



PORT of
vancouver

Vancouver Fraser
Port Authority

Project and Environmental Review report

Canola Oil Transload Facility - DPW Fraser Surrey

Prepared for: Director, Project and Environmental Review

May 02, 2023

Contents

1. Introduction	1
2. Project description	1
2.1. Proposed works	2
2.2. Proposed construction methods	3
3. Technical review	3
3.1. Planning	3
3.1.1. Land Use Designation	4
3.1.2. Building Permit requirements	4
3.2. Engineering	4
3.3. Transportation	5
3.4. Marine Operations	6
3.5. Environment	6
4. Stakeholder consultation	6
4.1. Municipal consultation	7
4.2. Federal, provincial, regional agency consultation	10
4.3. Adjacent tenant consultation	14
4.4. Marine users consultation	15
4.5. Port Community Liaison Committee (Delta) notification activities	16
5. Public engagement	16
5.1 Canadian Impact Assessment Registry	17
5.2 Summary of Applicant-led public engagement	17
5.3 Summary of Public Comments	19
6. Indigenous consultation	23
7. Environmental effects review	26
7.1. Scope of environmental review	27
7.2. Environmental effects and mitigation summary	27
7.3. Environmental effects characterization	37
8. Conclusion	38
Appendix 1:	List of information sources
sources	39
Appendix 2:	Location plan
plan	40

PER No.:	22-017
Tenant:	DP World Canada
Project:	Canola Oil Transload Facility - DPW Fraser Surrey
Project location:	11060 Elevator Road - DP World Fraser Surrey Terminal, Surrey BC
Land use designation:	Port terminal
Applicant(s):	DP World Fraser Surrey
Applicant address:	11060 Elevator Road - DP World Fraser Surrey Terminal, Surrey BC
Category of review:	C
Recommendation:	That PER No. 22-017 for Canola Oil Transload Facility - DPW Fraser Surrey 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. 22-017: for Canola Oil Transload Facility - DPW Fraser Surrey (the “Project”) proposed by DP World Fraser Surrey (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 1.

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

DP World Fraser Surrey proposes to redevelop a portion of their existing Fraser Surrey Terminal and Berth 10 located at 11060 Elevator Road, Surrey, BC to function as a canola oil transload facility.

The Fraser Surrey Terminal currently handles containers, steel, agri-bulk, and break-bulk cargo. This Project proposes to commence the export of canola oil, a new commodity at the site, through the terminal. This necessitates new infrastructure and upgrades to on-site equipment.

The Project site is approximately 8 ha and is made up of two land parcels. One parcel is located within a portion of the existing IDC Yard and the other parcel is located at the existing Berth 10 within the Fraser Surrey Terminal. The IDC Yard is the Applicant's existing rail staging yard, which is located immediately outside the DPW Fraser Surrey marine terminal. The portion of the IDC Yard being utilised for this Project is currently used for container storage and is bound to the north and west by IDC rail tracks, to the east by industrial buildings and to the south by a new realigned Timberland Road South (yet to be constructed). Berth 10 is the easternmost berth within the Fraser Surrey Terminal and is located inside of Annieville Channel, behind a constructed breakwater/training berm. The existing Berth 10 is currently used to load bulk products to barges and the loading of log vessels and is considered to be under-utilised at present.

The Project includes the following main components:

- Storage facility – three canola oil storage tanks (total 45,000 metric tonne capacity), two rail tracks (one new, one replacement) with a capacity to hold 32 rail cars, rail offloading stations, and underground unloading pumps and pipes.
- Marine infrastructure – upgrades to the existing Berth 10 including new loading platform with marine loading arm, marine access trestle, and catwalk connection between Berths 9 and 10.
- Underground pipelines – one canola oil transmission line and one recycle line cross under existing rail tracks, roads and the eastern portion of the Fraser Surrey Terminal. The pipelines would be used to move the canola oil from the storage facility to Berth 10

Further details of the proposed Project are included in Section 2.1 below.

Vehicular access to the storage facility is proposed from Timberland Road North.

The Project would be designed to support the storage, transfer and loading of two specific grades of canola oil: Crude Super Degummed (CSD) grade canola oil, and Refined, Bleached, and Deodorized (RBD) grade canola oil.

Canola oil would be received at the Project site via rail. Upon arrival, depending on the grade of oil, the product would be handled in one of two ways. For CSD grade canola oil, the product would be off-loaded from enclosed railcars and transferred to the three new storage tanks (tanks will only be used for CSD grade oil). From there, the CSD canola oil would be transferred via underground transmission line to the Berth 10 loading arm and onto vessels for export. When handling RBD grade canola oil, the facility would direct transfer the product from rail tank cars to marine vessels via the underground transmission line to a marine loading arm.

The Project would result in a canola oil throughput capacity of approximately 1,000,000 tonnes per year.

2.1. Proposed works

The Project would consist of the following proposed works:

- Construction of the canola storage facility comprised of:
 - Three carbon steel 15,000 metric tonne capacity storage tanks (18 metres high, 37 metres diameter)
 - Elevated tank foundations, with associated excavation and ground improvement works
 - Vessel loading pumps

- Containment area with liners, precast walls, and foundations; and
- New fire water loop with six hydrants
- Installation of two rail spur tracks (one replacement, one new) for rail receiving and unloading, including excavation works and construction of railcar bottom offloading stations, unloading pumps, piping and control cables
- Marine works at Berth 10, including construction of a concrete marine access trestle, loading platform, and a catwalk connection between Berths 9 and 10, all supported by approximately 40 steel piles total (approximately 35 in-water) of various sizes
- Construction of ancillary loading deck and platform infrastructure, such as a marine loading arm and upgraded marine bollards and fenders
- Installation of two below grade pipelines (one canola oil transmission line and one recycle line), with associated excavation, to connect storage tanks to the marine access trestle
- Development of ancillary facilities including, support building, Motor Control Centre (MCC), security facility and vehicle parking
- Various associated lighting installations as well as utility installations, relocations, and removals.

2.2. Proposed construction methods

Construction works are proposed to take place both on the upland and in-water. Construction activities are expected to be undertaken during VFPA construction hours of Monday to Saturday 7:00 a.m. to 8:00 p.m. (excluding statutory holidays in British Columbia and Canada). The construction schedule for in water works would comply with timing restrictions established by Fisheries and Oceans Canada (DFO). As such, all pile driving would be conducted during the June 16 – January 31 Lower Fraser River least risk timing window. Work on the proposed Project, if approved, would commence in mid 2023 and take approximately 20 months to complete.

Construction machinery is expected to include excavators, articulated loaders, vibratory compactors, cranes, and haul trucks. Marine construction equipment would include barges, cranes, pile driving equipment, concrete pump trucks, air compressors, and welding equipment. The construction of the concrete access trestle from the upland terminal to the loading arm platform at Berth 10 would require vegetation removal, abutment excavation and re-construction on land, and both upland and in-water piles. In-water construction activities would require the use of impact and vibratory hammers for steel pile installation. The abutment works would be completed using an excavator and a vibratory compactor.

Ground improvement works are proposed for the canola storage facility area of the Project site. The preferred option put forward in the application proposes deep foundations support comprising close-ended, driven steel pipe piles. Rapid impact compaction is anticipated to be required to treat near-surface liquefiable soils.

3. Technical review

The Port Authority has reviewed the application and has the following project considerations.

3.1. Planning

The Port Authority has reviewed the application and has the following land use comments.

The Project proposes to move canola oil, a new commodity, through the existing Fraser Surrey Terminal with upgrades to existing rail, an existing berth, and new canola oil storage and transfer infrastructure. The project would result in a decrease of the container volume handled at the terminal as the canola storage tanks are proposed within an area currently used for container storage, and the project also

proposes the replacement of one rail track in the IDC Yard that is currently used for containers. The current use of Berth 10 for the loading of log vessels would continue.

The proposal meets the 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 proposed use of the site for the bulk export via vessel of canola oil conforms to the designation of “Port Terminal” in Vancouver Fraser Port Authority’s Land Use Plan.

3.1.2. Building Permit requirements

A number of the buildings and structures proposed as part of the proposed Project will require review under the 2020 National Building Code (NBC) and National Fire Code of Canada (NFC). These include the three storage tanks and their foundations, railcar unloading stations, support building, MCC building, marine trestle and the marine loading platform. The Applicant is required to obtain a Port Authority Building Permit before proceeding with construction of those works and cannot occupy those structures until they have obtained a Port Authority Occupancy Permit.

The Applicant has submitted preliminary building permit application details and the review of this preliminary information is underway.

3.2. Engineering

The proposed Project scope includes various upland and in-water construction activities that support the installation of new facilities and modifications to existing infrastructure.

Ground improvement works are required for the canola storage area and the rail unloading areas of the Project site. The preferred option put forward in the application proposes deep foundations support with rapid impact compaction to densify and treat the near-surface liquefiable soils.

Various utility works such as removal and replacement of existing storm sewers and installation of an electrical system are proposed. The Project also includes the installation of below ground canola oil transmission and recovery lines, connecting the storage facility to the Berth 10 marine trestle.

There are a number of existing Metro Vancouver utilities within or close to the Project site. Additionally, a portion of the Project (Berth 9 and 10 catwalk connection) overlaps with Metro Vancouver’s approved, but yet to be constructed, Annacis Water Supply Tunnel alignment project, which will pass beneath this terminal. To avoid conflicts, the Applicant will be required to liaise with Metro Vancouver and to provide Metro Vancouver detailed design drawings of the parts of the Project that overlap with the future Water Supply Tunnel and further details of any works that are within 30 metres of any existing Metro Vancouver infrastructure.

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

- Provide Metro Vancouver with detailed design drawings of any physical activities or works to, or within 30 metres of, any existing or approved Metro Vancouver infrastructure.
- Implement the necessary measures to protect the Metro Vancouver water system through implementation of appropriate backflow prevention devices.

These are reflected in Permit conditions.

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

3.3. Transportation

The proposed Project includes the construction of new rail receiving facilities within the existing IDC Yard site, comprising installation of two rail spurs (one replacement of an existing spur, and one new spur) from the existing intermodal yard branch, with a 32 rail car unloading capacity. An existing intermodal track is being replaced by a rail track exclusively for canola oil use. As a result the intermodal container volume able to be handled at this terminal is expected to decrease; and thus the canola oil capacity proposed does not represent an increase in rail volume overall. With all other operations remaining unchanged, the Project is not expected to increase switching frequency or blockages to roadway traffic relative to existing conditions.

Generally, Canadian National Railway (CN) would be responsible for the delivery of loaded rail cars to the terminal. CN would deliver the loaded canola oil cars to an inbound track in the Port Authority Rail Yard (PARY), the Applicant would complete all switching operations with their own forces and locomotive, which includes distributing railcars for processing. The railcars would be cycled from the inbound tracks to the new canola oil unloading tracks to be constructed in the IDC Yard. The railcar unloading system would provide the capacity to unload up to 32 131,000-liter cars per 8 hours shift, with 16 railcar unloading stations per track.

Once the railcars have been processed, the empty rail cars are then removed from the terminal tracks and placed in the PARY for CN to pick up. Each switch into canola oil tracks is expected to block the Timberland Road crossing for no greater than two to five minutes, which is compliant with the Transport Canada Grade Crossing Regulations. The Applicant has advised that canola oil tracks would be switched outside of peak vehicular traffic times in the morning (7:00 a.m. – 9:00 a.m.) and in the afternoon (3:00 p.m. – 5:00 p.m.), where possible.

This Project is being proposed on the assumption that the Timberland Road realignment will have been completed. The Timberland Road realignment is part of a separate project – the Fraser Surrey Port Lands Transportation Improvement Project – that was approved by the port authority in 2022 (PER No. 20-007).

Canola oil transportation will be via rail and marine vessel, so road traffic during Project operations would be limited to employee vehicle trips. Ten employee parking spaces are proposed on site, therefore the Applicant anticipates site trip generation to be 10 vehicles entering and/or leaving the site during AM and PM peak hours.

VFPA transportation planning reviewed the Project to assess any potential impacts to the broader Fraser Surrey Port Lands. The review considered the project over the course of a 24-hour period, and concluded that there would be sufficient recovery time between train events to allow vehicular traffic along Robson Road and Timberland Road to remain relatively fluid during the core work day hours.

As detailed above, an existing IDC track would need to be removed and the new canola tracks would need to be constructed. The track removal and construction may require modification or closure of Timberland Road. Therefore a construction traffic management plan would need to be developed in advance of any construction commencing to the satisfaction of the Port Authority.

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

- The Permit Holder shall submit a construction parking and traffic management plan to the Port Authority's satisfaction prior to commencement of construction.

These are reflected in Permit conditions.

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

3.4. Marine Operations

The proposed Project intends to introduce a new commodity at the terminal that will arrive via rail and depart via marine vessel, utilising the existing Berth 10. Various upgrades to Berth 10 are required and would result in over and in-water works such as the construction of a concrete marine access trestle, loading platform, ancillary loading deck and platform infrastructure (marine loading arm and upgraded marine bollards and fenders). These proposed works are set out in more detail in Section 2.2.

The vessels to be used for canola oil export would be Handymax size product bulk liquid tanker vessel (between 35,000 and 48,000 DWT, measuring between 150 m to 200 m in length with a draft of 11 to 12 m depth). Berth 10 is currently designed to receive a Handymax size vessel and the berth draft depth is maintained periodically for the proposed vessel type. Therefore, additional capital dredging would not be required to enable this Project.

The Applicant has determined that Berth 10 is currently underutilized, receiving only 4 Handymax vessels per year. The Project would add 33 ship calls, for a total of 37 vessels per year, with the assumption that the existing Berth 10 operations (log loading) continue.

As the marine infrastructure proposals submitted were preliminary in nature, the Applicant is required to submit further details, such as a mooring assessment and detailed design drawings, to the port authority for review prior to construction commencing. The Port Authority has reviewed the application and requires the Applicant to adhere to the following:

- Provide detailed design drawings to confirm that that the project has adequate fenders, bollards, and mooring arrangements for the design vessel
- Submit a mooring assessment to the satisfaction of the Port Authority
- Consult with the Pacific Pilotage Authority on Pilotage, Tug, and Simulation requirements
- Advise the marine community of construction activities by issuing a Navwarn and holding Marine User Group meetings
- Supply an assist tug to assist marine traffic passing the construction area if needed
- Submit a marine construction and staging plan and marine communications plan to the Port Authority
- Update Database Information Office of the Canadian Hydrographic Service with final drawings to update the charts with any changes from what is currently shown on the chart.

These are reflected in Permit conditions.

The proposed Project meets the Port Authority marine operations requirements, subject to adherence to the listed project and environmental conditions in the Permit.

3.5. Environment

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

4. Stakeholder consultation

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

The Port Authority has determined that, provided the mitigation measures and conditions outlined in the tables in Sections 4.1, 4.2 and 4.4 below are included in the Permit, the Project has adequately addressed the concerns raised during stakeholder consultation.

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 following municipalities on January 3, 2023 notifying them of the proposed Project, and requesting any feedback by January 31, 2023:

- City of Delta
- City of Surrey
- City of New Westminster

Both the City of Delta and the City of Surrey responded with comments on the proposed Project. 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	Rationale
Delays to emergency response trying to access Gunderson Slough areas due to frequent crossings and congestion along Robson/Timberland Road in Surrey.	None required.	Emergency access is hampered by the closure of Elevator Road, which occurred as a result of the Province's re-alignment of Highway 17. This is an issue that is not within either the Applicant's or the port authority's control, as it is outside federal jurisdiction.
Clarification on access points to the Berth 10 portion of the Project site.	None required.	Clarification was provided to the City of Delta that the Project site has two separate vehicular access points. Access to Berth 10 will be unchanged and will be accessed via the existing route through the marine terminal.
Inconsistency between text and drawings in terms of number of fire hydrants proposed for both the jetty area and storage tank area.	None required.	Relevant documents and drawings were updated by the Applicant to correct inconsistencies and posted to both the port authority's and the Applicant's websites.
The proposed development is projected to generate minimal additional traffic in the study area road network. With respect to emergency response times, is a traffic management strategy being considered should traffic operations continue to deteriorate at the Tannery Road / Pine Road intersection and the	None required.	Any traffic issues related to other future operations are outside the scope of this review.

