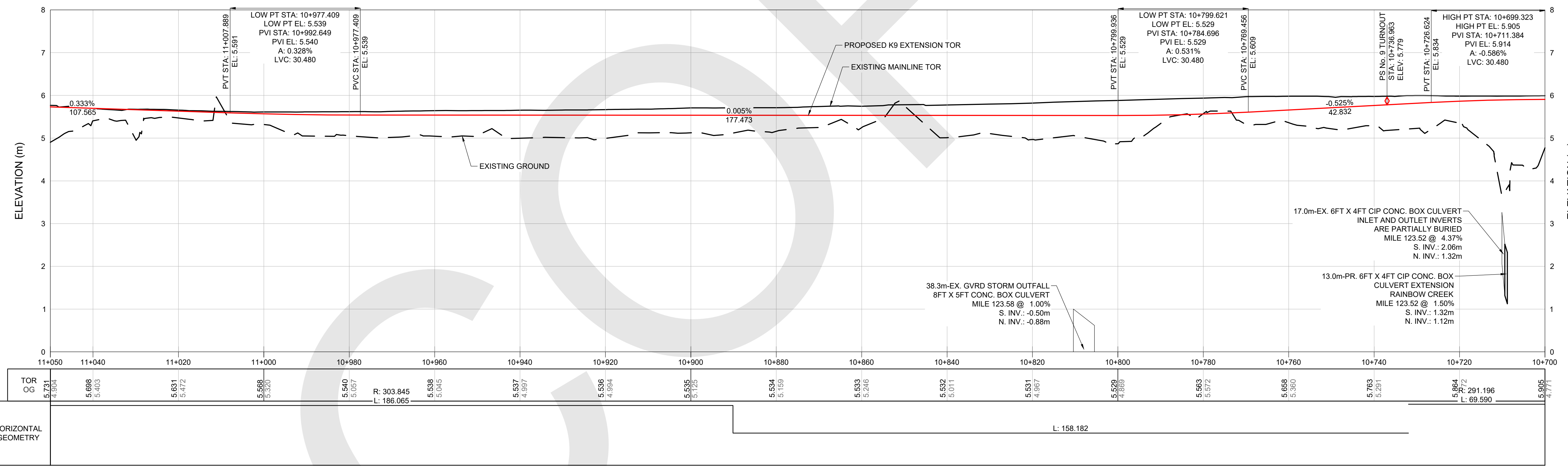
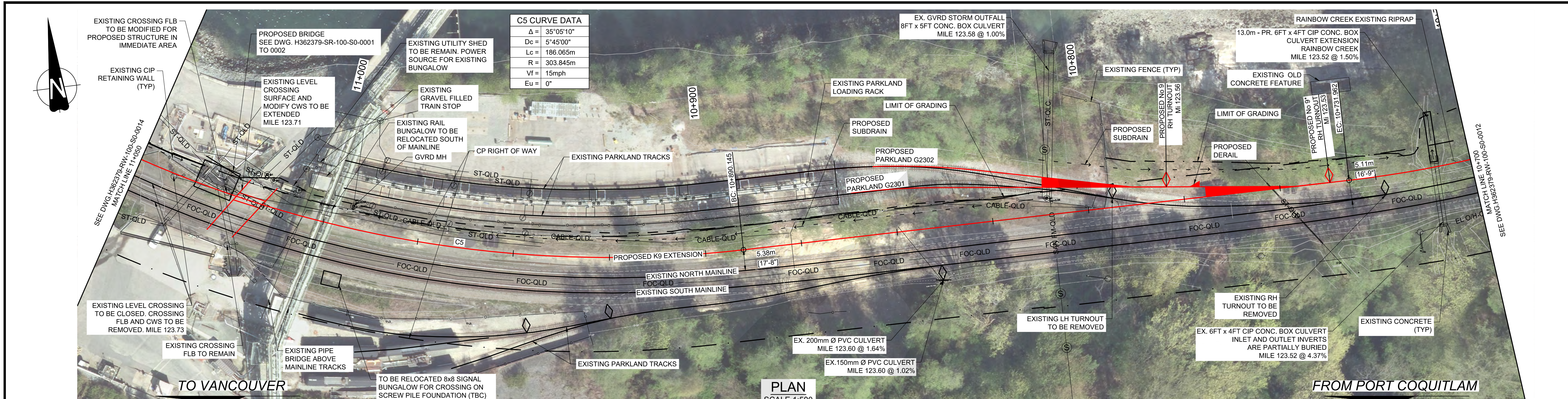
PROFESSIONAL SEALS

No.	DATE	REVISION	BY
C	19-03-21	REISSUED FOR 30% DESIGN REVIEW - ZONE MAP INCLUDED	T.I.
B	29-01-21	REISSUED FOR 30% DESIGN REVIEW	T.I.
A	13-11-20	ISSUED FOR 30% DESIGN REVIEW	T.I.

