



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

<b>PER No.:</b>	<b>17-093</b>
<b>Permit Holder:</b>	<b>Metro Vancouver</b>
<b>Project:</b>	<b>Annacis Island Wastewater Treatment Plant New Outfall System</b>
<b>Project Location:</b>	<b>Downriver of the Alex Fraser Bridge, north side of the Fraser River, Delta</b>
<b>VFPA SID No.:</b>	<b>DEL322</b>
<b>Land Use Designation:</b>	<b>Industrial, Port Water</b>
<b>Permit Holder(s):</b>	<b>Metro Vancouver</b>
<b>Category of Review:</b>	<b>C</b>
<b>Date of Approval:</b>	<b>MARCH 10, 2019</b>
<b>Date of Expiry:</b>	<b>DECEMBER 31, 2023</b>

**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 (VFPA) property:

Outfall Tunnel

- A new outfall tunnel with an inside diameter of 4.2 m will be constructed utilizing a tunnel boring machine (TBM). The tunnel will extend from an outfall shaft located on the upland to a river riser located approximately 160 m south of the north bank of the Fraser River. The tunnel will be approximately 30 m below the ground surface on the upland and 15 m below the riverbed.
- For seismic purposes, a steel liner, approximately 50 m in length, will be installed within the outfall tunnel where it connects with the river riser.
- Upon completion of drilling, the TBM shield and cutting head will be removed or abandoned in place below the riverbed in the area of the riser.

River Riser

- A river riser, consisting of a vertical steel riser pipe and riser cap within a concrete support structure, will be installed. The support structure will consist of a concrete block, approximately 12 m by 19 m, founded on 24 concrete-filled steel piles with a diameter of 760 mm (30 inches).
- The river riser structure will be constructed within a temporary (in-river) cofferdam over an estimated 6 to 8 months. The area within the temporary coffer dam will be excavated to an estimated depth of 23 m below the riverbed and backfilled in sequence with structural concrete.
- Once the outfall tunnel and river riser are connected, the area above the concrete block will be backfilled with river sand and capped with riprap.

Diffuser Manifold

- Dredging to a depth of approximately 4.5 m below the riverbed will be conducted using clamshell equipment to facilitate the installation of two diffuser manifolds, each approximately 130 m long and 2.5 m in diameter. To limit the extent of excavation, temporary shoring will be installed on the landward side of the trench and removed as

diffuser installation progresses. A 1:6 slope will be maintained on the riverward side. The total estimated dredge footprint is 12,750 m<sup>2</sup>. Dredged material that is not used as backfill will be disposed of under valid disposal at sea permit or on the upland.

- Bedding material (sand and gravel) will be placed at the base of the dredged trench, with subsequent installation of pre-assembled sections of the diffuser manifolds. Once the diffuser manifolds are installed, the trench will be backfilled with river sand and covered with armour rock. The diffuser manifolds will be aligned approximately parallel with and immediately landward of the northern boundary of the navigation channel.
- Concrete diffuser protective covers and flexible diffuser ports with check valves will be installed. Upon completion, the protective covers and diffuser ports will protrude from the riverbed to an elevation of approximately 8.6 m below chart datum. During operation, they will discharge horizontally towards the navigation channel, rather than the water surface, as in the existing outfall. The diffuser design allows for the outfall system capacity to be increased in the future by opening more ports in the structure. These ports will be preinstalled and blind-flanged (i.e., sealed).
- Following the completion of tunnel mining, the tunnel will be connected to the river riser pipe and diffuser manifold. This will include flooding the tunnel, removing the riser cap, equalizing the water pressure, removing the two bulkheads within the riser pipe, and reinstalling the riser cap.

#### Existing Outfall Rehabilitation

- Once the new outfall is commissioned, the existing outfall will be rehabilitated by installing new flexible valves on top of the existing 21 steel riser pipes to allow it to serve as an emergency influent bypass.