Issue	Mitigations and permit conditions	Rationale
<p>Timberland Road Y junction due to background traffic growth?</p>		
<p>Best practices must be observed to mitigate any potential impacts on the existing eagle nest and other wildlife habitats in the area.</p>	<p>The following conditions address this concern: 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.</p> <p>If there is potential to affect birds and/or their active nests and eggs, the Permit Holder shall conduct nest surveys. For any nests identified in surveys, a qualified environmental professional shall confirm that the nest 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>	<p>The submitted Construction Environmental Management Plan (CEMP) sets out a number of best management practices that will be utilised to mitigate any potential impact.</p>
<p>Proposed setbacks not indicated and should adhere to Light Industrial Zone requirements.</p>	<p>None required.</p>	<p>The Project site is located entirely within port authority jurisdiction. Therefore, municipal setback requirements as set out in the Light Impact Industrial zone are not applicable.</p>
<p>Provide contact information for Applicant and port authority to forward any concerns from the public</p>	<p>None required.</p>	<p>The port authority provided the relevant details to the municipality – contact details for the port authority's community feedback line and contact</p>

Issue	Mitigations and permit conditions	Rationale
		details for the Applicant's Project Manager..
Provide a Construction Fire Safety Plan	None required.	Emergency access to the Project site during the construction phase will remain unchanged and would follow the procedures set out in the terminal's existing operational Fire and Emergency Response Plan, which was submitted as part of the permit application
Request verification for requirement to have fire suppression systems incorporated at the offload/storage area as well as the above ground portions of the vessel loading platform.	None required.	The Project site is located entirely within port authority jurisdiction. Therefore, the 2020 NBC and NFC are applicable to this Project and these issues are assessed as part of the Port Authority's Building Permit process.
Provide Code Consultant report(s) to verify Water supply information and fire hydrant locations and compliance with BC Building Code.	For buildings, structures and proposed interior changes to buildings that are reviewable under the National Building Code and National Fire Code, the Permit Holder shall apply for a Port Authority Building Permit.	As the Project site is located entirely within federal (port authority) jurisdiction, the NBC of Canada is applicable and the port authority is responsible for issuing Building Permits. The Applicant would be required to go through the Port Authority's Building Permit process for any structures reviewable under Code and this would be captured as part of the code review. Reports are not provided to external third parties as part of the port authority's process.
Queries regarding utility ownership and, if municipal-owned, detailed design requirements.	None required.	The Port Authority provided confirmation to the municipality on utility ownership (port authority assets) and potential future demand. As these are Port Authority assets, municipal design requirements are not applicable.

Issue	Mitigations and permit conditions	Rationale
Request confirmation of adequate pavement conditions.	None required.	The Project site is located entirely within Port Authority jurisdiction. Therefore, whilst municipal pavement design requirements are not applicable, the port authority will apply our design requirements, which follow Master Municipal Construction Documents (MMCD) standards and the Applicant's contractors would be required to follow these.
Request for road dedication.	None required.	As the Project site is located entirely within Port Authority jurisdiction, no road dedication or rezoning is required.

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 January 3, 2023 notifying them of the proposed Project and requesting any feedback by January 31, 2023.

Metro Vancouver responded with comments on the proposed Project. 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	Rationale
Request for drawings to be provided showing both the canola oil project and the Metro Vancouver Annacis Main No. 5 Water Supply Tunnel project to understand conflicts, separation distances and clearances for further review/assessment.	The following condition addresses this concern: Prior to the commencement of any physical activities or works to, or within 30 metres of, any existing or approved future Metro Vancouver infrastructure, the Permit Holder shall provide detailed design drawings of the proposed works to Metro Vancouver. The Permit Holder should refer to Metro Vancouver's Proximal Work Requirements, as appropriate.	The conceptual design drawings are available on the port authority website. The Applicant confirmed that they reviewed the latest available Metro Vancouver drawings for conflicts and none were identified. Detailed drawings for any works within 30 metres of the water supply tunnel will be provided to Metro Vancouver by the Applicant, as per the permit condition noted.
Design and construction of the Project must consider the water supply tunnel to avoid any impact to the tunnel, such as	The following condition addresses this concern: Prior to the commencement of any physical activities or works	The Applicant confirmed that, whilst all marine piles fall outside the water supply tunnel right of way (ROW), the catwalk

Issue	Mitigations and permit conditions	Rationale
<p>but not limited to, design loading conditions (e.g. pile driving and pile tip elevations) and potential impacts during construction. The design of any structures above, or in proximity to, the tunnel alignment must also be considered.</p>	<p>to, or within 30 metres of, any existing or approved future Metro Vancouver infrastructure, the Permit Holder shall provide detailed design drawings of the proposed works to Metro Vancouver. The Permit Holder should refer to Metro Vancouver's Proximal Work Requirements, as appropriate.</p>	<p>connection that bridges between the existing pier and the new loading platform is located above the tunnel ROW.</p>
<p>Request for Metro Vancouver staff to be involved throughout design to ensure that the Vancouver Annacis Main No. 5 Water Supply Tunnel will not be impacted.</p>	<p>The following condition addresses this request: Prior to the commencement of any physical activities or works to, or within 30 metres of, any existing or approved future Metro Vancouver infrastructure, the Permit Holder shall provide detailed design drawings of the proposed works to Metro Vancouver. The Permit Holder should refer to Metro Vancouver's Proximal Work Requirements, as appropriate.</p>	<p>As detailed above, some works are proposed within 30 metres of the approved Metro Vancouver Annacis Main No. 5 Water Supply Tunnel. The provision of detailed design drawings to Metro Vancouver will ensure no conflicts arise between the two projects.</p>
<p>Request for Metro Vancouver to be notified of any activities or further development that would result in an increase in the water demand.</p>	<p>None required.</p>	<p>The Applicant confirmed that project operations would not increase water demand for the terminal.</p>
<p>Request confirmation on any potential proximal impacts to the North Surrey Interceptor Manson Road Extension (1400mm x 1750 mm reinforced concrete box) sewer, which is approx. 20m from the project site – for e.g. short-term or long-term displacement, as well as vibrations exceeding GVS&DD tolerances indicated in Metro Vancouver's Proximal Work Requirement document.</p>	<p>The following conditions address this concern: Prior to the commencement of any physical activities or works to, or within 30 metres of, any existing or approved future Metro Vancouver infrastructure, the Permit Holder shall provide detailed design drawings of the proposed works to Metro Vancouver. The Permit Holder should refer to Metro Vancouver's Proximal Work Requirements, as appropriate.</p>	<p>Providing detailed design drawings to Metro Vancouver will ensure staff have an opportunity to determine whether there are any potential impacts to the existing sewer.</p>

Issue	Mitigations and permit conditions	Rationale
	<p>The Permit Holder shall notify Metro Vancouver of any actual or potential damage to Metro Vancouver infrastructure.</p>	
<p>Request for further details, such as conceptual and/or design drawings, showing the locations of the proposed three storage tanks, area of ground improvement works, railwork, utility and/or transmission piping work, buildings, etc.</p>	<p>The following condition addresses this concern: Prior to the commencement of any physical activities or works to, or within 30 metres of, any existing or approved future Metro Vancouver infrastructure, the Permit Holder shall provide detailed design drawings of the proposed works to Metro Vancouver. The Permit Holder should refer to Metro Vancouver's Proximal Work Requirements, as appropriate</p>	<p>All submission material is available on our website, a link to which was provided in the port authority's January 03, 2023 letter to Metro Vancouver. Should any work be proposed within 30 metres of Metro Vancouver infrastructure, the Applicant will provide detailed design drawings to Metro Vancouver.</p>
<p>Assessments/ analysis/ opinion/ input from a qualified geotechnical professional would be helpful to assure that impact to Metro Vancouver infrastructure would be insignificant and risk level is kept to low or less.</p>	<p>The following conditions address this concern:</p> <p>The Permit Holder shall provide to the port authority and Metro Vancouver a memo prepared by a qualified geotechnical professional engineer licensed to practice in the Province of British Columbia detailing all works that fall within 30 metres of existing Metro Vancouver infrastructure.</p> <p>Should any significant works be proposed within 30 metres of existing Metro Vancouver infrastructure, the Permit Holder must provide an infrastructure protection and monitoring plan to Metro Vancouver.</p> <p>Prior to the commencement of any physical activities or works to, or within 30 metres of, any existing or approved future Metro Vancouver infrastructure,</p>	<p>The Project includes works that are within 30 metres of Metro Vancouver infrastructure. More details of the scope of these works will be provided to Metro Vancouver to confirm risk to their infrastructure is low.</p>

Issue	Mitigations and permit conditions	Rationale
	<p>the Permit Holder shall provide detailed design drawings of the proposed works to Metro Vancouver. The Permit Holder should refer to Metro Vancouver's Proximal Work Requirements, as appropriate.</p>	
<p>Any works within GVS&DD statutory right of way (SRW) located at the south western corner of the property will require formal consent from GVS&DD</p>	<p>The following condition addresses this concern: Prior to the commencement of any physical activities or works to, or within 30 metres of, any existing or approved future Metro Vancouver infrastructure, the Permit Holder shall provide detailed design drawings of the proposed works to Metro Vancouver. The Permit Holder should refer to Metro Vancouver's Proximal Work Requirements, as appropriate.</p>	<p>No project works are anticipated to fall within this SRW. The Applicant has committed to reaching out to Metro Vancouver should this change. If any works do occur within this area, the permit condition requiring the submission of detailed design drawings will ensure that relevant information is provided to Metro Vancouver.</p>
<p>Metro Vancouver needs assurance from DP World's geotechnical engineer that the proposed ground improvement work will meet our settlement/ displacement and vibration limits in our Proximal Work Requirements document. Metro Vancouver requests additional geotechnical information regarding the proposed ground improvement work for the subject development project, even if it is beyond 30m from Metro Vancouver infrastructure.</p>	<p>The following condition addresses this concern: The Permit Holder shall provide to the port authority and Metro Vancouver a memo prepared by a qualified geotechnical professional engineer licensed to practice in the Province of British Columbia detailing all works that fall within 30 metres of existing Metro Vancouver infrastructure. Should any significant works be proposed within 30 metres of existing Metro Vancouver infrastructure, the Permit Holder must provide an infrastructure protection and monitoring plan to Metro Vancouver.</p>	<p>The proposed permit condition will cover works within 30m of Metro Vancouver infrastructure. The Applicant has also committed to ongoing dialogue with Metro Vancouver with regards to their proximal works requirements.</p>
<p>It is not clear to Metro Vancouver if the piles will enter the Annacis Water Supply Tunnel ROW. Even if it can be</p>	<p>None required.</p>	<p>The Applicant confirmed that all piles will be outside the Metro Vancouver ROW. Additionally, the marine piles would be</p>

Issue	Mitigations and permit conditions	Rationale
demonstrated that the piles will be located outside of the ROW, Metro Vancouver has concerns that these piles may impact the tunnel.		installed by March 2024, prior to any tunnel works proceeding in this area.
While the piling work is more than 60m away from Metro Vancouver infrastructure, Metro Vancouver is concerned the proposed piling work could cause excessive vibrations to our infrastructure. Metro Vancouver requests a signed and sealed geotechnical assessment on the expected level of vibrations that will be induced on our infrastructure due to the piling work. We understand the piling work may involve impact hammer and/or vibratory driving- geotechnical engineer to confirm and recommend methodology that would allow vibrations to stay within Metro Vancouver vibrations tolerances.	<p>The following condition addresses this concern:</p> <p>The Permit Holder shall provide to the port authority and Metro Vancouver a memo prepared by a qualified geotechnical professional engineer licensed to practice in the Province of British Columbia detailing all works that fall within 30 metres of existing Metro Vancouver infrastructure. Should any significant works be proposed within 30 metres of existing Metro Vancouver infrastructure, the Permit Holder must provide an infrastructure protection and monitoring plan to Metro Vancouver.</p>	<p>The proposed permit condition will cover works within 30m of Metro Vancouver infrastructure. As part of a separate project permit, vibration monitoring was conducted by the Applicant during a test pile program in the Project area and no concerns were noted relating to vibrations or settlement, given the offsets (approx. 60m). Should the Project be approved, the Applicant has committed to coordinating with Metro Vancouver once the design builder has been selected and piling means and methods determined.</p>

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 the following Port Authority tenants on January 3, 2023 notifying them of the proposed Project, and requesting any feedback by January 31, 2023:

- Fraser Grain Terminal (FGT) Ltd
- Westran Intermodal Limited
- Wesik Enterprises Ltd.
- Republic Services of British Columbia Inc.
- Mainland Construction Materials ULC
- Acorn Forest Products Ltd.
- Southern Railway of British Columbia Limited
- Greater Vancouver Sewer & Draining District (Metro Vancouver Utilities Sewer & Water Dept.)
- City of Surrey (Asset Management Dept.)
- Harken Towing Co. Ltd.

FGT Ltd. responded with a request to meet to discuss PARY rail operations. As general PARY operations are outside the scope of the permit review, FGT were encouraged to liaise directly with the Applicant. No further comments were received from FGT Ltd. on the proposed Project.

Acorn Forest Products Ltd (San Group Inc.) provided comments, noting concerns related to the potential impact of both construction vehicular and operational road and rail traffic on their operation. From an operational standpoint, as noted in the Transportation section above, the introduction of canola oil at the terminal would not represent an increase in rail volume overall, as the container volume able to be handled at this terminal is expected to decrease.

To address any potential impacts on adjacent tenants during the construction phase of the Project, a permit condition would be included requiring a construction traffic management plan to be developed to the satisfaction of the port authority in advance of any construction commencing.

4.4. Marine users consultation

The proposed Project was assessed to have potential impacts to marine users. A referral letter was sent to two marine user groups on January 3, 2023 notifying them of the proposed Project, and requesting any input by January 31, 2023:

- Fraser River Pilots
- Pacific Pilotage Authority

The Fraser River Pilots provided comments on the proposed Project. 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	Rationale
Ensure adequate fenders and bollards for the vessels that will call facility. Please note some existing dolphins near the existing trestle in our opinion are not adequate.	<p>The following conditions address this concern:</p> <p>The Permit Holder shall submit design drawings detailing the new fender and bollard capacities and locations, and confirm design vessel size including LOA, beam, and draft, and anticipated operational draft.</p> <p>The Permit Holder shall submit a mooring assessment to the Port Authority's satisfaction. These drawings shall be signed and sealed and approved for construction by a professional engineer licensed to practice in the Province of British Columbia.</p>	The permit condition requirements will ensure that the Applicant provides the additional detailed information that is needed to adequately address Fraser River Pilots comments/ concerns.
Berth pocket and approaches dredged and maintained for an appropriate under keel clearance for ships.	None required.	Berth 10 is currently dredged and maintained, no additional dredging is required.

Issue	Mitigations and permit conditions	Rationale
<p>Tankers in product (i.e. vessels carrying liquids in bulk over 6000 tonnes) will require tethered escort tugs while transiting the Fraser.</p>	<p>The following condition addresses this concern: The Permit Holder shall coordinate with the Pacific Pilotage Authority and the Fraser River Pilots to determine Pilotage, Tug, and simulation requirements. The Port Authority’s Marine Operations department must be copied into the communications (navigation.review@portvancouver.com) If any concerns are raised by the Pilots, these concerns must be addressed 40 days before commencing construction on the mooring infrastructure.</p>	<p>The Applicant must liaise with the pilotage authorities to ensure that the proposed new facility can operate in line with Fraser River Pilots escort tug requirements.</p>
<p>Simulations may be necessary for feasibility of ships transiting and berthing into FSD 10.</p>	<p>The following condition addresses this concern: The Permit Holder shall coordinate with the Pacific Pilotage Authority and the Fraser River Pilots to determine Pilotage, Tug, and simulation requirements. The Port Authority’s Marine Operations department must be copied into the communications (navigation.review@portvancouver.com) If any concerns are raised by the Pilots, these concerns must be addressed prior to commencing construction on the mooring infrastructure.</p>	<p>The Applicant must liaise with the pilotage authority to ensure that the final design of the Project allows for safe vessel transiting and berthing at Berth 10.</p>

4.5. Port Community Liaison Committee (Delta) notification activities

The proposed Project was assessed to be of potential interest to the Port Community Liaison Committee (Delta). An email was sent to committee members on January 3, 2023 notifying them of the proposed Project.

The Port Authority did not receive any comments from the Port Community Liaison Committee (Delta).

5. Public engagement

The Port Authority has determined that, provided the mitigation measures and conditions outlined in the table in Section 5.2 below are included in the Permit, the Project has adequately addressed the concerns raised during public engagement.

Public engagement occurred through the Canadian Impact Assessment Registry (Registry) and an applicant-led public engagement process. At the close of the registry comment period, two comments were received.

The Applicant carried out public engagement activities on the proposed Project in January 2023. The Port Authority has reviewed the record of public engagement, including all comments received and the Applicant's response to comments, in determining mitigation requirements and in making a decision on the proposed Project.

A description of the Project and proposed works, and all supporting materials, were posted to the Port Authority's website in December 2023 for public review and comment. Details of the Applicant's public engagement were posted on the Port Authority's website and links were provided to the Applicant's website for more information.

5.1 Canadian Impact Assessment Registry

To meet requirements of section 86 of the *Impact Assessment Act (IAA)*, the Port Authority posted a description of the Project and notice of public participation to the Registry to provide the public 30 calendar days to comment on the project and provide community knowledge.

The Project also requires a decision under the *IAA* by Transport Canada. Therefore, the Port Authority and Transport Canada jointly posted the Project to the Registry to facilitate a coordinated public comment period.

The comment period ran from January 3, 2023 to February 1, 2023. At the close of the 30 calendar day public comment period, the port authority received two comments.