No.	DATE	REVISION	BY
C	19-03-21	REISSUED FOR 30% DESIGN REVIEW - ZONE MAP INCLUDED	T.I.
B	29-01-21	REISSUED FOR 30% DESIGN REVIEW	T.I.
A	13-11-20	ISSUED FOR 30% DESIGN REVIEW	T.I.

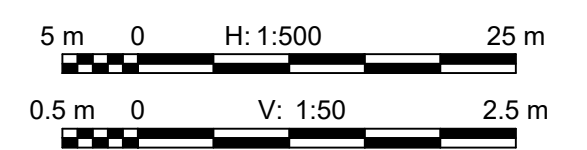
CP
 ENGINEERING PROJECTS - WEST

VANCOUVER DIVISION MILE 123.07 TO 124.17 CASCADE SUBDIVISION
**CASCADIA EAST EXTENSION - PHASE 4
 PROPOSED K9 TRACK EXTENSION
 SITE LOCATION PLAN**
 DWG. BY: M.F. CHK BY: KMM OFFICE FILE:
 SCALE:
 MANAGER - DESIGN: DATE:
 PLAN No.
 M.FAVREAU DIR. PROJECT SERVICES WEST H362379-GA-100-S0-0001 Rev. C



NOT FOR CONSTRUCTION

NOTE:
1. ASSUMED CLASS II SET BACK REQUIREMENT FOR FLAMMABLE LIQUID HANDLING OF MINIMUM 30FT FROM K9 TO PARKLAND UNLOADING TRACKS. THIS IS TO BE CONFIRMED WITH PARKLAND.



VANCOUVER FRASER PORT AUTHORITY

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HATCH

METRIC DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED

DESIGNED BY: T.J.	DRAWN BY: S.K.
DATE: 19-03-21	DATE: 19-03-21
CHECKED BY: J.C.	PROJECT MANAGER: K.M.M.
DATE: 19-03-21	DATE: 19-03-21
HATCH PROJECT No: H362379	DWG SCALE(FULL SIZE): 1:500

No.	DATE	REVISION	BY
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A	13-11-20	ISSUED FOR 30% DESIGN REVIEW	T.I.