### **PROJECT AND ENVIRONMENTAL CONDITIONS**

The Vancouver Fraser Port Authority (VFPA) 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 67 of the *Canadian Environmental Assessment Act, 2012*.

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 VFPA determines that the Permit Holder has provided any incomplete, incorrect or misleading information in relation to the Project, VFPA 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, VFPA 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 VFPA 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.**

All VFPA Guidelines and Record Drawing Standards referenced in this document can be located at: <https://www.portvancouver.com/development-and-permits/project-and-environmental-reviews/technical-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 VFPA'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 VFPA 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 VFPA 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 all existing site services and utilities including any located underground. The Permit Holder is responsible for repair or replacement of any damage to existing site services and utilities, including existing marine berthing dolphins and dock structure of Southern Railway of British Columbia tenancy, to the satisfaction of VFPA, 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. The Permit Holder shall not carry out any other physical activities unless expressly authorized by VFPA.
7.	The Permit Holder shall cooperate fully with VFPA in respect of any review by VFPA of the Permit Holder's compliance with this Permit, including providing information and documentation in a timely manner, as required by VFPA. 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 all plans, documents, and notices required under this Permit to the following email address: <a href="mailto:per@portvancouver.com">per@portvancouver.com</a> and referencing <b>PER No.17-093</b> .
11.	Unless otherwise specified, all plans, schedules, and other Project-related documentation that the Permit Holder is required to provide under this Permit must be to VFPA's satisfaction.

12.	The Permit Holder shall prepare and submit a self-report form to VFPA demonstrating compliance with conditions at each of the following project phases: <ul style="list-style-type: none"> <li>a) Prior to in-river construction - 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;</li> <li>b) During construction - self-report shall be submitted during the second in-river construction period prior to December 31, 2021 and pertain to all Project-related activities conducted up to November 30, 2021; and,</li> <li>c) Upon Project completion - self-report shall be submitted within 60 business days of completion of construction.</li> </ul>	
13.	VFPA 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 VFPA.	
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.	
16.	The Permit Holder must adhere to commitments made to Aboriginal groups.	
17.	The Permit Holder must ensure that the new outfall system does not reduce the depth of water in the navigation safety channel at an elevation shallower than -8.7 metres chart datum.	
18.	The Permit Holder must not place rock armor, rip rap, and any other backfill or construction related materials within, or in close proximity to, the navigation channel at an elevation shallower than -12.85 metres chart datum.	
	<b>CONDITIONS - PRIOR TO COMMENCING CONSTRUCTION OR ANY PHYSICAL ACTIVITIES</b>	<b>SUBMISSION TIMING (business days)</b>
19.	The Permit Holder shall submit signed and sealed drawings for proposed works approved for construction by a professional engineer licensed to practice in the Province of British Columbia.	5 days before commencing construction or any physical activities
20.	The Permit Holder shall submit a draft construction communications plan and construction notice(s) in accordance with VFPA's Public Consultation Guidelines. The plan shall outline how the Permit Holder will engage and communicate with the public and stakeholders from the date of permit issuance to the completion of construction. The plan shall be updated as necessary and upon request by VFPA to ensure public and stakeholders are provided with relevant information as it becomes available. The Permit Holder shall carry out the Project in accordance with the construction communications plan, and any subsequent amendments approved by VFPA.	20 days before commencing construction or any physical activities
21.	The Permit Holder shall distribute an approved construction notice or notices to residents and businesses to an area to VFPA's satisfaction.	10 days before commencing