5.2 Summary of Applicant-led public engagement

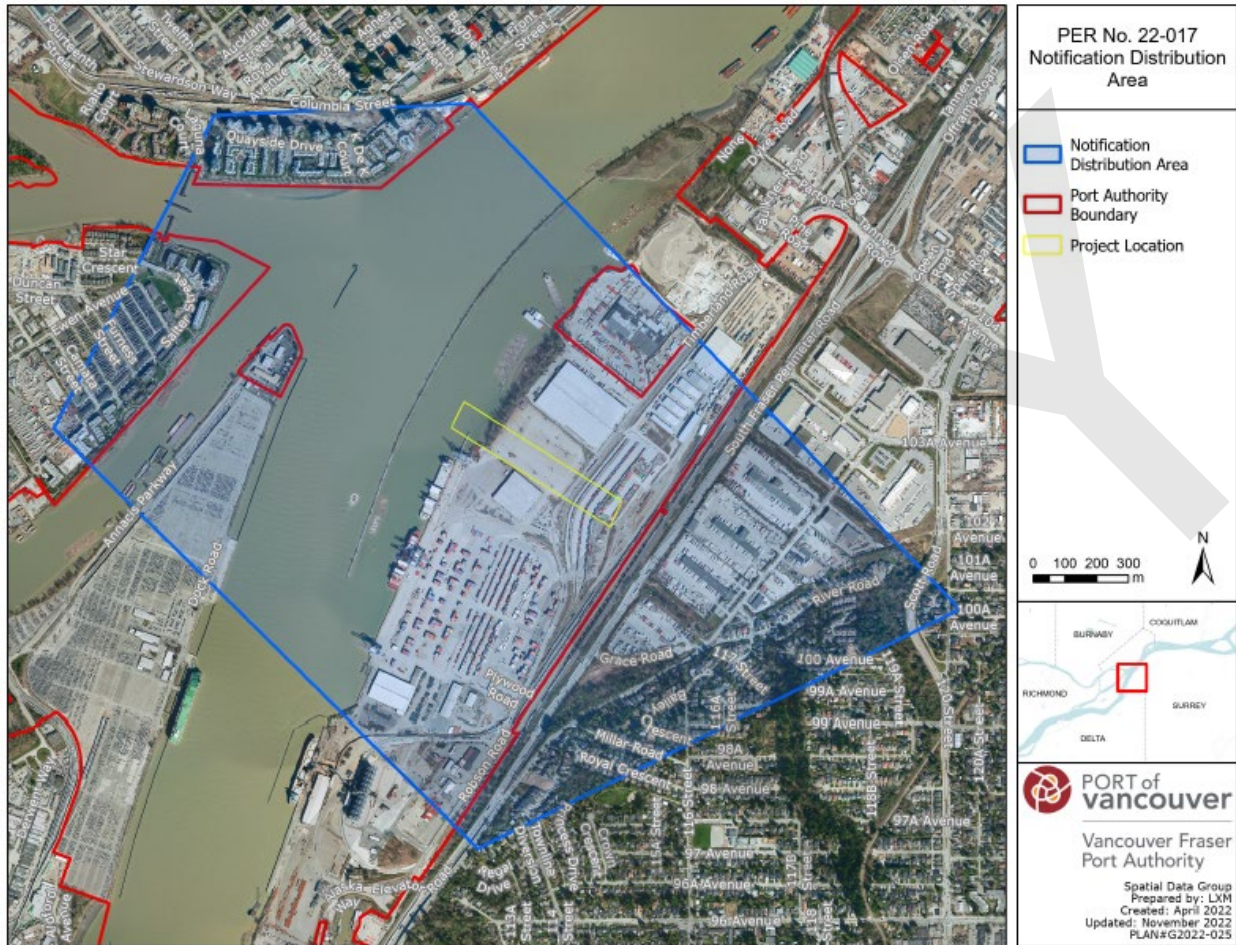
The Port Authority required the Applicant to conduct public engagement activities with a 20 business day public engagement period and to host a public information session. The objective of public engagement as part of the permit review is to solicit feedback from the public on the proposed Project, the completed technical studies, and proposed mitigations during construction and operation.

Public engagement activities were conducted by the Applicant from January 3 to 30, 2023 and included the following:

- Posting all Project-related materials on-line on the applicant's website;
- Hand-delivering and mailing notification letters to residents and businesses in Surrey, Delta and New Westminister;
- Placing advertisements in the New West Record and Surrey Now regarding the public information session;
- Creating a feedback form to collect community input;
- Providing an email address and telephone number for inquiries and submissions; and
- Hosting a virtual public information session on January 16, 2023 using Microsoft Teams.

The Applicant hand-delivered/mailed notification letters to all residents and businesses in the area shown in the map below on December 23, 2022, with information about the proposed project and upcoming public information session.

Mail drop area for public notification



The Applicant's public engagement period was from January 3 to 30, 2023 and the public was able to provide feedback via telephone, mail, and online. A dedicated webpage for the proposed Project was created by the Applicant to inform the public and accept online feedback. The webpage is available [here](#).

The public information session was held on the Microsoft Teams platform on January 16, 2023, at 7:00 p.m. The public information session provided information about the Project scope, design, environmental and other technical assessments, construction activities and construction management. A link to the digital feedback form was also provided. The Applicant had project team members available to answer questions from the public. Port Authority staff also attended.

During the public Applicant-led public engagement period, public participation was as follows:

- 18 people attended the public information session;
- 15 comments and questions were received during the public engagement session;
- 0 people completed the feedback form; and
- 2 comments via email were received from the public.

Comments from the public were mainly related to the environmental effects of a canola oil spill, construction activities, noise impacts from operations, specifically rail-related, and impacts to sightlines. Community knowledge was provided about the specific impacts that the proposed storage tanks would have to sightlines and the general noise disturbances experienced due to rail operations at or approaching the terminal, such as train whistles and shunting.

The Applicant provided a detailed summary of the public engagement process and all comments received in an Engagement Summary Report and Consideration Report. The document contained the Applicant’s formal responses to public comments received, organised by theme. The Port Authority has reviewed the documents and found them both to be acceptable. This report was posted on the Port Authority and the Applicant’s websites as of April 2023.

5.3 Summary of Public Comments

Below is a table summarizing issues raised by the public, and how they were considered by the Port Authority as part of the project and environmental review.

Issue	Mitigations and permit conditions	Rationale
<p>Risk of canola oil spills in water (during the loading process into vessels at berth and in transit)</p>	<p>The following condition addresses this concern:</p> <p>Prior to the commencement of operations, the Permit Holder shall submit an Operational Spill Prevention and Response Plan to the Port Authority's satisfaction. This Plan shall include response to upland and in-water canola oil spills at the terminal. The Plan shall cover and expand on the details provided in Table 19 of the Construction Environmental Management Plan, dated February 17, 2023.</p>	<p>The draft CEMP outlines various measures that would be put in place to prevent and respond to any potential canola oil spills, such as placing containment booms around vessels prior to loading. The Applicant notes that the probability of a vessel shifting during loading is very low due to the sheltered location of Berth 10, however, should the vessel move during loading, there is an emergency decoupling mechanism in the arm to immediately stop the flow of canola oil. Additionally, the transmission line used would be doubled-walled with a leak detection system.</p> <p>If any canola oil makes its way to water during loading or in transit in Canadian waters, a number of different agencies are notified and would respond accordingly depending on the nature and location of the spill – these include the Western Canada Marine Response Corporation, Canadian Coast Guard and the BC Provincial Government. .</p>
<p>Risk of canola oil spills during the unloading process and from canola oil stored in tanks</p>	<p>The following conditions address this concern:</p>	<p>The Project would change the impervious surfaces of the Site and would include stormwater</p>

Issue	Mitigations and permit conditions	Rationale
	<p>Prior to the commencement of operations, the Permit Holder shall submit an Operational Spill Prevention and Response Plan to the Port Authority's satisfaction. This Plan shall include response to upland and in-water canola oil spills at the terminal. The Plan shall cover and expand on the details provided in Table 19 of the Construction Environmental Management Plan, dated February 17, 2023.</p> <p>Prior to the commencement of operations, the Permit Holder shall submit an updated stormwater pollution prevention plan to the Port Authority's satisfaction</p>	<p>upgrades outlined in the Stormwater Pollution Prevention Plan. The upgrades include defined containment area, sump pumps for each containment area, and American Petroleum Institute oil-water separators to ensure canola oil is not discharged to the environment.</p> <p>The Applicant indicates that the rail cars in the unloading area would be positioned over leak pans as part of the drainage system featuring an oil-water separator that will redirect any oil to waste tanks. This detail is provided on design drawings in the draft SPPP, submitted as part of application. This canola oil will be moved off site by vacuum trucks and disposed of.</p> <p>The storage tanks are surrounded by a containment wall that can contain the volume of an entire tank, as well as additional 10 percent of another tank's volume. Any runoff from the storage area is also processed through a water and oil separating system to ensure no oil enters the marine environment.</p>
<p>Rail traffic and associated noise from rail operations</p>	<p>None required.</p>	<p>As an existing intermodal track is being replaced by a rail track for canola oil use. It is anticipated that the increase in canola oil traffic will be offset by a decrease in intermodal rail traffic. Therefore, the Project is not expected to increase rail switching frequency or blockages relative to existing base conditions.</p>

Issue	Mitigations and permit conditions	Rationale
		<p>Rail operations and safety measures, such as train whistling at specific crossings are enforced by Transport Canada and therefore not within the Applicant's control. Additional whistling should be limited due to an additional upgrade planned at a rail crossing currently used by trains to access the terminal. This rail crossing upgrade is part of a separate project (PER No. 20-007).</p>
<p>Noise during construction and operations.</p>	<p>The following conditions address this concern:</p> <p>The Permit Holder will be required to respond to any complaints received from the community during construction and to report these to the Port Authority.</p> <p>The Permit Holder shall distribute a construction notification to the surrounding community 10 business days in advance of construction start. The notification will contain information about potential impacts during construction and how residents can contact the Applicant regarding any complaints.</p> <p>The Permit Holder shall adhere to the submitted Construction Environmental Management Plan (CEMP).</p>	<p>The Applicant indicates that during construction there will be additional noise generated from vehicles backing up, excavation activities, and pile driving. Piles will be driven using a vibratory hammer, with limited exception where impact hammer will be used to ensure adequate depths to achieve structural integrity.</p> <p>The CEMP submitted as part of the permit application sets out how the Applicant will mitigate against potential impacts, including noise. Existing conditions in the area include ongoing railway traffic, highway traffic and industrial operations, and construction activities are not expected to generate noise impacts beyond existing noise levels for the nearest sensitive receivers.</p> <p>Additional noise from operations are not expected to be above current levels, aside from some noise generated from electric pumps used to transfer oil from rail cars.</p>

Issue	Mitigations and permit conditions	Rationale
<p>Potential effects of vessel traffic to Southern Resident Killer Whales (SRKW) and Indigenous Groups, and cumulative effects on SRKW</p>	<p>None required.</p>	<p>The Project would result in an additional 33 Handymax size vessel calls per year.</p> <p>The port authority leads the Enhancing Cetacean Habitat and Observation (ECHO) Program to better understand and reduce the cumulative effects of shipping on at-risk whales throughout the southern coast of British Columbia. The Program encourages ship operators to slow down or stay distanced while travelling within key areas of SRKW critical habitat, which measurably reduces underwater noise. Though the measures are voluntary a high percentage of vessels participate in ECHO Program initiatives and we anticipate most vessels calling to this project would participate.</p> <p>The results of the port authority Consultation with Indigenous groups is outlined in Section 6 below.</p>

The proposed Project was assessed by the Port Authority to have potential impacts to community interests in the surrounding area during construction and upon completion. These include potential impacts such as noise due to construction activities like pile driving, as well as light pollution and additional traffic congestion. Additional project-related impacts during operations could include rail shunting and whistling.

To notify the public of anticipated impacts during project construction, the Applicant will be required to send a construction notification to adjacent residents and businesses in Delta, New Westminister and Surrey as shown to the same residents notified about the project public engagement (see map above). 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.

The Port Authority has reviewed the record of public engagement and, provided that the mitigation measures and conditions outlined above are included in the Permit, is of the view that the Project has adequately addressed the concerns raised during public engagement.

6. Indigenous consultation

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

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

- Katzie First Nation
- Kwantlen First Nation
- Kwikwetlem First Nation
- Musqueam Indian Band
- Semiahmoo First Nation
- Tsawwassen First Nation
- Tsleil-Waututh Nation
- Cowichan Tribes
- Halalt First Nation
- Lyackson First Nation
- Penelakut Tribe
- Stz'uminus First Nation
- Ts'uubaa-asatx Nation

The following consultation activities were conducted:

- Provided a referral package for review including, a referral letter, project documents, and participation funding agreement
- Conducted check-ins on the Project with Indigenous groups who have standing monthly PER sessions
- Response tables were 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 they were considered as part of the project and environmental review.

Issue	Mitigations and permit conditions	Rationale
Impacts to impact fish and fish habitat, specifically white sturgeon and eulachon and detecting presence	The following conditions address this concern: <ul style="list-style-type: none"> • The Permit Holder shall assess the site for sturgeon and other fish species using an EdgeTech 4125 or equivalent ultra-high resolution side scan sonar. The purpose of this assessment is to confirm absence of sturgeon immediately prior to dredging a section. The summary results describing the number of fish, species identification and size (if possible), and location shall be provided to VFPA Project and Environmental Review via email for approval. 	There is potential to impact fish and fish habitat and Indigenous groups have suggested that it is important to detect white sturgeon and eulachon presence. To mitigate these concerns, additional mitigation to eulachon and sturgeon species were included. The Port Authority requires that the in-water works are conducted during the least-risk window to fish, the monitoring of fish presence with side-scan sonar, implementing a soft start procedure, and monitoring by a qualified environmental professional.

Issue	Mitigations and permit conditions	Rationale
	<ul style="list-style-type: none"> • The use of a soft start procedure shall be implemented where the impact energy is gradually increased over a 10 minute period. The soft start procedure shall also be implemented any time after there is a break of 30 minutes or more during pile driving. • The Permit Holder shall engage a qualified environmental professional to monitor the Project in order to ensure that the works are carried out in compliance with this Permit. Monitoring events shall take place as required by the environmental monitor, the construction environmental management plan, or the Port Authority, provided that monitoring will be full time when works are under way that have the potential to adversely affect fish or fish habitat. • In-water works shall be conducted during the marine least risk timing window for fish and fish habitat from June 16 to January 31, inclusive, unless otherwise approved in writing by Fisheries and Oceans Canada (DFO) or the Port Authority. The Port Authority shall be notified of any DFO exemptions allowing works outside the least risk timing window. • The Permit Holder shall immediately cease work and notify the Port Authority if the Permit Holder has reasonable grounds to believe that the Project has harmed fish or fish habitat, including observation of distressed, injured, or dead fish. The Permit Holder shall not resume work until authorized by the Port Authority. 	
<p>Impacts on fish habitat and wildlife from sediment and debris</p>	<p>The following conditions address this concern:</p> <ul style="list-style-type: none"> • The Permit Holder shall submit an Erosion and Sediment Control Plan prior to construction for 	<p>There is potential to impact fish habitat and wildlife from sediment and debris. To mitigate these concerns, the Port Authority will include permit</p>

Issue	Mitigations and permit conditions	Rationale
	<p>review and approval by the port authority. The Permit Holder shall carry out the Project in accordance with the Erosion and Sediment Control Plan.</p> <ul style="list-style-type: none"> • The Permit Holder shall conduct all activities involving the use of concrete, cement, mortars and other Portland cement or lime-containing construction materials in a manner that shall not deposit sediments, debris, concrete (cured or uncured), and concrete fines into the aquatic environment, either directly or indirectly. Water that has contacted uncured or partly cured concrete or Portland cement or lime-containing construction materials (such as the water that may be used for exposed aggregate wash-off, wet curing, equipment and truck washing) shall not be permitted to enter the aquatic environment. • The Permit Holder shall provide containment facilities at the site for the wash-down water from concrete delivery trucks, concrete pumping equipment, and other tools and equipment, as required. • The Permit Holder shall not permit sediment, sediment-laden waters, or other deleterious substances to enter the water during the Project. The Permit Holder shall carry out all physical activities in a manner that prevents induced sedimentation of foreshore and near shore areas and induced turbidity of local waters, and the release of sediment, sediment-laden waters, and turbid waters to the aquatic environment. • The Permit Holder shall engage a qualified environmental professional to monitor the Project in order to ensure that the works are carried out in compliance with this Permit. Monitoring events shall take 	<p>conditions requiring an Erosion and Sediment Control plan and no sediment and debris being allowed into the aquatic environment. These conditions will be monitored by a qualified environmental professional.</p>

Issue	Mitigations and permit conditions	Rationale
	place as required by the environmental monitor, the construction environmental management plan, or the Port Authority, provided that monitoring will be full time when works are under way that have the potential to adversely affect fish or fish habitat.	
Request for involvement for any further archaeology fieldwork	The following conditions address this concern: <ul style="list-style-type: none"> • The Permit Holder shall adopt the Vancouver Fraser Port Authority Archaeological Chance Find Procedure. The Permit Holder shall carry out the Project in accordance with this Procedure, and any subsequent updates made to the Port Authority's satisfaction. • If the Permit Holder encounters, expects to encounter, or should expect to encounter an actual or potential archaeological resource, the Permit Holder shall: <ul style="list-style-type: none"> (A) Immediately stop any activities that may disturb the archaeological resource or the site in which it is contained (Site); Not move or otherwise disturb the archaeological resource or other remains present at the Site; (B) Stake or flag the Site to prevent additional disturbances; and, (C) Immediately notify the Port Authority by email and phone. 	The Applicant confirmed that excavation of native sediments is not anticipated based on current design and the Archaeological Overview Assessment. The Port Authority will not require additional archaeological fieldwork for this proposed Project. Permit conditions related to encountering archaeological resources and the port authority's Archaeological Chance Find Procedure will be required.