CP

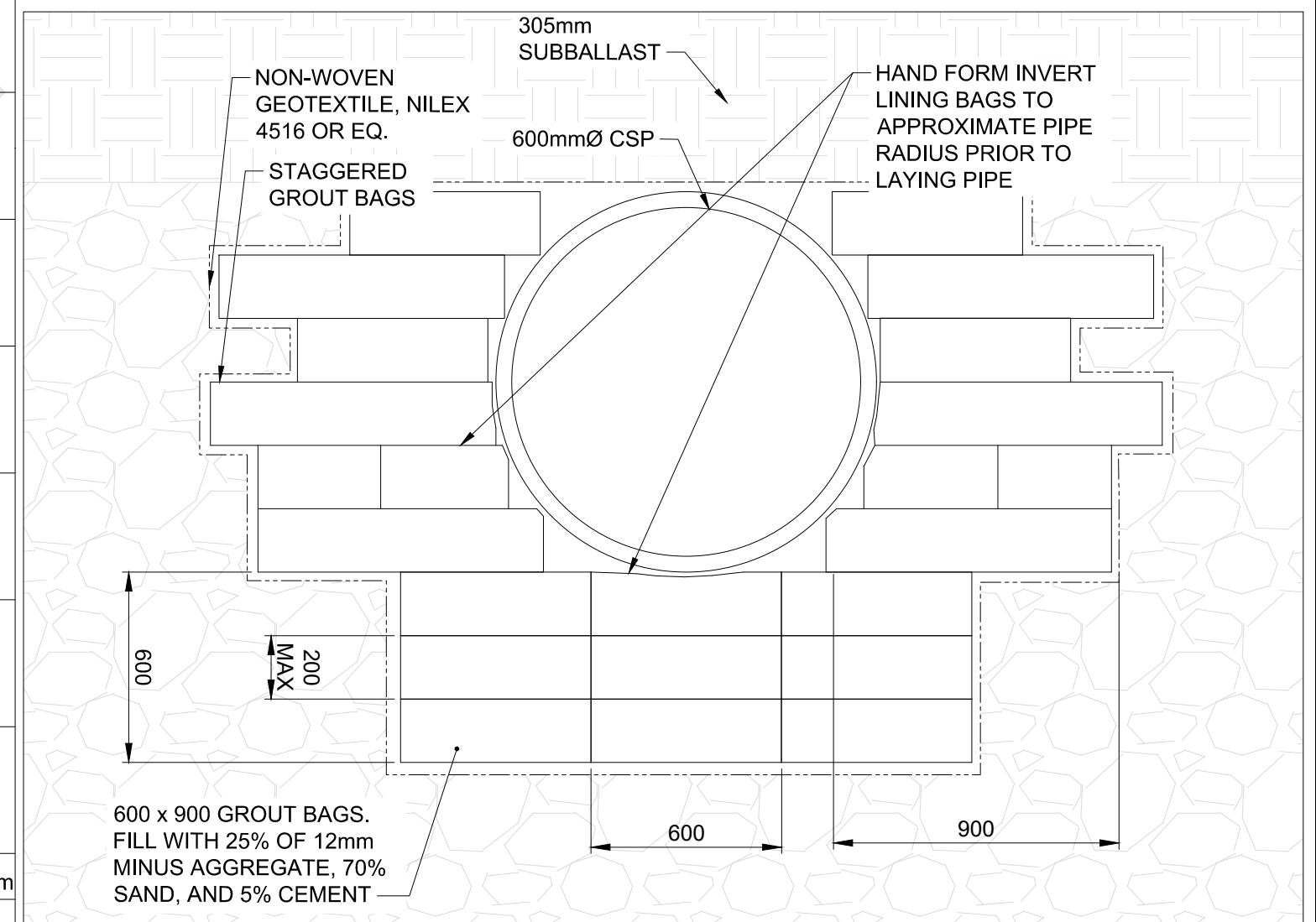
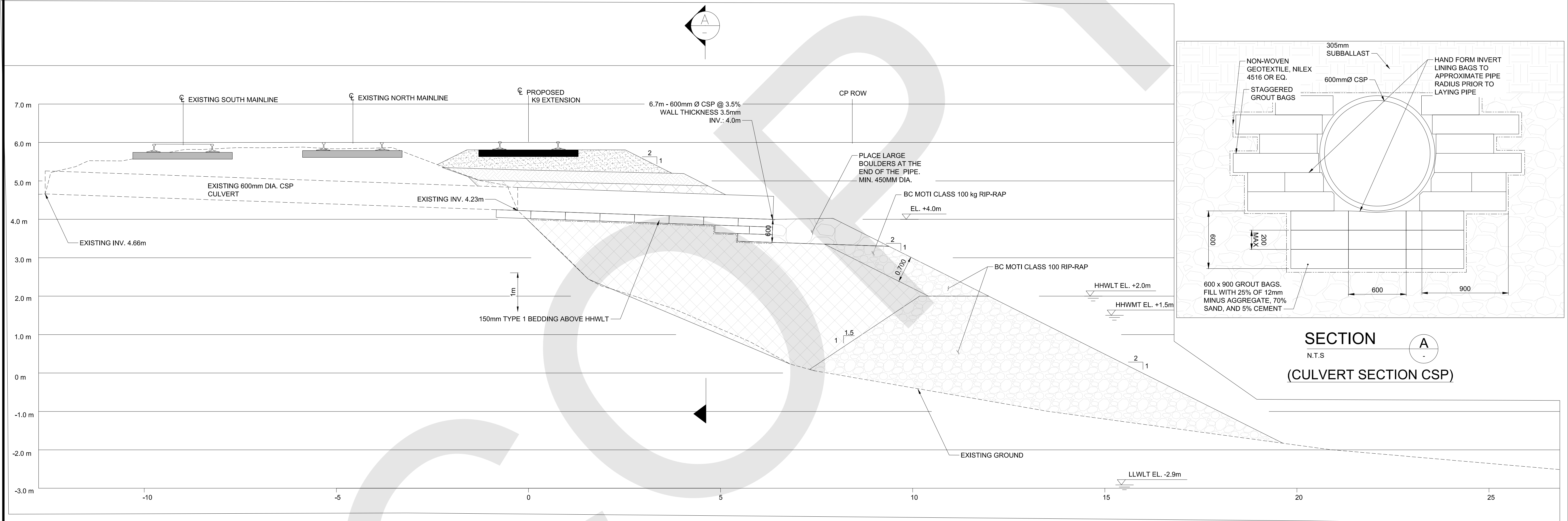
ENGINEERING PROJECTS - EAST

VANCOUVER DIVISION MILE 123.07 TO 124.17 CASCADE SUBDIVISION

CASCADIA EAST EXTENSION - PHASE 4 PROPOSED K9 TRACK EXTENSION PLAN AND PROFILE STA.10+700 TO 11+050

DWG. BY: M.FAVREAU	CHK BY: DIR. PROJECT SERVICES WEST	OFFICE FILE: H362379-RW-100-S0-0013
MANAGER - DESIGN:	DATE: 19-03-21	Rev. B

Mar 17, 2021, 4:30pm Login name: KIM79037
 Drawing Name: C:\pwworking\hatch\kim79037\p0693336\h362379-rw-100-s0-0011 - 0016.dwg



SECTION A
N.T.S.
(CULVERT SECTION CSP)

STA. 11+053.594 CULVERT 8 - TYPICAL SECTION

NOT FOR CONSTRUCTION

Mar 17, 2021 4:38pm Login name: KM79037 Drawing Name: C:\pwworking\h\km79037\d0633929\H362379-CV-100-S0-0001.dwg