	The Permit Holder shall notify VFPA when such distribution has been completed.	construction or any physical activities
22.	Prior to the commencement of any vessel-related activities, the Permit Holder must contact the appropriate Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS) centre regarding the issuance of a Notice to Shipping (NOTSHIP) to advise the marine community of potential hazards associated with the Project.	As per Coast Guard requirements
23.	The Permit Holder shall provide a Project schedule to VFPA showing the anticipated start dates for all major phases of the Project as identified by VFPA. The Permit Holder shall notify VFPA of any material changes to the Project schedule and, upon request, shall provide an updated Project schedule.	20 days before commencing in-river construction
24.	The Permit Holder shall submit the environmental protection plan developed by the contractor.	20 days before commencing in-river construction
25.	The Permit Holder shall submit a navigation protection plan to VFPA.	20 days before commencing in-river construction or vessel-related activities
26.	The Permit Holder shall notify the Harbour Master and VFPA Environmental Programs, email: Harbour_Master@portvancouver.com and EnvironmentalPrograms@portvancouver.com.	2 days before commencing any vessel-related activities
27.	The Permit Holder shall submit a marine construction and staging plan, or equivalent, including the following for VFPA review and approval: <ul style="list-style-type: none"> <li>a) Identification of navigation related hazards and risk mitigation measures;</li> <li>b) Staging and construction areas;</li> <li>c) Dates and hours of operation;</li> <li>d) Description and hours of operation;</li> <li>e) Description of activities taking place;</li> <li>f) Equipment and vessels (dimensions must be included);</li> <li>g) Method of preferred communication with marine users;</li> <li>h) Special requests and/or additional information;</li> <li>i) Method of communicating updates to relevant users.</li> </ul>	30 days before commencing in-river construction or any vessel-related activities
28.	The Permit Holder shall establish a marine users work group for the purposes of communicating relevant in-water work activities to local marine operators. The Permit Holder must consider feedback from and provide relevant updates to the group, specifically concerning the marine construction and staging plan or equivalent, both before and during in-water construction phases.	30 days before commencing in-river construction or any vessel-related activities

29.	The Permit Holder shall submit a plan, for VFPA review and approval, which details how the Permit Holder will consider and action the recommendations made in the <i>Summary Report of Maneuvering Analysis – Annacis Island Sewer Outfall and Southern Rail Berth</i> .	30 days before commencing in-river construction or any vessel-related activities
30.	The Permit Holder must post and maintain notices at the beginning of each phase of in-river work, intended for recreational marine users, at the public boat access locations identified in the project submission document, <i>Navigation Impact Assessment</i> .	2 days before commencing any vessel-related activities
<b>CONDITIONS - DURING CONSTRUCTION OR ANY PHYSICAL ACTIVITIES</b>		
31.	The Permit Holder shall notify VFPA upon commencement of construction, or any physical activities (e.g., mobilization to the Project site).	
32.	With the exception of tunnel advancement, construction will be conducted from <b>Monday to Saturday</b> between the hours of <b>6:00 am and 8:00 pm</b> . No non-tunneling construction shall take place on Sundays or holidays. During tunnel advancement, work may proceed up to 7 days a week, 24 hours a day. These hours shall not be modified without prior approval of VFPA. To request permission to conduct activities outside these hours, the Permit Holder must submit a written request no less than 20 business days prior to the desired start date.	
33.	The Permit Holder shall notify VFPA of any complaints received from the community and stakeholders during construction and indicate how the Permit Holder has responded to such complaints.	
34.	The Permit Holder shall carry out the Project in accordance with the archaeological chance find procedure, and any subsequent amendments approved by VFPA.	
35.	During any vessel-related activities, the Permit Holder shall: <ul style="list-style-type: none"> <li>a) Position vessels and equipment associated with the Project in such a manner so as not to obstruct line of sight to navigation aids or markers;</li> <li>b) As per the Collision Regulations, exhibit the appropriate lights and day shapes at all times;</li> <li>c) Monitor the appropriate VHF channels used for vessel traffic in the respective area at all times and participate as necessary;</li> <li>d) Be familiar with vessel movements in areas affected by the Project. The Permit Holder must plan and execute the Project in a manner that does not impede navigation or interfere with vessel operations;</li> <li>e) Any temporary piles, false works, silt curtains, construction material or debris, etc. are to be appropriately marked and sufficiently illuminated in periods of darkness and reduced visibility;</li> <li>f) All temporary piles, false works, silt curtains, construction material or debris, etc. are to be completely removed from the waterway.</li> </ul>	
36.	Any temporary works (e.g., the cofferdam) shall be appropriately lit at all times, per specifications provided by Transport Canada and/or Canadian Coast Guard.	
37.	The Permit Holder shall ensure a stand-by tug, of adequate size and power is available and on-site to render assistance to any passing vessels as required during all phases of in-water works. Details of how to request the use of the standby tug, must be included in the marine construction and staging plan, or equivalent.	