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

7. Environmental effects review

To fulfill its responsibilities under the *Canada Marine Act* and the *Impact Assessment Act*, the Port Authority must make a determination on the potential environmental effects of a proposed project on Port Authority managed lands and waters prior to authorizing those works to proceed. To make that

determination, the Port Authority considers the residual adverse effects of the Project, that is, the effects after mitigation measures have been taken into account.

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

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

7.1. Scope of environmental review

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

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

The environmental review considered potential adverse environmental and social effects of the Project on 14 environmental components and from accidents and malfunctions. These environmental components are aspects of the biophysical and socio-economic environment considered to have ecological, economic, social, cultural, archaeological, or historical importance.

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

7.2. Environmental effects and mitigation summary

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

Environmental component	Potential adverse effects?		Overview of potential adverse effects, mitigation measures, and residual adverse effects	Significant Residual Adverse effects?	
	Yes	No		Yes	No
Air quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to air quality during construction and operations.</p> <p>During construction, effects to air quality may occur from dust and exhaust from vehicles and equipment .</p> <p>Mitigation measures to reduce emissions and effects to air quality during construction, as outlined in the CEMP, include following the port authority's Non-road Diesel Emissions program guidelines, covering material loads, sweeping and application of water on roadways, and reducing idling.</p> <p>During operations, potential effects to air quality may occur due to emissions from large marine vessels and</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>locomotives. The canola transfer system is designed as a fully electric operation and has no emission sources. Third-party marine vessels and locomotives are expected to meet Canadian regulatory emissions requirements. Applicant operated switching locomotives will comply with Tier IV emissions standards and will reduce idling. Ambient concentrations of air contaminants are expected to increase, however impacts on air quality near the Project site is likely to be negligible.</p> <p>With mitigation in place, residual adverse effects on air quality are predicted to be not significant.</p>		
Lighting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects due to lighting during operation. Construction is proposed to occur during regular work hours (7:00 am to 8:00 pm), and therefore no nighttime construction lighting is anticipated.</p> <p>The lighting design is in accordance with applicable codes and standard. Lighting is designed to focus internally within the facility and to reduce light spill. The Applicant has committed to implementing measures to reduce light spill toward the water. Lighting will be LED type and will be adequately maintained.</p> <p>With mitigation in place, residual adverse effects due to lighting are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects due to noise during construction and operations.</p> <p>During construction, noise is anticipated, particularly during in-water impact pile driving. General mitigation measures to noise during construction, as outlined in the CEMP, include adherence to standard construction hours, reduce idling, fit equipment with intake and exhaust silencers or mufflers, operate equipment with shields, conduct regular maintenance of equipment, and limit back up beepers. During pile driving, a noise dampening shroud or saddle/pad may be used to cushion hammer impacts.</p> <p>During operations, canola delivery by train, on-site rail movements, and other sources such as marine loading</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>pumps. Noise modelling predicts that annual average noise levels would be well below the existing community noise levels and that Project-related noise would not exceed PER guideline criteria.</p> <p>With mitigation in place, residual adverse effects due to noise are expected to be not significant.</p>		
Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on soils (terrestrial) from the Project.</p> <p>The Project requires limited excavation of an abutment area and may disturb soils during vegetation removal and grubbing for construction access and the trestle piles. Soils are expected to consist of previously imported materials. Contaminated soils may be encountered.</p> <p>During construction there is a risk of accidental equipment leaks or spills which could result in soil contamination, or erosion leading to soil loss.</p> <p>Mitigation measures, as outlined in the CEMP, include development and implementation of an erosion and sediment control plan, development and implementation of a soil management plan, and a contaminated soil chance find procedure.</p> <p>With mitigation in place, residual adverse effects on soils 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 adverse effects on sediments (aquatic) from the Project.</p> <p>During construction there is a risk of accidental equipment leaks or spills, or soil erosion and sedimentation that could potentially runoff into aquatic environments. During in-water works, sediments will be disturbed within the Project footprint.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, water quality monitoring, deployment of a silt curtain, where feasible during in water works, development and implementation of an erosion and sediment control plan and a spill prevention and response plan.</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
			With mitigation in place, residual adverse effects on sediments are expected to be not significant.		
Ground water	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on groundwater from the Project.</p> <p>The Project would require limited excavation and groundwater may be encountered. Based on previous sampling, groundwater is suspected to be contaminated. Handling of contaminated groundwater could result in the increased potential for discharge to the surrounding environment resulting in further contamination.</p> <p>Mitigation measures, as outlined in the CEMP, include development environmental monitoring, water quality monitoring, and implementation of a groundwater management plan which includes testing, treatment, and handling methods.</p> <p>With mitigation in place, residual adverse effects on ground water is 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.</p> <p>The Project occurs within and adjacent to the Annieville Channel of the Fraser River. Impacts to aquatic resources may occur during construction due to the use of equipment, and erosion and sedimentation and installation of piles leading to changes in water quality. The Project could result in changes in suspended sediment concentrations, and contamination.</p> <p>The Project would change the impervious surfaces of the Site and would include stormwater upgrades outlined in the Stormwater Pollution Prevention Plan. The upgrades include defined containment area, sump pumps for each containment area, and American Petroleum Institute oil-water separators to ensure that in the event of spills canola oil is not discharged to the environment.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, water quality monitoring, preventing the release of deleterious substances into the aquatic environment, implementing a spill prevention and</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>response plan, implementing an erosion and sediment control plan, and environmental monitoring including water quality monitoring.</p> <p>With mitigation in place, residual adverse effects on surface water and water bodies are not expected to be significant.</p>		
<p>Species/ habitat with special status</p> <p>Assessed under section 79 of the <i>Species at Risk Act</i>, as applicable</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on species that are extirpated, endangered, or threatened and/or their critical habitat that are protected under the <i>Species at Risk Act</i>.</p> <p>Vegetation</p> <p>Streambank lupine (Endangered) and Roell's brotherella (Endangered) have the potential to occur within the Project Area. There is a low potential for adverse effects on Streambank lupine and Roell's brotherella. During field studies streambank lupine and Roell's brotherella were not observed. Potential effects include vegetation removal and habitat degradation.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, carrying out a pre-construction rare plant survey, implementing no-disturbance buffers where applicable, and implementing measures to reduce the introduction and spread of invasive species.</p> <p>With mitigation in place, no residual adverse effects on Streambank lupine or Roell's brotherella are anticipated.</p> <p>Wildlife</p> <p>Barn Owl (Threatened) may occur within the Project area. Part of the Project Site is within an area designated as barn owl critical habitat.</p> <p>Barn owl foraging habitat, as defined by the Recovery Strategy for Barn Owl (<i>Tyto alba</i>), Western Population, in Canada 2022, was observed within the Project site. No barn owl, barn owl sign (e.g., pellets), or barn owl nesting habitat was observed.</p> <p>Potential effects on barn owl include temporary disturbance such as sensory disturbance and alteration of wildlife movement. The Project will also result in the permanent loss of approximately 2,632 square metres of</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>barn owl foraging critical habitat (riparian foraging habitat and remnant grassy margin foraging habitat). The Applicant has submitted a <i>Species at Risk Act (SARA)</i> permit application to ECCC. ECCC has reviewed the Project and has issued a Letter of Avoidance and indicated that no SARA permit is required.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, reducing noise, carrying out a pre-construction raptor survey and where applicable, installing no-disturbance buffers.</p> <p>As determined by ECCC, and with mitigation in place, no residual adverse effects on barn owl are anticipated.</p>		
Wildlife	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on wildlife during construction.</p> <p>The Project would result in the alteration of wildlife habitat through ground disturbance and vegetation clearing. The Project may result in alteration of wildlife movement, sensory disturbance, and an increased risk of wildlife mortality.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, carrying out a pre-construction wildlife survey, a pre-construction survey for migratory bird nests and bald eagle nest, implementing appropriate no-disturbance buffers where applicable, eliminating attractants on site, reporting wildlife observations/encounters, and reducing noise. Cleared areas below the trestle will be re-vegetated with low-growing vegetation and will require ongoing maintenance.</p> <p>With mitigation in place, residual adverse effects on wildlife is expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Project construction will cause temporary and permanent effects on vegetation.</p> <p>The Project would result in the removal of two mature black cottonwood trees, approximately 32 square metres of shrub and ground cover under the planned trestle including the removal of approximately five square metres of blue-listed ecological community (black cottonwood/red-osier dogwood mid-bench floodplain</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>community). Construction would result in a permanent change to vegetation structure beneath the trestle where vegetation will need to be regularly maintained. Cleared areas under the trestle would be seeded and allowed to naturally regenerate.</p> <p>Equipment and machinery may encroach on retained trees.</p> <p>Construction may result in the introduction or spread of invasive species.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, use of certified weed-free seed, development and implementation of a site-specific invasive species management plan, ensuring equipment, footwear, and machinery is clean before entering or leaving the site, washing mud off wheels, and controlling weeds on site. Tree protection fencing would be installed.</p> <p>With mitigation in place, residual adverse effects on vegetation is expected to be not significant.</p>		
Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on wetlands due to the Project.</p> <p>Wetland habitat occurs within the Project footprint and is comprised of red-listed Lyngbye's sedge – Douglas' water hemlock estuarine marsh and unvegetated tidal shallow water class wetland. Wetland functions of estuarine marshes include fish and wildlife habitat, filtration, shoreline stabilization, and water attenuation.</p> <p>The project will result in a permanent loss of seven square metres of to accommodate the pile supports for the trestle and could result in degradation of wetland habitat due to construction and the introduction or spread of invasive species.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, flagging the construction footprint to delineate work boundaries, development and implementation of a site-specific invasive species management plan, and implementation of measures to reduce the introduction and spread of invasive species.</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>Cleared areas will be seeded or allowed to naturally revegetation with low-growing species, and a revegetation plan will be developed.</p> <p>The Applicant submitted a DFO Request for Review. DFO determined that the impacts to fish and fish habitat were not likely to result in the harmful alteration, disruption, or destruction of fish habitat. DFO issued a Letter of Advice with recommendations to mitigate impacts to fish and fish habitat.</p> <p>As the impacted area is relatively small, will be revegetated, and adjacent wetland habitat will not be disturbed/protected, no net loss in overall wetland ecological function is expected. With mitigation in place, residual adverse effects on wetlands are expected to be not significant.</p>		
<p>Aquatic resources (e.g., aquatic plants, fish and fish habitat, waterbirds, marine mammals, etc.)</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>The Project occurs within and adjacent to the Annieville Channel of the Fraser River. The Fraser River provides habitat for multiple species of fish including salmonids, green and white sturgeon, marine mammals, and benthic invertebrates. Low productivity habitat occurs adjacent to Berth 10 (riprap, disturbed shoreline conditions) and high productivity habitat occurs within the footprint of the proposed access trestle (intertidal marsh with graminoids, vegetated riparian areas).</p> <p>The Project will modify 42 square metres of riverbed to accommodate piles for the concrete loading platform and the access trestle changing the habitat from un-vegetated, silty sand river bottom to the addition of hard-substrate piles.</p> <p>Impacts to aquatic resources may occur during construction due to the use of equipment, vegetation clearing within riparian areas, erosion and sedimentation and installation of piles leading to changes in water quality. The Project could result in changes in suspended sediment concentrations, and contamination.</p> <p>The Applicant submitted a DFO Request for Review. DFO determined that the impacts were not likely to result in impacts to aquatic species at risk or any part of their</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>critical habitat or residences of their individuals and that impacts to fish and fish habitat and were not likely to result in the death of fish by means other than fishing, or the harmful alteration, disruption, or destruction of fish habitat. DFO issued a Letter of Advice with recommendations to mitigate impacts to fish and fish habitat.</p> <p>Mitigation measures are outlined in the CEMP and reflect the recommendations in DFO's Letter of Advice. Measures, include environmental monitoring, water quality monitoring, carrying out in-water works during least-risk windows for fish, preventing the release of deleterious substances into the aquatic environment, implementing a spill prevention and response plan, and implementing a stop work procedure if activities are observed to affect fish or marine mammals.</p> <p>With mitigation in place, residual adverse effects on aquatic resources are expected to be not significant.</p>		
Health and socio-economic conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>During construction the Project will result in temporary impacts on air quality and on result in increased noise. In-water works may impact water quality. Changes in water quality could lead to impacts on fish, resulting in impacts on fishing for consumption.</p> <p>Mitigation measures, as outlined in the CEMP, include environmental monitoring, water quality monitoring, carrying out in-water works during least-risk windows for fish, implementing a spill prevention and response plan, implementing an erosion and sediment control plan, environmental monitoring including water quality monitoring and underwater noise monitoring.</p> <p>DFO reviewed the project and determined that the impacts were not likely to result in impacts to fish and fish habitat and were not likely to result in the death of fish by means other than fishing, or the harmful alteration, disruption, or destruction of fish habitat. As such, there are not anticipated impacts on fishing for consumption.</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>Any effects on air quality and noise are predicted to be negligible and no impacts on human health are anticipated.</p> <p>In conclusion, based on the very low magnitude of residual effects on air and noise and on fish, the Project is not expected to cause adverse effects on health or socio-economic conditions of people, including Indigenous people.</p>		
Archaeological, physical, and cultural heritage resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on archaeological, physical, and cultural heritage resources.</p> <p>Much of the proposed Project area has been subject to previous archaeological studies including archaeological overview assessments (AOA), preliminary field reconnaissance, and monitoring of geotechnical boreholes.</p> <p>The site occurs along the south shore of the Fraser River. Survey maps from the 1859-60 indicate that there has not been significant change to the shoreline since that time. Aerial imagery from 1949 shows development and infilling underway. Geotechnical data reveals 4 to 6 metres of sand fill overlays the native organic sediments (peat).</p> <p>There are no archaeological sites recorded in the Project site. However, there are archaeological sites in similar settings along the south shore of the Fraser River up and downstream of the Project site. Although the site has been developed and covered in fill material, there is potential for unrecorded archaeological sites to be present below the fill layer.</p> <p>The Applicant has confirmed that excavation of native sediments is not anticipated based on current design. As such, potential impacts to archaeology are not anticipated.</p> <p>The Applicant has also committed to development and implementing an Archaeological and Heritage Chance Find Procedure.</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
			The Project is not expected to cause adverse effects on archaeological, physical, and cultural heritage resources.		
Accidents and malfunctions Assessed as required by the <i>Canada Marine Act</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on surface water from accidental equipment leaks or spills, including canola oil.</p> <p>Mitigation measures, as outlined in the CEMP, will be in place to reduce potential for adverse, project-related effects due to accidents including environmental monitoring, implementation of a spill prevention and response plan.</p> <p>Spill prevention measures for canola oil are employed within the project including design features to prevent spills during unloading, storage, and loading.</p> <p>With mitigation in place, the effect of an accident or malfunction on the environment, if it were to occur at the terminal, is predicted to be not significant.</p> <p>With respect to canola oil spills in the marine environment, vessels in transit in the Fraser River would require tug escorts, which would reduce the risk of spills. Should a spill occur during transit, a number of agencies would be notified and respond accordingly - these include WCMRC, the Canadian Coast Guard and the BC Provincial Government. Although the magnitude and extent of a spill could be large depending on response time, the probability of the accident occurring is low and the potential residual adverse effect is predicted to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

7.3. Environmental effects characterization

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

- Air quality
- Lighting
- Noise
- Soils
- Sediments
- Ground water
- Surface water and water bodies

- Species/habitat with special status
- Wildlife
- Vegetation
- Wetlands
- Aquatic resources
- Health and socio-economic

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

- Low in magnitude: Effects differ from current conditions but are within the range of natural variation and well below associated guideline or threshold values. The construction footprint is relatively small and the most notable effects during construction are likely to be due to noise emissions, water quality impacts, the potential for spills, and erosion and sedimentation. During operations, effects would largely be due to noise and air emissions in addition to those of the already functioning terminal.
- Site specific to local in geographic extent: Most effects would occur within the project site, however some effects (e.g., noise and air emissions during construction and operations, turbid waters from in-water work during construction) could extend in the local study area (e.g., up to 1 km from the Project site).
- Duration and frequency of effects ranges from temporary/intermittent during construction to long-term/continuous during operations.
 - During construction, effects would be temporary in duration with intermittent frequency: The effects during construction would for approximately three years and occur at sporadic intervals.
 - During operations, effects would be long-term and continuous in frequency: The effects on air, light, and noise emissions extend into the operation phase and lasts until the infrastructure is removed or the lifespan of the infrastructure has been met and are likely to be continuous because they will occur daily throughout operation.
- Partially reversible: Effects from construction such as the potential impacts to wildlife, impacts to water quality, construction noise and air emissions will cease once construction is complete. Should operations cease, infrastructure could be decommissioned and removed, and the site restored and effects on air and noise emissions would cease. If there were any spills during construction or operations, there is a risk the spill site may not be remediated fully.

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.