LEGEND:

- GRANULAR FILTER
- 200mm MINUS ANGULAR ROCKFILL (QUARRY RUN)
- RIP-RAP (BC MOTI CLASS 100 kg)
- SUB-BALLAST

Scale: 1:50

HATCH

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED

DESIGNED BY: T.I.	DRAWN BY: T.I.
DATE: 29-01-21	DATE: 29-01-21
CHECKED BY: J.C.	PROJECT MANAGER: K.M.M.
DATE: 29-01-21	DATE: 29-01-21

HATCH PROJECT No: **H362379** DWG SCALE(FULL SIZE): **1:50**

PROFESSIONAL SEALS

VANCOUVER FRASER PORT AUTHORITY

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No.	DATE	REVISION	BY
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A	13-11-20	ISSUED FOR 30% DESIGN REVIEW	T.I.

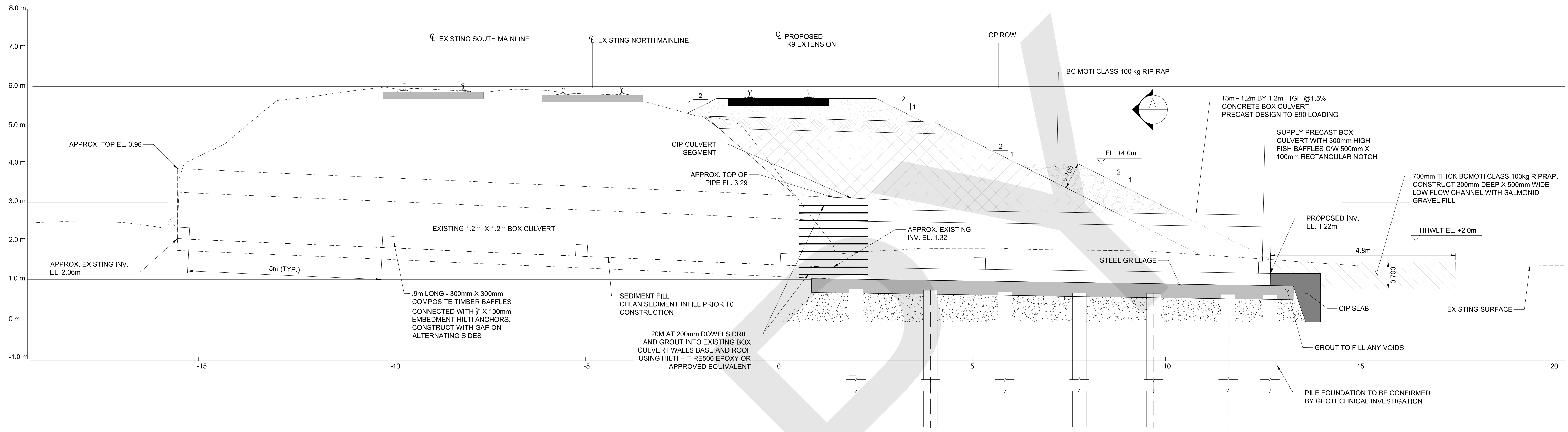
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ENGINEERING PROJECTS - WEST