38.	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, the environmental protection plan, and VFPA, provided that monitoring will be full time when works are underway that have the potential to adversely affect fish or fish habitat.
39.	The Permit Holder shall provide environmental monitoring reports to VFPA as specified in the construction environmental management plan or more frequently if VFPA requires. In addition, a summary report for the whole monitoring period shall be forwarded to VFPA within 30 days of the conclusion of the monitoring period.
40.	The Permit Holder shall carry out the Project in accordance with the construction environmental management plan provided by the Permit Holder, and any subsequent amendments accepted by VFPA.
41.	Without limiting the generality of permit condition #2, the Permit Holder shall ensure that dredged material that is intended for upland placement complies with all applicable legislation and regulations. The Permit Holder shall appropriately manage any contamination associated with the dredged material and maintain records of off-site disposal.
42.	Without limiting the generality of permit condition #2, the Permit Holder shall dredge/load all material intended for disposal at sea under a valid Disposal at Sea Permit pursuant to the provisions of Part 7, Division 3 of the <i>Canadian Environmental Protection Act, 1999</i> .
43.	At regular intervals, not exceeding five (5) business days when activities are being undertaken which may reduce the depth of the navigable waters of the port, the Permit Holder must undertake, and provide to VFPA and other concerned stakeholders, a hydrographic survey that meets the requirements of a "Special Order" survey with "Type C1 (complete coverage)" as defined by the Canadian Hydrographic Service (CHS) "Standards for Hydrographic Surveys".
	<b>CONDITIONS - UPON COMPLETION</b>
	<b>SUBMISSION TIMING (Business Days)</b>
44.	The Permit Holder shall notify VFPA upon completion of the Project.
	Upon substantial completion
45.	The Permit Holder shall provide record drawings in accordance with VFPA's Record Drawing Standards, in both AutoCAD and Adobe (PDF) format to VFPA, including a Project site plan that clearly identifies the location of works, including the modified existing outfall that will be abandoned and left in place.
	Within 40 days of completion
46.	The Permit Holder shall contact the Database Information Office of the CHS at (250) 363-6360 or chsdatacentre@dfo-mpo.gc.ca to arrange for the relevant CHS charts to be updated.
	At regular intervals, not to exceed one year, throughout the project
<b>VFPA reserves the right to rescind or revise these conditions at any time that new information warranting this action is made available to VFPA.</b>	
<b>LENGTH OF PERMIT VALIDITY</b>	

The Project must commence by **December 31, 2020** (the Commencement Date) and be completed no later than **December 31, 2023** (the Expiry Date).

**AMENDMENTS**

- 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 VFPA for consideration of an amendment to this Permit.
- For an extension to the Commencement Date, the Permit Holder must apply to VFPA in writing no later than 30 days prior to that date.
- For an extension to the Expiry Date, the Permit Holder must apply in writing to VFPA no later than 30 days prior to that date.

**Failure to apply for an extension as required may, at the sole discretion of VFPA, result in termination of this Permit.**

**PROJECT AND ENVIRONMENTAL REVIEW DECISION**

Project Permit PER No. 17-093 is approved by:

*ORIGINAL COPY SIGNED*

March 10, 2019

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**CARRIE BROWN**  
**DIRECTOR, ENVIRONMENTAL PROGRAMS**

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**DATE OF APPROVAL**

**CONTACT INFORMATION**

Vancouver Fraser Port Authority (VFPA)  
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Vancouver BC V6C 3T4 Canada

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