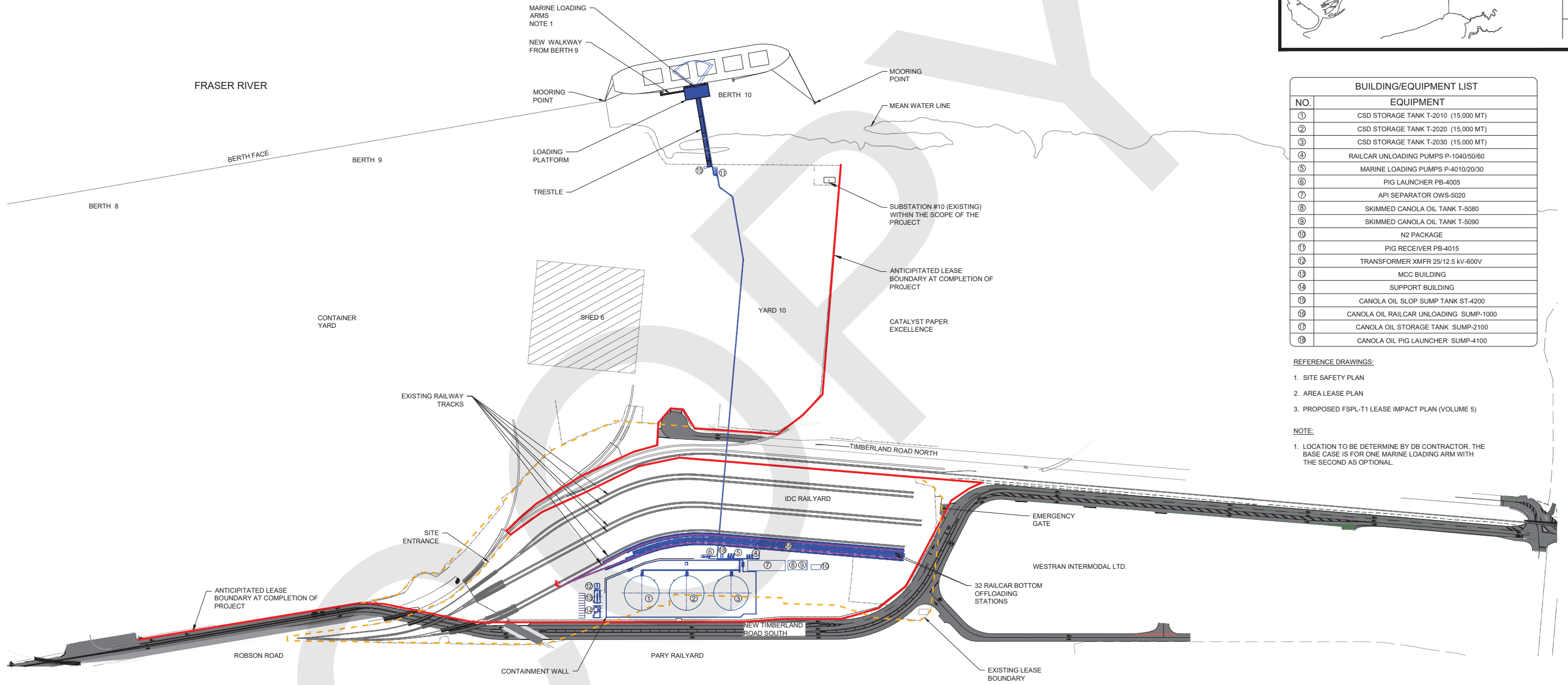
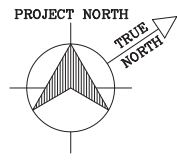
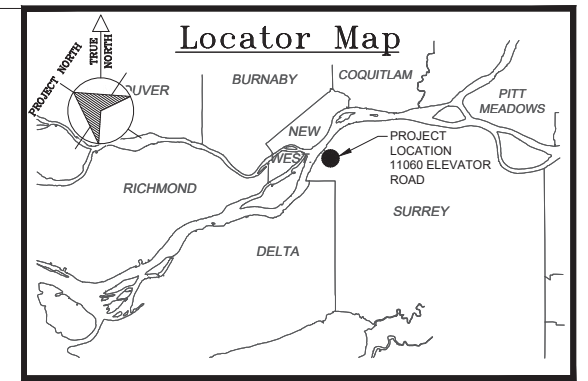
8. Conclusion

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. 22-017**.

Appendix 1: 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 between July 8, 2022 and February 19, 2023
- All plans and drawings labelled PER No.22-017 A to J

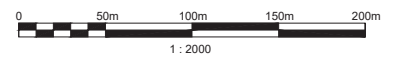


BUILDING/EQUIPMENT LIST	
NO.	EQUIPMENT
①	CSD STORAGE TANK T-2010 (15,000 MT)
②	CSD STORAGE TANK T-2020 (15,000 MT)
③	CSD STORAGE TANK T-2030 (15,000 MT)
④	RAILCAR UNLOADING PUMPS P-1040/50/60
⑤	MARINE LOADING PUMPS P-4010/20/30
⑥	PIG LAUNCHER PB-4005
⑦	API SEPARATOR OWS-5020
⑧	SKIMMED CANOLA OIL TANK T-5080
⑨	SKIMMED CANOLA OIL TANK T-5090
⑩	N2 PACKAGE
⑪	PIG RECEIVER PB-4015
⑫	TRANSFORMER XMFR 25/12.5 KV-600V
⑬	MCC BUILDING
⑭	SUPPORT BUILDING
⑮	CANOLA OIL SLOP SUMP TANK ST-4200
⑯	CANOLA OIL RAILCAR UNLOADING SUMP-1000
⑰	CANOLA OIL STORAGE TANK SUMP-2100
⑱	CANOLA OIL PIG LAUNCHER SUMP-4100

- REFERENCE DRAWINGS:
- SITE SAFETY PLAN
 - AREA LEASE PLAN
 - PROPOSED FSPL-T1 LEASE IMPACT PLAN (VOLUME 5)

NOTE:

- LOCATION TO BE DETERMINE BY DB CONTRACTOR. THE BASE CASE IS FOR ONE MARINE LOADING ARM WITH THE SECOND AS OPTIONAL.



SITE PLAN
SCALE: 1:2000

DEFINITION DRAWING ISSUED FOR TENDER NOT FOR CONSTRUCTION

PERMIT TO PRACTICE
SACRE-DAVEY ENGINEERING INC.
1003256
Engineers and Geoscientists
British Columbia

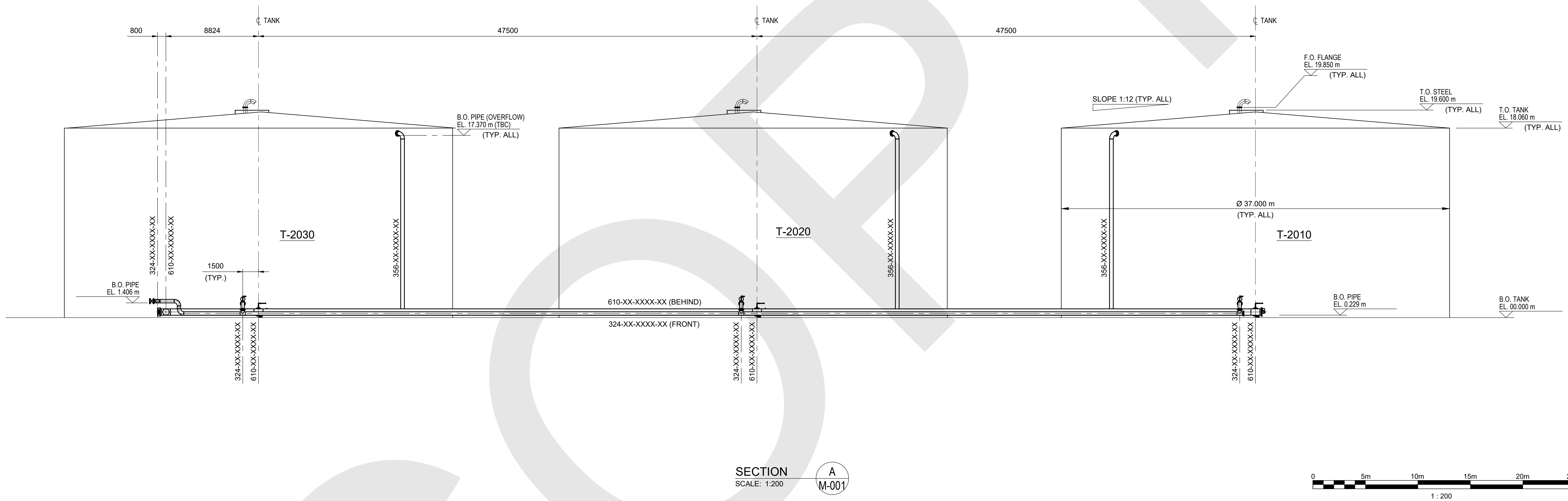
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H	JUL06/22	RE-ISSUED FOR PERMIT						TM							DP
G	JUN30/22	ISSUED FOR PERMIT						TM							DP
F	APR26/22	ISSUED FOR CLIENT REVIEW						TM							DP
E	MAR17/22	ISSUED FOR CLIENT REVIEW						RC							DP
D	MAR14/22	ISSUED FOR CLIENT REVIEW						RC							DP
M	DEC09/22	RE-ISSUED FOR TENDER						RC	KE	KE	MA				DP
L	OCT24/22	ISSUED FOR APPROVAL						FP							DP
K	SEP29/22	ISSUED FOR APPROVAL						SN				KE			DP



CONSULTANT			
TITLE			
CANOLA OIL TRANSLOAD FACILITY GENERAL ARRANGEMENT			
DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
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ISSUED FOR APPROVAL

NOT FOR CONSTRUCTION

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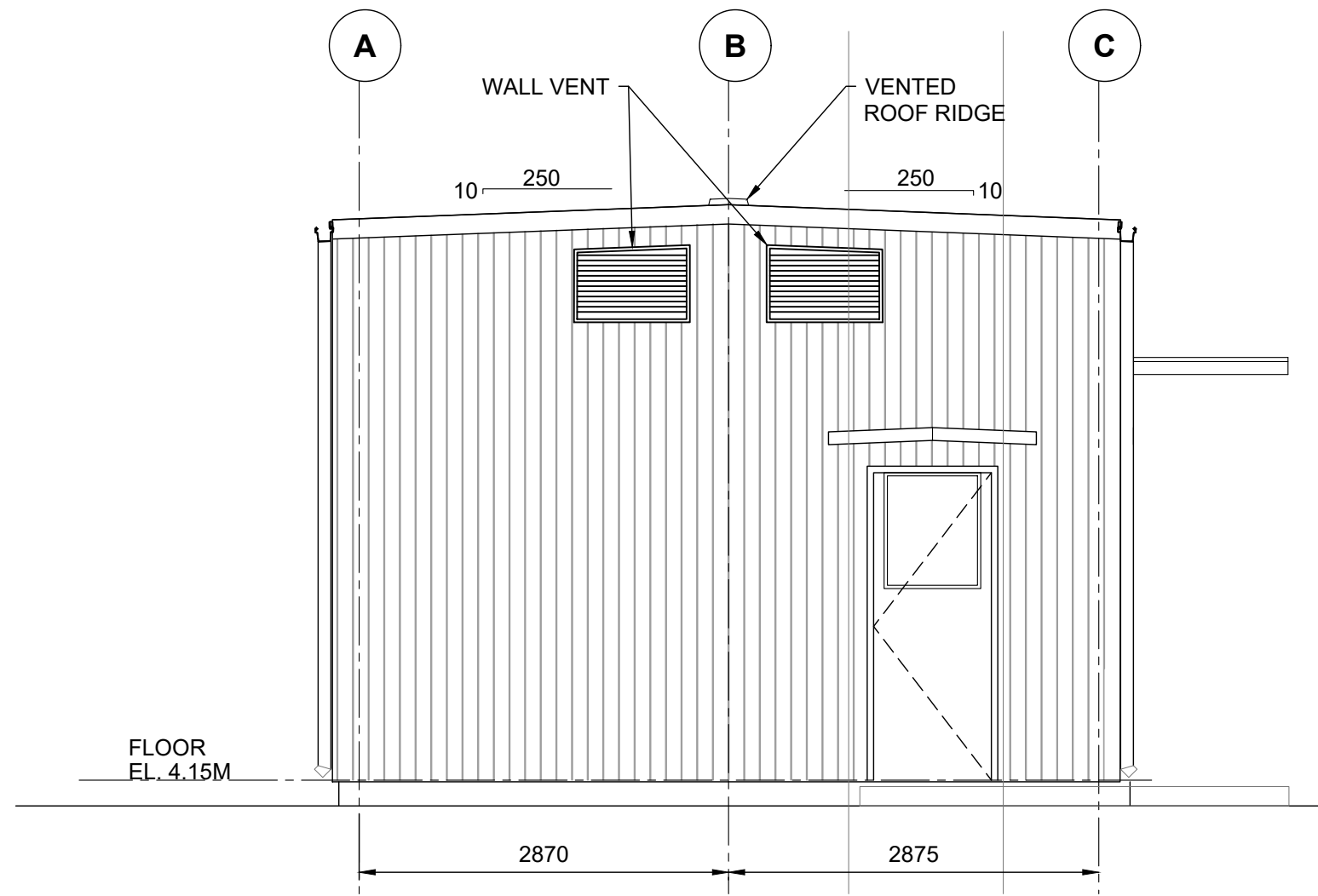
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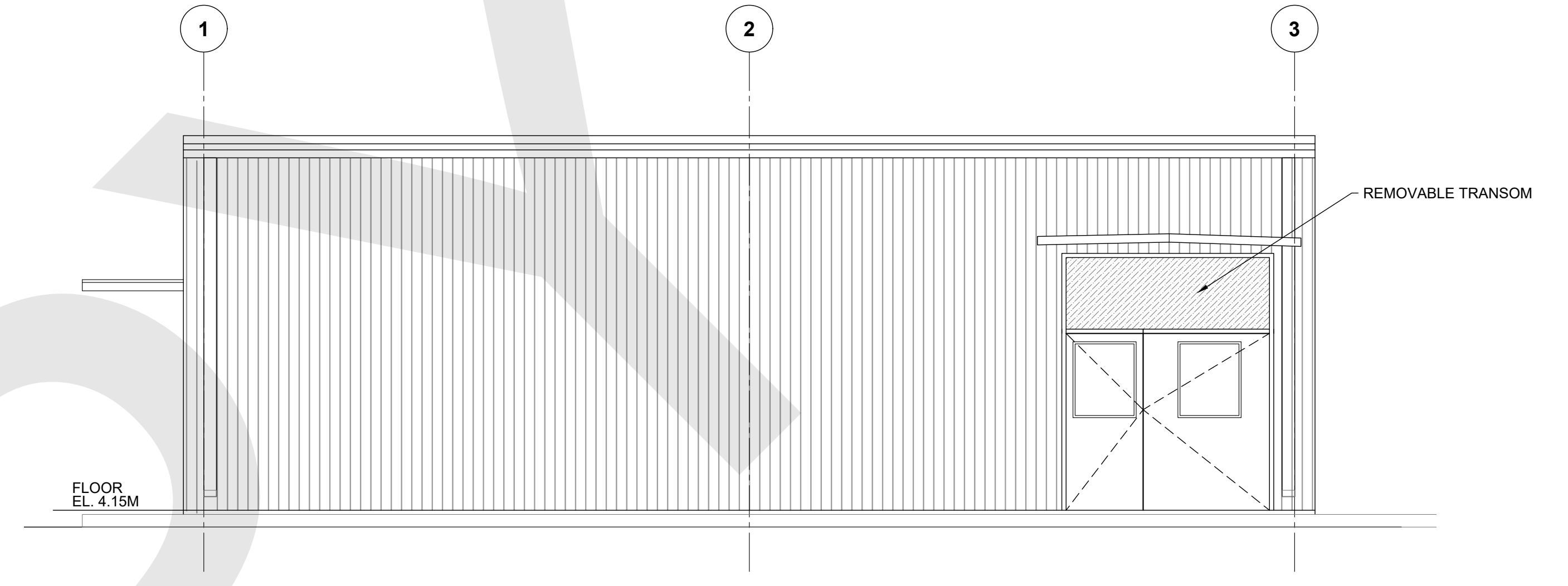
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A	AUG10/22	ISSUED FOR TENDER						SN	KE		