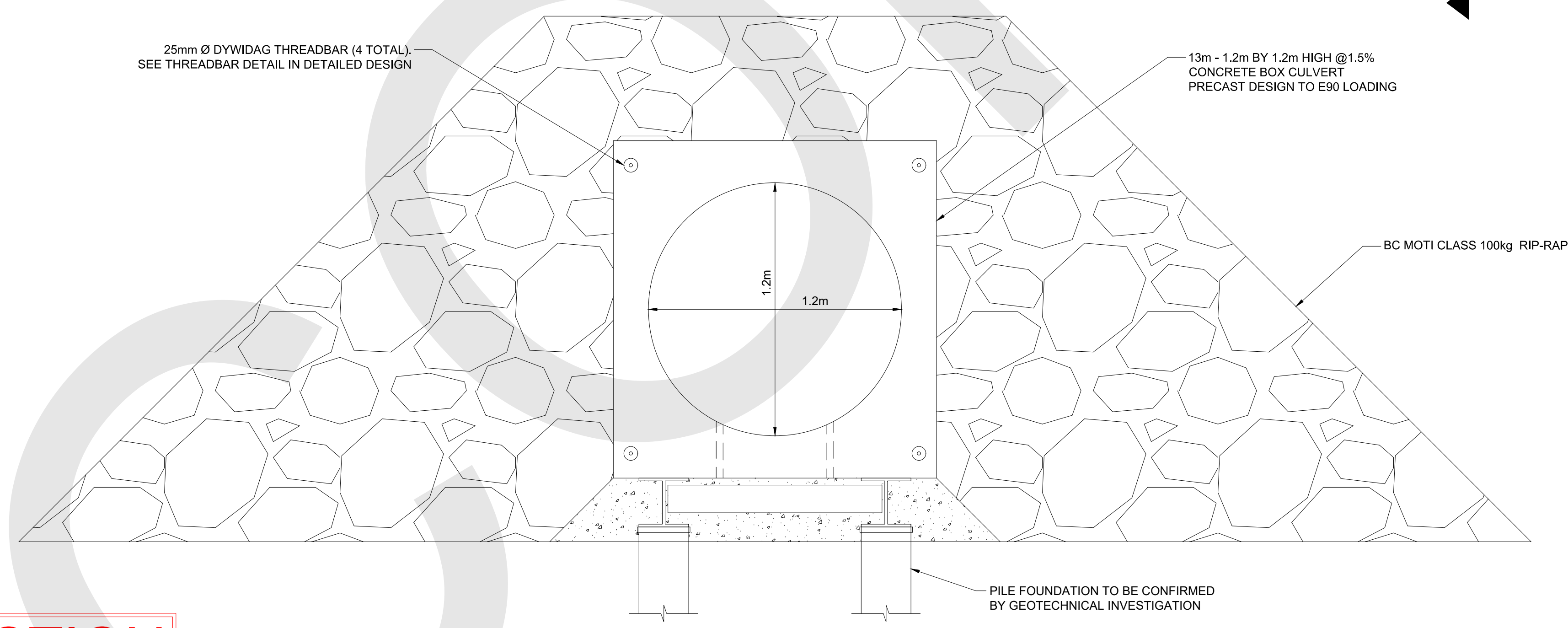
VANCOUVER DIVISION MILE 123.07 TO 124.17 CASCADE SUBDIVISION

**CASCADIA EAST EXTENSION - PHASE 4
PROPOSED K9 TRACK EXTENSION
TYPICAL CULVERT SECTION**

DWG. BY:	CHK BY:	OFFICE FILE:
MANAGER - DESIGN:	DATE:	SCALE:
M.FAVREAU	PLAN No.	H362379-CV-100-S0-0001
DIR, PROJECT SERVICES WEST	Rev. B	



STA. 10+709.439 CULVERT 7 - RAINBOW CREEK BOX CULVERT



SECTION A (BOX CULVERT SECTION) N.T.S

NOT FOR CONSTRUCTION

LEGEND:

- GRANULAR FILTER
- 200mm MINUS ANGULAR ROCKFILL (QUARRY RUN)
- RIP-RAP (BC MOTI CLASS 100 kg)
- SUB-BALLAST

0 1 2m
1:50

HATCH

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED

DESIGNED BY: T.I.
DATE: 19-03-21

CHECKED BY: S.R.
DATE: 19-03-21

DRAWN BY: T.I.
DATE: 19-03-21

PROJECT MANAGER: K.M.M.
DATE: 19-03-21

HATCH PROJECT No: **H362379**
DWG SCALE(FULL SIZE): **1:50**

PROFESSIONAL SEALS

VANCOUVER FRASER PORT AUTHORITY

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No.	DATE	REVISION	BY
B	19-03-21	ISSUED FOR 30% DESIGN REVIEW	T.I.
A	13-11-20	ISSUED FOR 30% DESIGN REVIEW	T.I.

CP

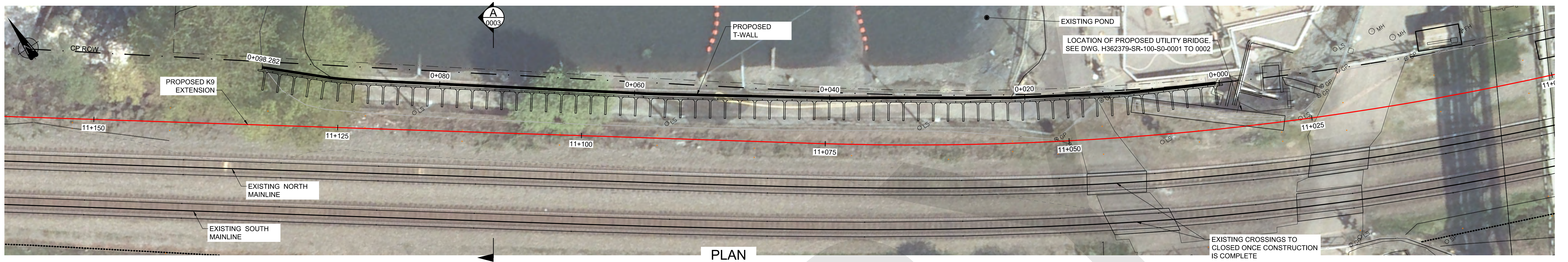
ENGINEERING PROJECTS - WEST

VANCOUVER DIVISION MILE 123.07 TO 124.17 CASCADE SUBDIVISION

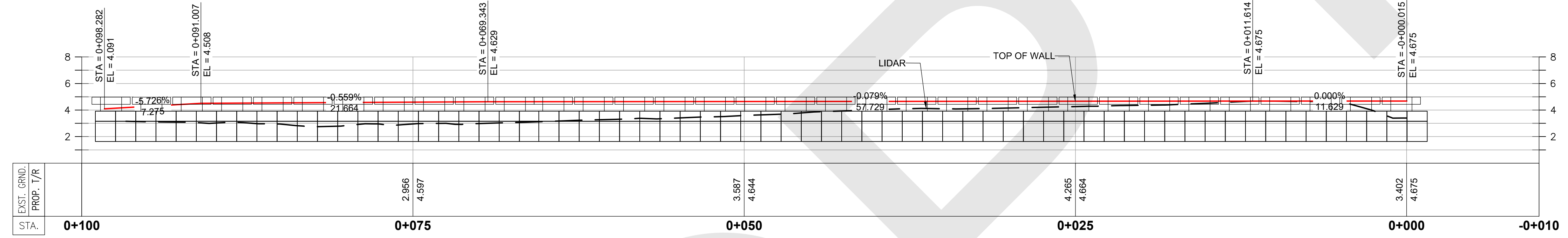
CASCADIA EAST EXTENSION - PHASE 4 PROPOSED K9 TRACK EXTENSION RAINBOW CREEK BOX CULVERT AND SECTION

DWG. BY: M.FAVREAU
CHK BY: DIR. PROJECT SERVICES WEST
OFFICE FILE: H362379-CV-100-S0-0003
SCALE: DATE: Rev. B

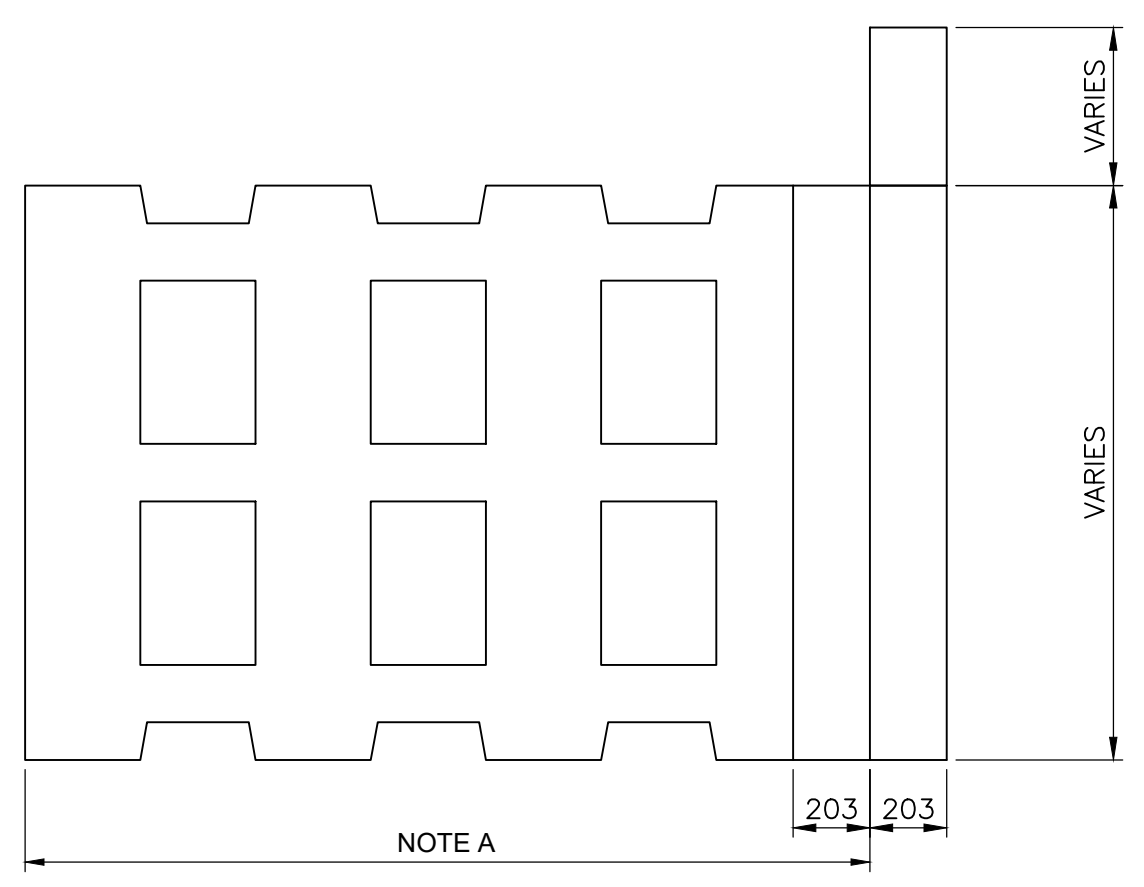
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PLAN
SCALE 1:200