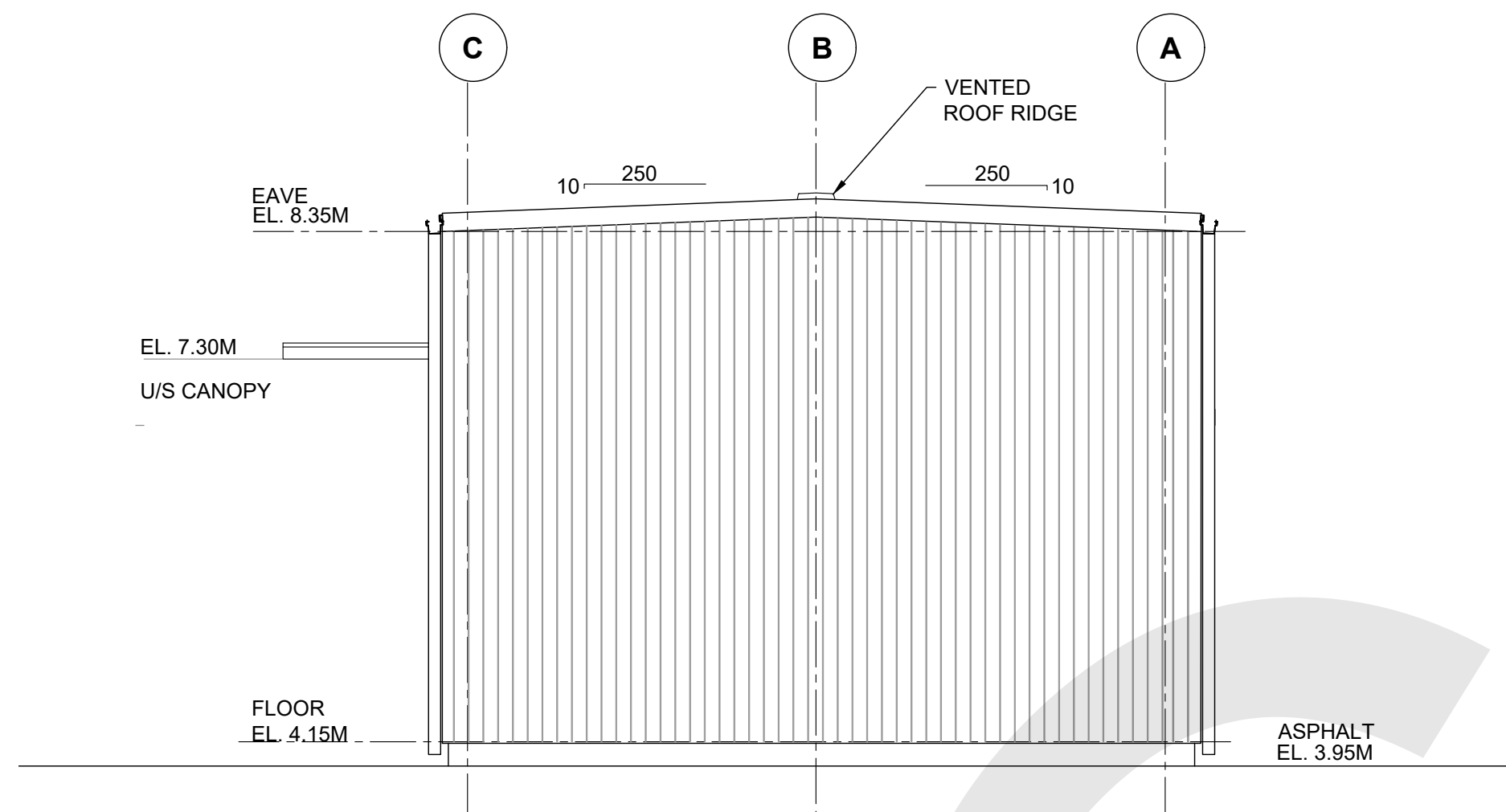
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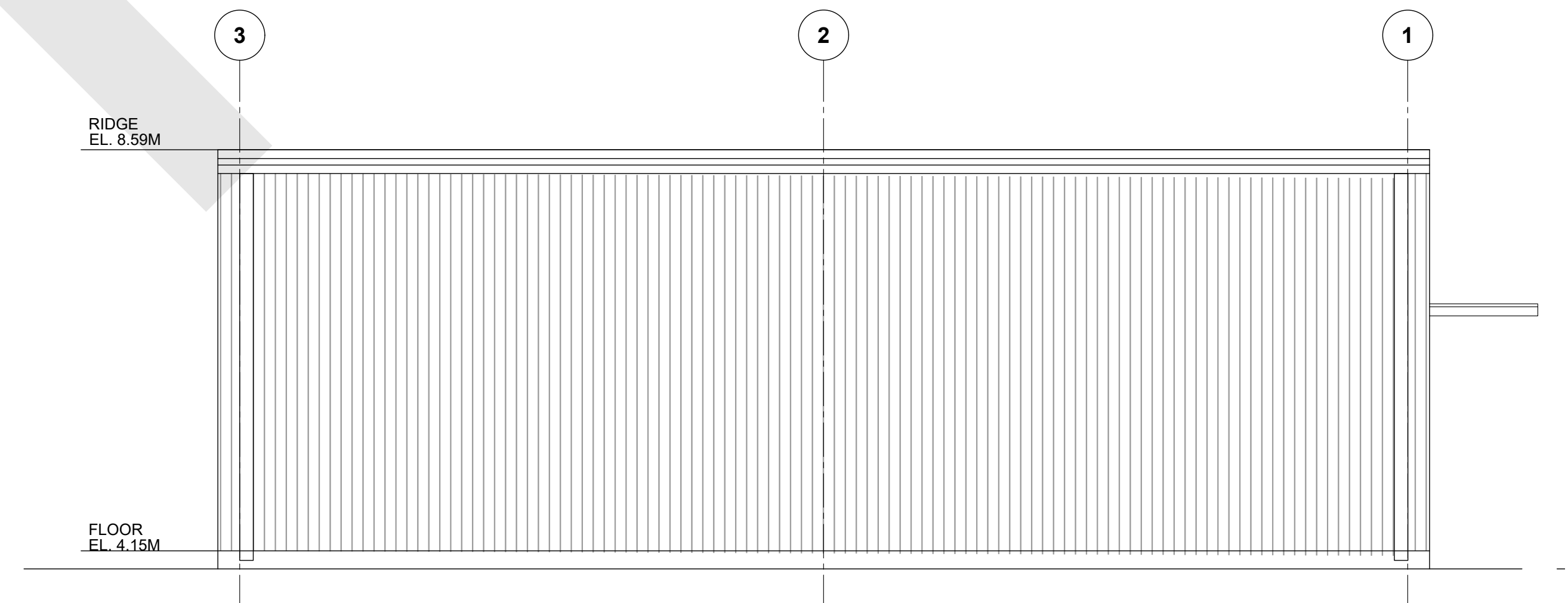
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WEST ELEVATION
SCALE: 1:50



SOUTH ELEVATION
SCALE: 1:50



EAST ELEVATION
SCALE: 1:50

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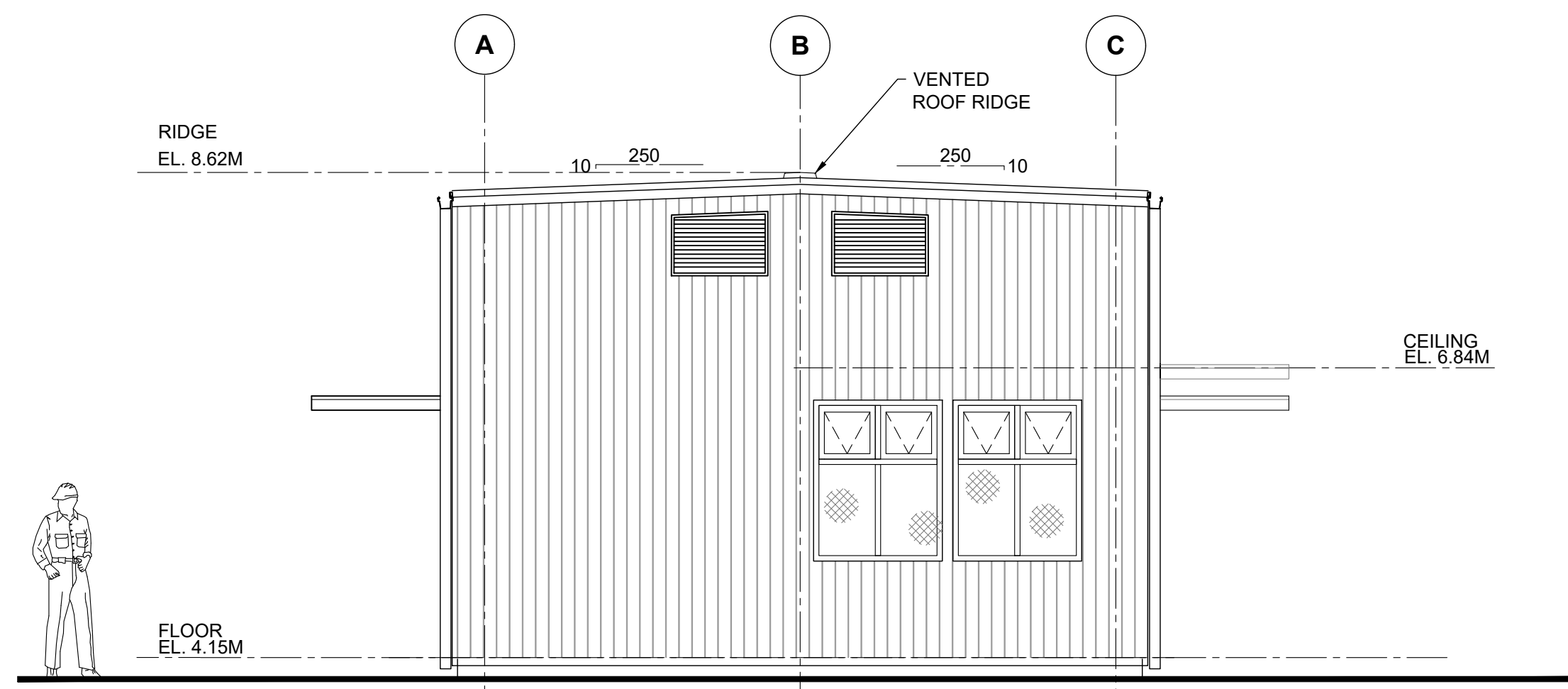
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ISSUE / REVISIONS															



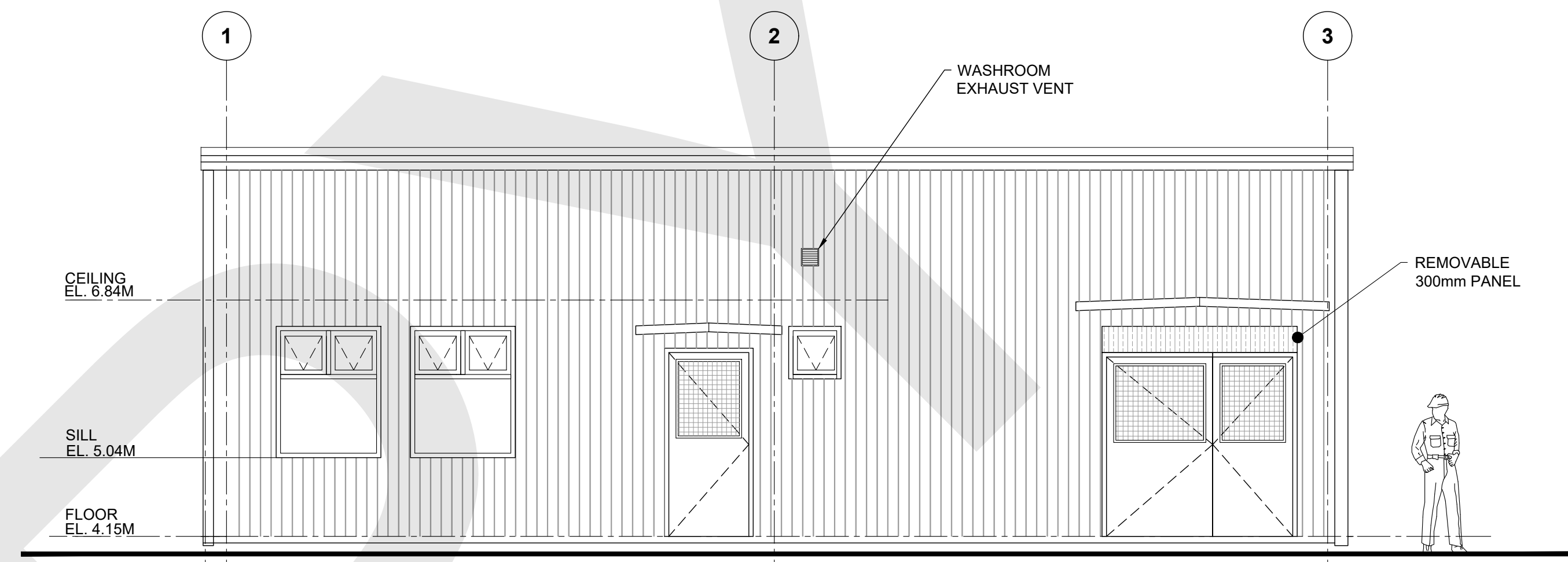
CONSULTANT
SACRÉ DAVEY

TITLE CANOLA OIL TRANSLOAD FACILITY
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ARCHITECTURAL
BUILDING ELEVATIONS

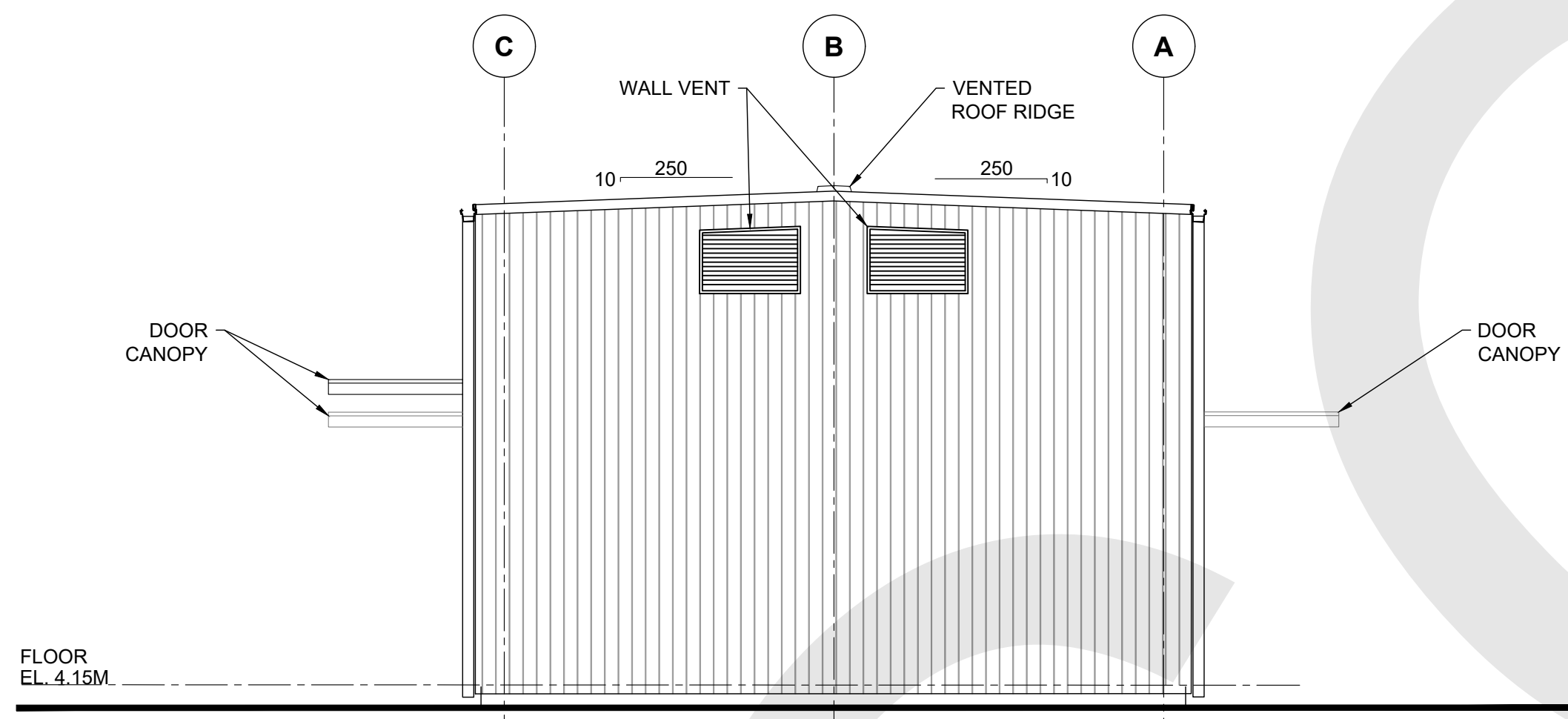
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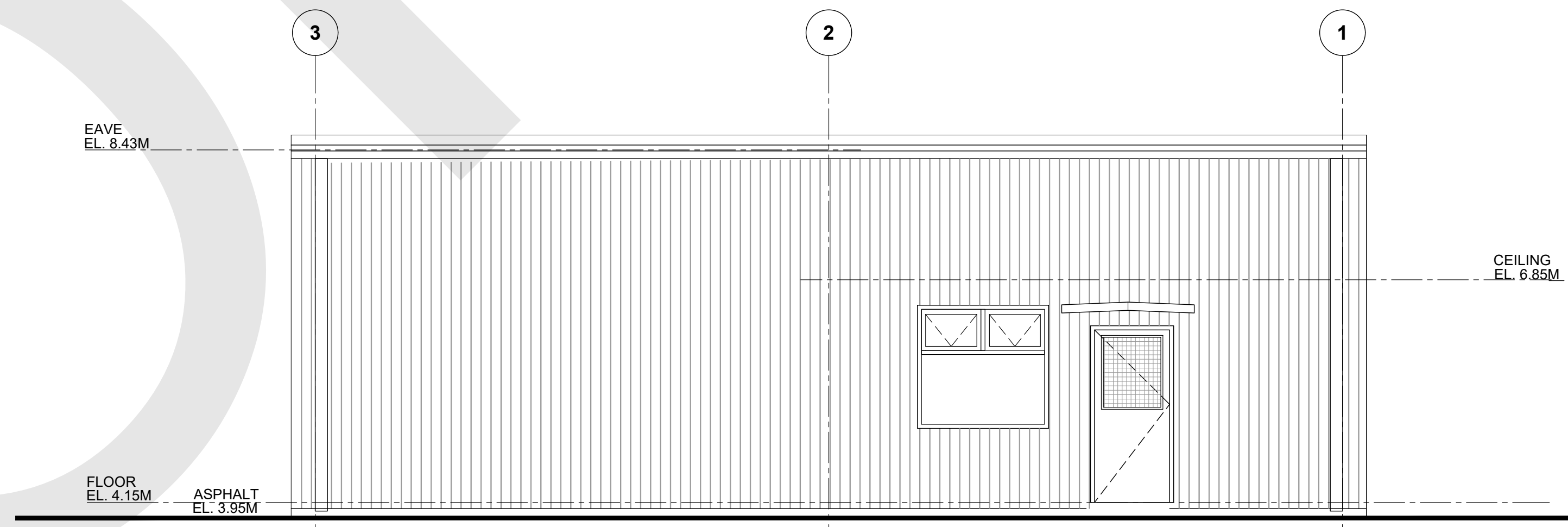
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WEST ELEVATION
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SOUTH ELEVATION
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EAST ELEVATION
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PROFESSIONAL SEAL

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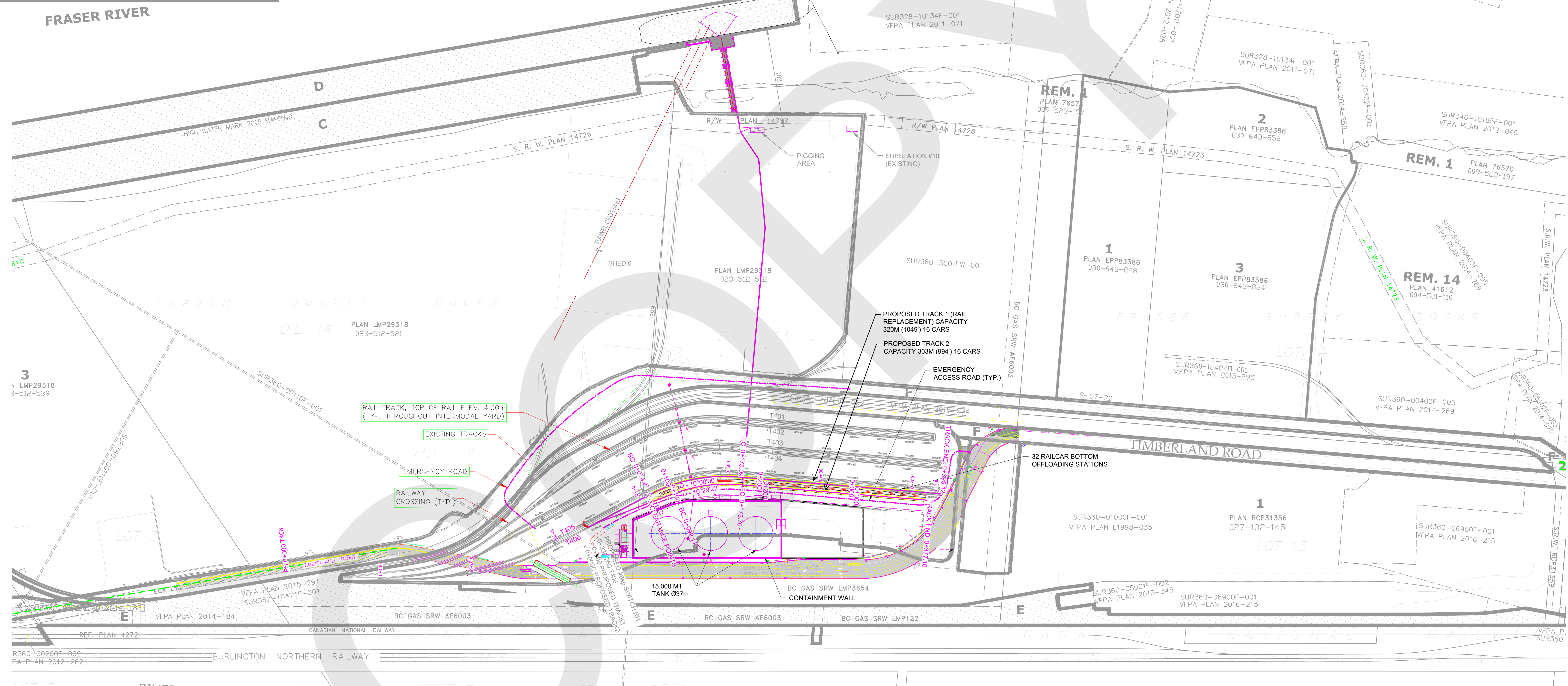
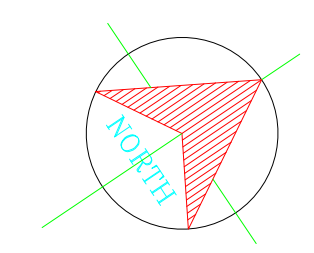
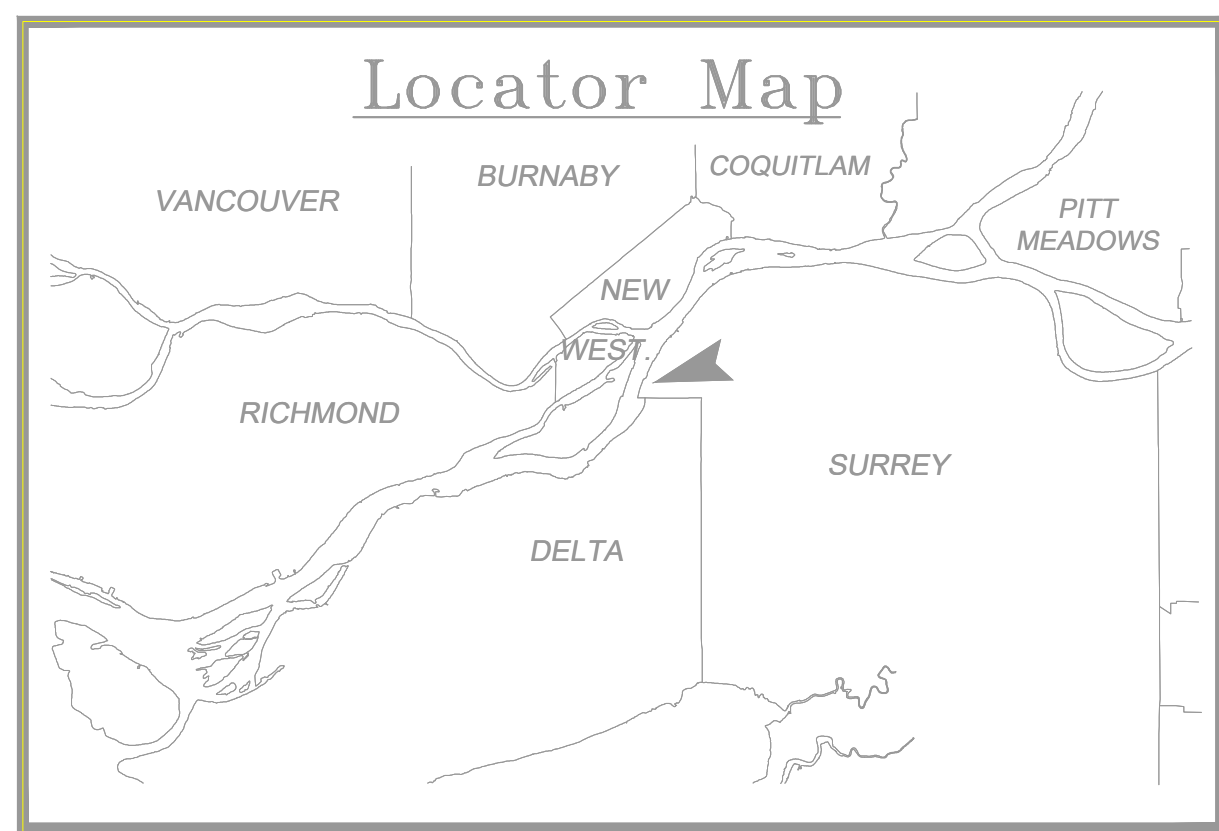


CONSULTANT



TITLE: CANOLA OIL TRANSLOAD FACILITY
SUPPORT BUILDING
ARCHITECTURAL
BUILDING ELEVATIONS

DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
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LEGEND

— NEW

— EXISTING

CONCEPTUAL - FOR DISCUSSION ONLY

YYYY/MM/DD

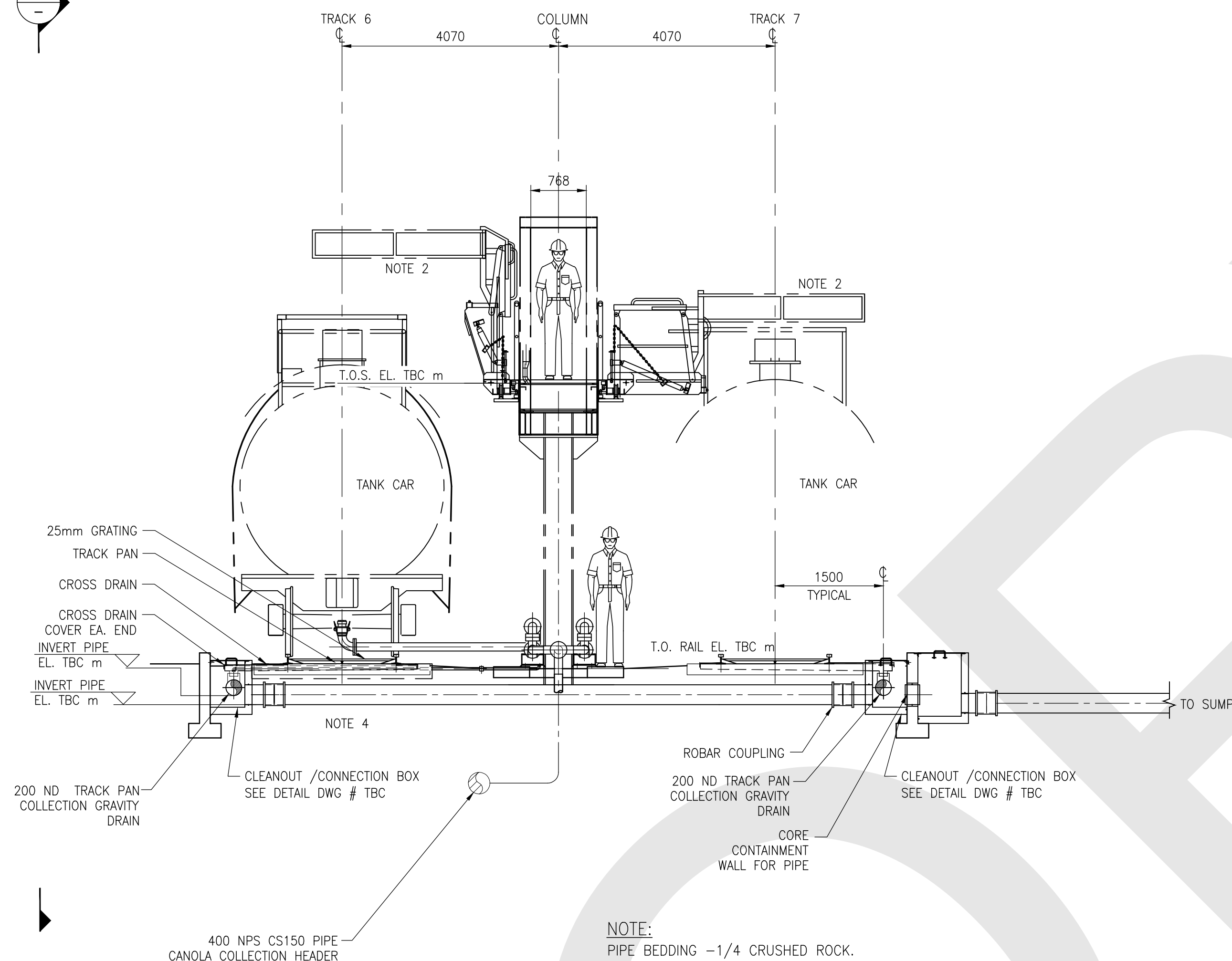
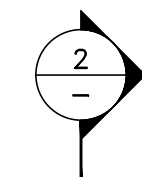
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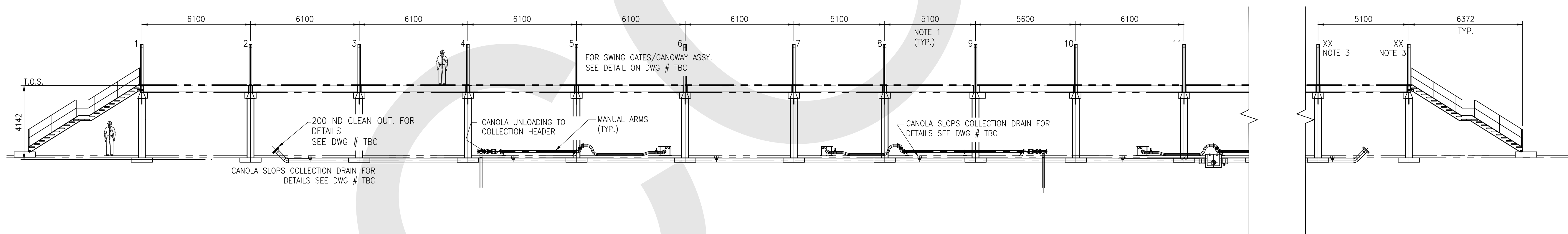
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1:2000	7819	7819-SK-GA-001	A



NOTES:

1. ALL DIMENSIONS TO BE CONFIRMED AT DETAILED ENGINEERING STAGE.
2. SLIDING PLATFORM.
3. PLATFORM SUPPORT QUANTITY TO BE CONFIRMED AT DETAILED ENGINEERING STAGE.
4. FOR FOUNDATION DETAILS SEE DWG 7704-STR-005, SECTION 2.

SECTION 1
SCALE: NTS



SECTION 2
SCALE: 1:125

ISSUED FOR APPROVAL

NOT FOR CONSTRUCTION

PROFESSIONAL SEAL

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No.	DATE	DESCRIPTION	DRAWN	CHK'D	DESIGN	CHK'D	APP'D
ISSUE / REVISIONS							

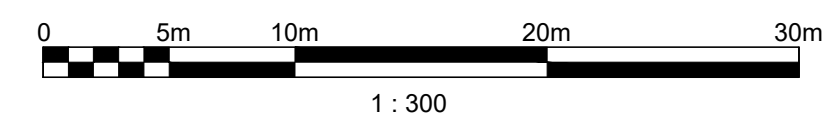
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B	SEP29/22	ISSUED FOR APPROVAL					
A	SEP09/22	ISSUED FOR REVIEW					
ISSUE / REVISIONS							



CONSULTANT			
TITLE			
CANOLA OIL TRANSLOAD RAIL UNLOADING SECTIONS			
DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
AS NOTED	7704	7704-M-005	C