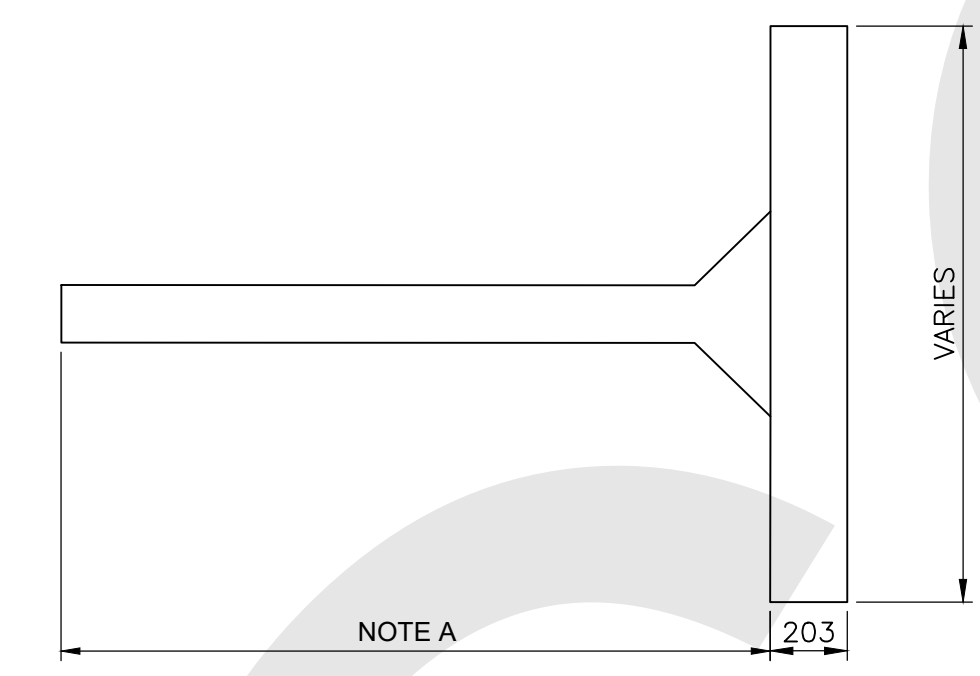


PROFILE
SCALE 1:200

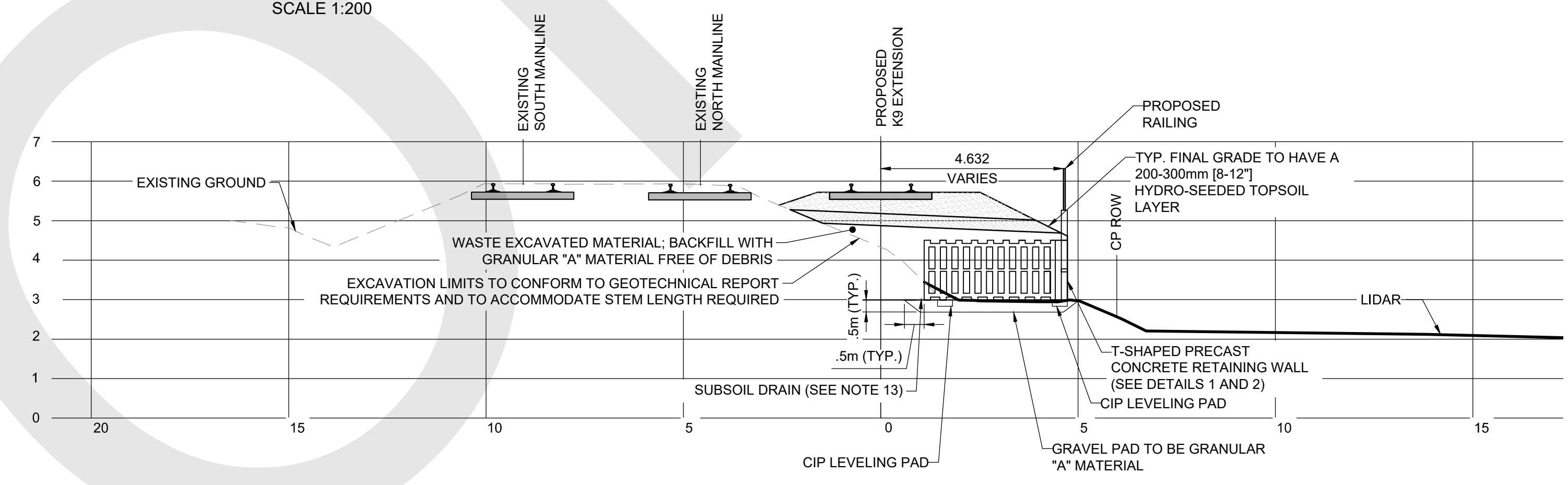


T-WALL SIDE DETAIL
SCALE 1:20

NOTE A:
STEM TO BE DESIGNED AND SEALED BY THE SUPPLIER REINFORCED EARTH COMPANY LTD. OR EQUIVALENT, AND TO BE APPROVED BY THE CONSULTANT ENGINEER. METROLINX FIBRE OPTIC CABLE/CONDUIT AND UTILITY CONDUIT TO BE INSTALLED BY THE CONTRACTOR.



T-WALL TOP DETAIL
SCALE 1:20



SECTION
SCALE 1:100

- NOTES:
- DESIGN AND WORKMANSHIP: AREMA (LATEST EDITION) CHAPTER 8 AND/OR 15 AND "METROLINX GENERAL GUIDELINES FOR RAILWAY BRIDGES AND STRUCTURES" (LATEST EDITION).
 - T-WALL SHALL BE DESIGNED FOR A SERVICE LIFE OF 100 YEARS. THE GEOMETRY SHOWN IN THIS SET OF DRAWINGS IS AN ILLUSTRATION ONLY, FINAL CONFIGURATION IS AS PER THE DESIGNER AND MANUFACTURER RETAINED BY CP RAIL.
 - RAILING SHALL BE OF HSS 48.3 O.D. X 3.81 CLASS C IN ACCORDANCE WITH C.S.A. STD G40.20 AND G40.21.
 - MISC. STRUCTURAL STEEL SHALL BE OF 300W IN ACCORDANCE WITH CAN/CSA-G40.21-M98.
 - ALL STEEL MATERIAL TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH CAN/CSA-G184-98.
 - DESIGN LOAD FOR RAILING AS PER AREMA.
 - LIVE LOAD COOPER E-90, FOR BOTH PERMANENT WALLS AND TEMPORARY SHORING.
 - DEAD LOAD FOR EXISTING MATERIAL IS 21 kN/m².
 - CONTRACTOR TO LOCATE ANY EXISTING UTILITIES BEFORE COMMENCEMENT OF THE WORK. CONTRACTOR TO PROTECT UTILITIES DURING CONSTRUCTION. FOR FIBRE OPTIC RELOCATION, SEE CIVIL DRAWINGS.
 - CONTRACTOR IS RESPONSIBLE FOR ADHERING TO SAFE EXCAVATION PRACTICES AND TEMPORARY SHORING DESIGN, ENSURING THE EMBANKMENT STABILITY IS MAINTAINED DURING AND AFTER CONSTRUCTION, CONSIDERING EXISTING LOADS AND CONDITIONS.
 - T-WALL SYSTEM IS TO BE DESIGNED BY REINFORCED EARTH COMPANY LTD. OR EQUIVALENT AND TO BE APPROVED BY THE CONSULTANT ENGINEER.
 - CONTRACTOR TO DESIGN AND INSTALL TEMPORARY SHORING WHERE REQUIRED. DESIGN TO BE APPROVED BY THE ENGINEER. THE POSITION OF THE TEMPORARY SHORING IN THIS DRAWING IS AN ILLUSTRATION ONLY.
 - CONTRACTOR TO PLACE SUBSOIL DRAIN BEHIND THE WALL, AT THE BASE OF THE GRANULAR FILL MATERIAL, THROUGHOUT THE LENGTH OF THE WALL. SUBSOIL DRAIN TO DRAIN OUT OF THE WALL AT A MINIMUM SLOPE OF 0.3%.
 - CONTRACTOR TO INSTALL AT LEAST 900mm GEOTEXTILE BETWEEN VERTICAL JOINTS TO AVOID LEAKING OF MATERIAL.

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 Drawing Name: C:\pwworking\kim79037\0693864\H362379-SR-100-S0-0003.dwg

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HATCH
 METRIC
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DESIGNED BY: T.J. DATE: 13-11-20	DRAWN BY: T.J. DATE: 13-11-20
CHECKED BY: J.C. DATE: 13-11-20	PROJECT MANAGER: K.M.M. DATE: 13-11-20
HATCH PROJECT No: H362379	DWG SCALE(FULL SIZE): 1:500

No.	DATE	REVISION	BY
A	13-11-20	ISSUED FOR 30% DESIGN REVIEW	T.L.

CP	
ENGINEERING PROJECTS - EAST	

CP	
ENGINEERING PROJECTS - EAST	

VANCOUVER DIVISION MILE 123.07 TO 124.17 CASCADE SUBDIVISION

**CASCADIA EAST EXTENSION - PHASE 4
 PROPOSED K9 TRACK EXTENSION
 T WALL SECTION**

DWG. BY:	CHK BY:	OFFICE FILE:
MANAGER - DESIGN:	DATE:	SCALE:
M.FAVREAU DIR. PROJECT SERVICES WEST	H362379-SR-100-S0-0003	Rev. A