ISSUED FOR TENDER
NOT FOR CONSTRUCTION



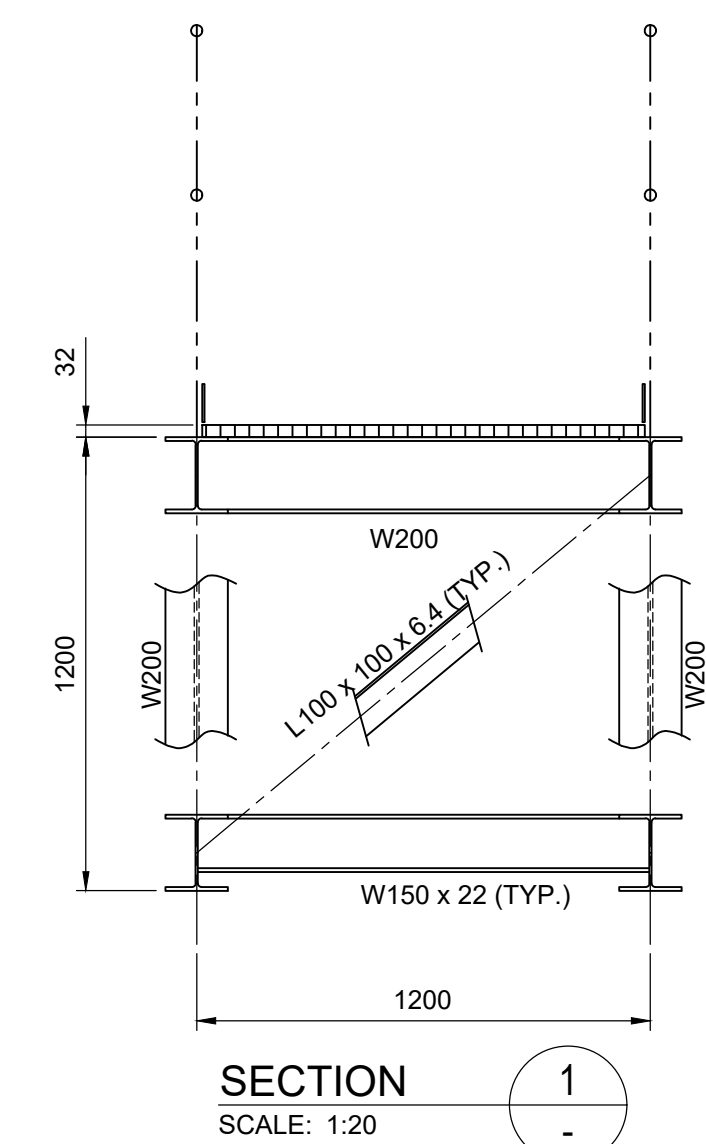
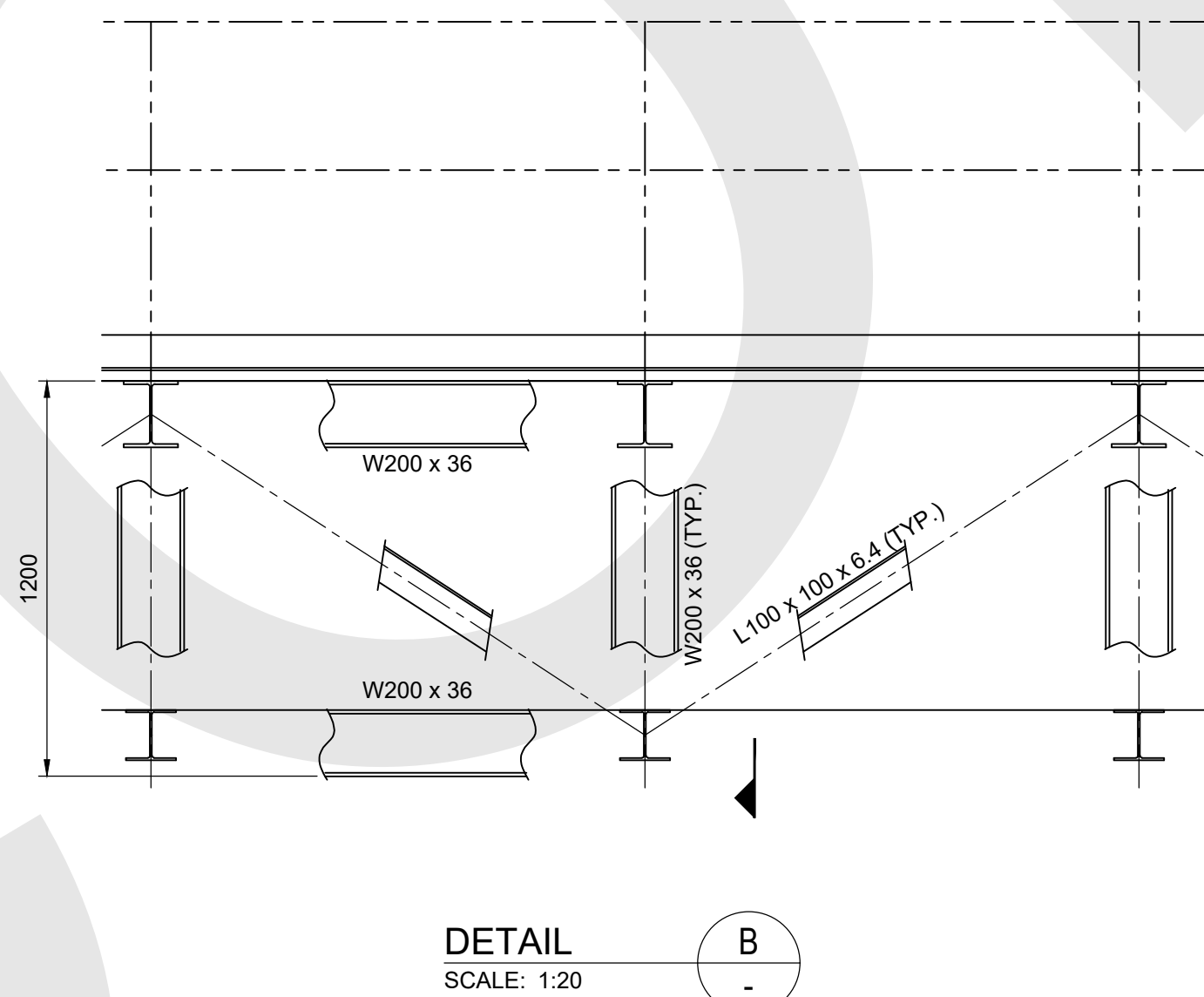
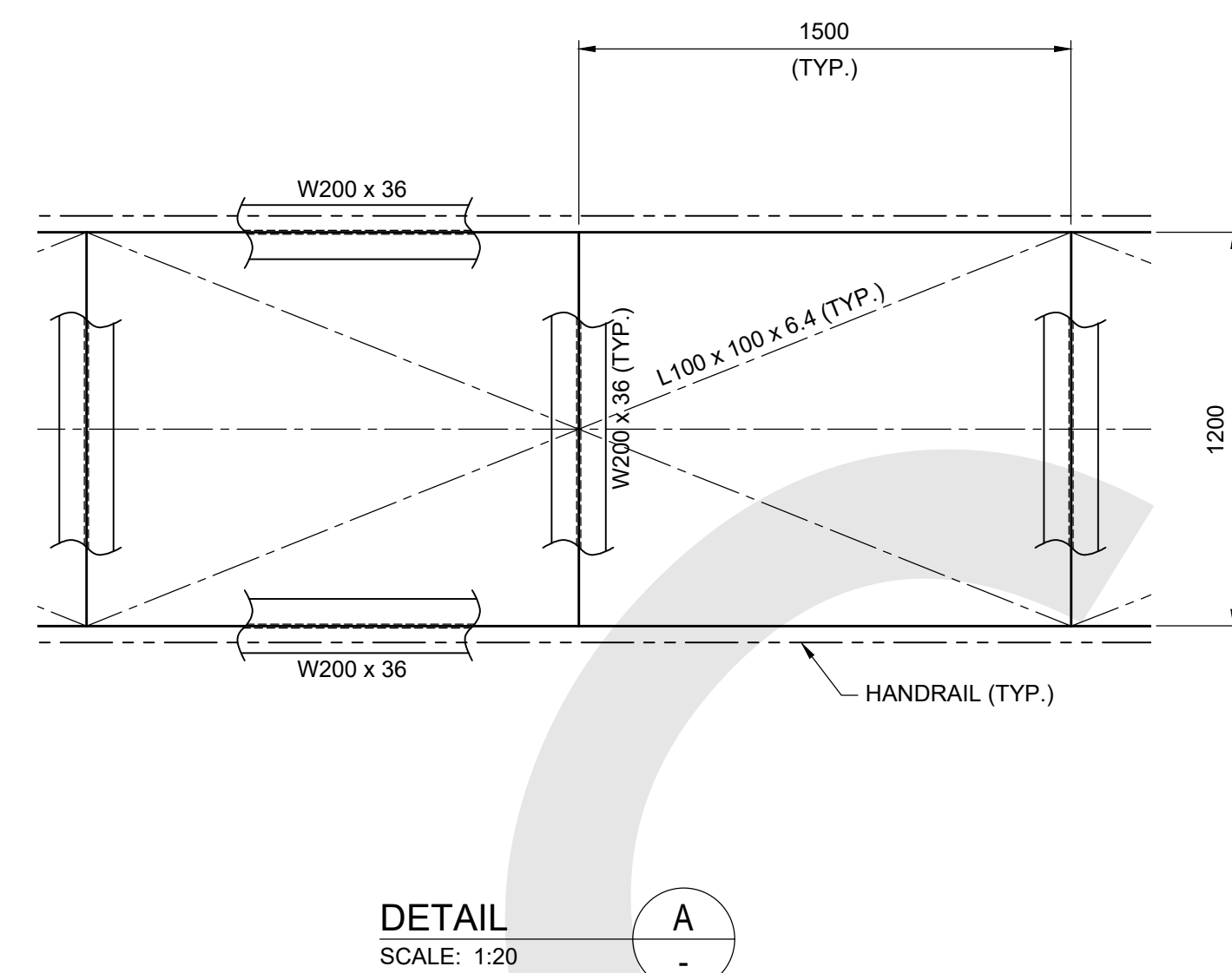
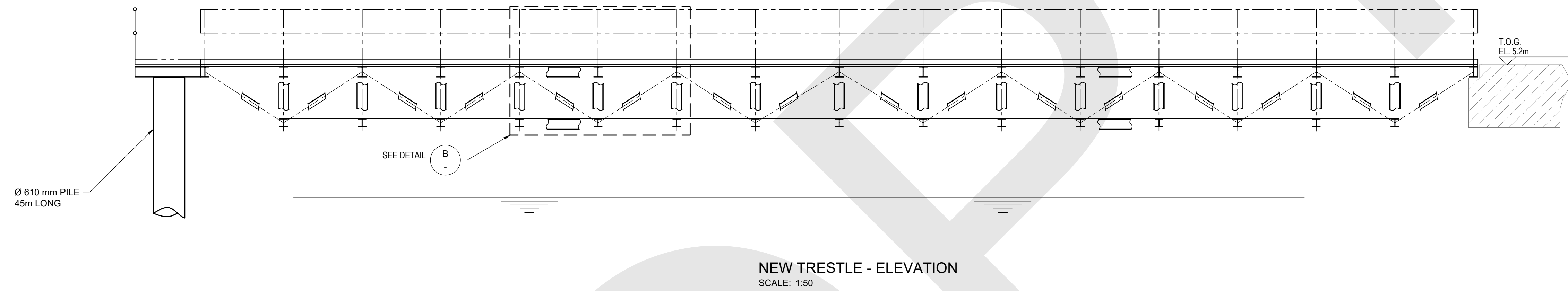
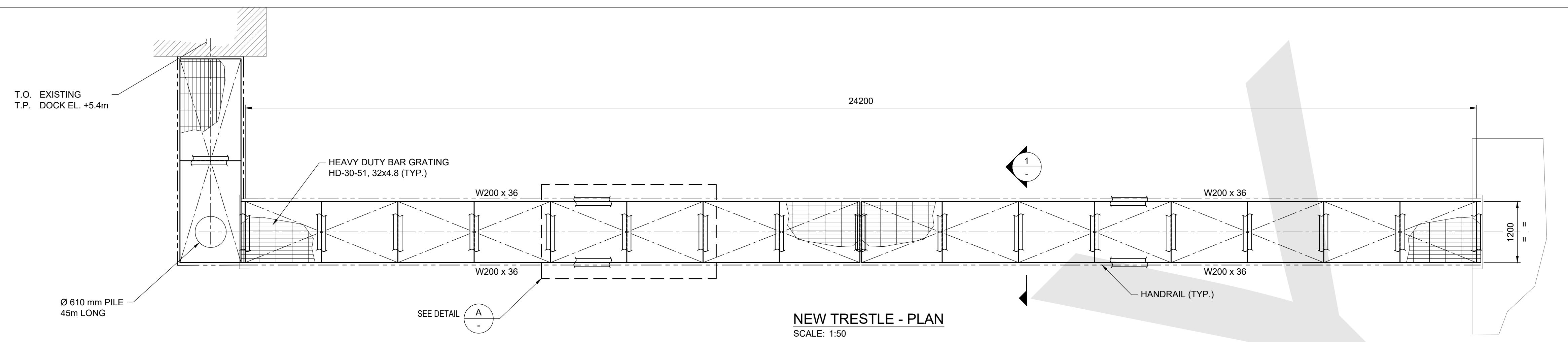
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PROFESSIONAL SEAL						VANCOUVER FRASER PORT AUTHORITY					
						This drawing has been reviewed by the Vancouver Fraser Port Authority solely for the purpose of VFPA's issuance of a Project Permit. This permit in no way denotes design, engineering or structural approval or endorsement.					
No.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'D	No.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'D
ISSUE / REVISIONS						ISSUE / REVISIONS					

E	AUG08/22	ISSUED FOR TENDER	PP	PC	VB	-	DP
D	JUL15/22	RE-ISSUED FOR PERMIT	PP	PC	VB	-	DP
C	JUN30/22	ISSUED FOR PERMIT	PP	PC	VB	-	DP
B	MAR25/22	ISSUED FOR CLIENT REVIEW	TH	PC	VB	-	DP
A	NOV12/21	ISSUED FOR CLIENT REVIEW	RC	PC	PC	-	DP



CONSULTANT			
TITLE			
CANOLA OIL TRANSLOAD FACILITY LOADING DECK GENERAL ARRANGEMENT			
DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
1:300	7704	7704-STR-001	E



ISSUED FOR TENDER
NOT FOR CONSTRUCTION

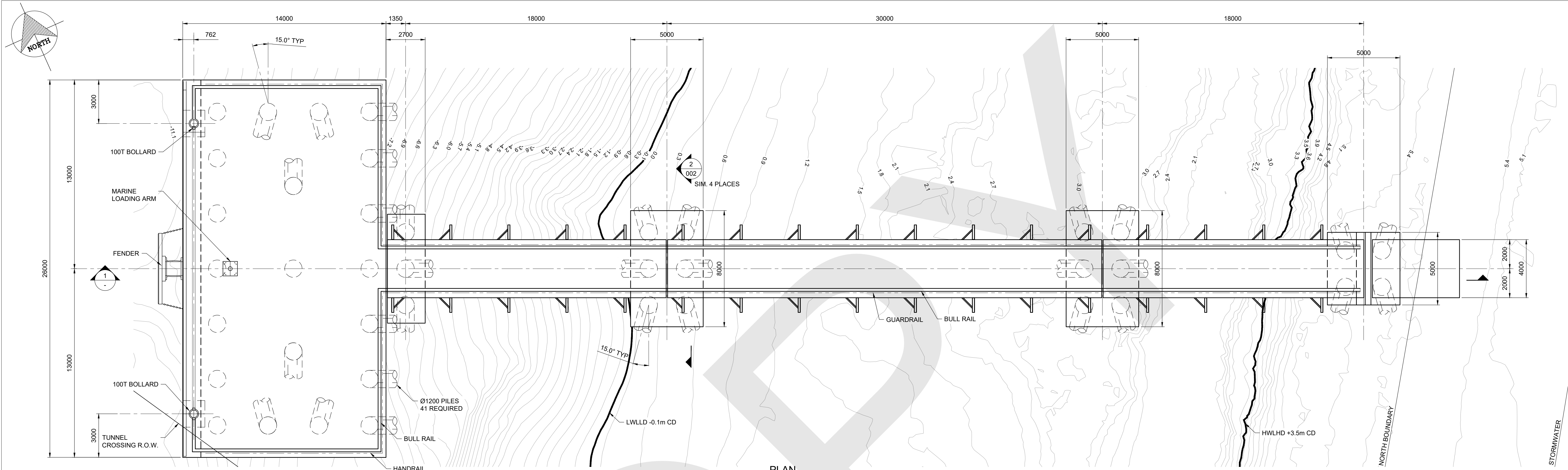
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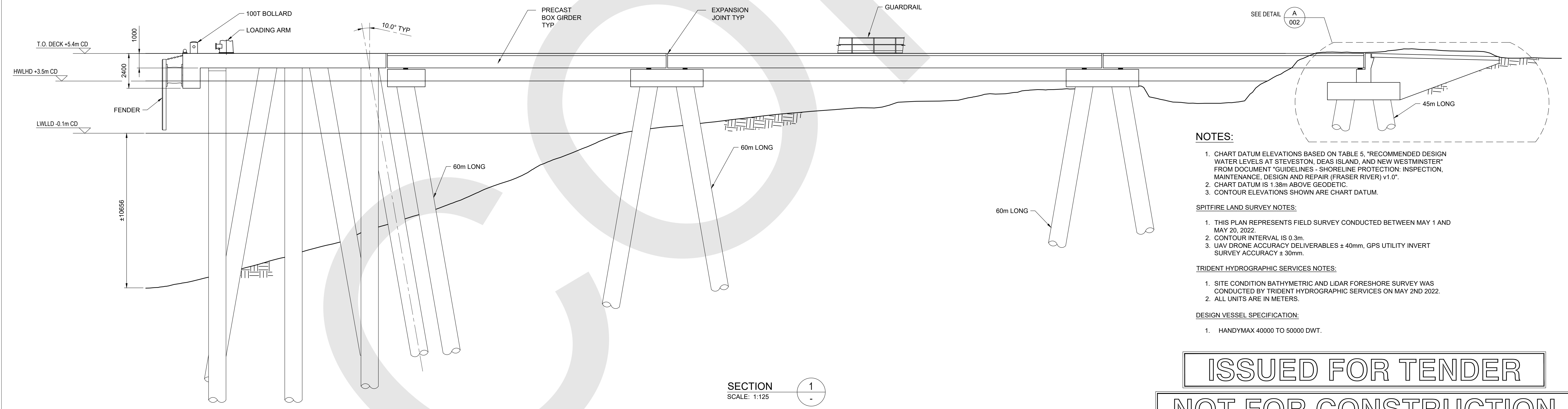
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C	JUN30/22	ISSUED FOR PERMIT		PP	PC	PC	-	DP
B	MAR25/22	ISSUED FOR CLIENT REVIEW		TH	PC	PC	-	DP
A	NOV12/21	ISSUED FOR CLIENT REVIEW		RC	PC	PC	-	DP



CONSULTANT			
TITLE			
CANOLA OIL TRANSLOAD FACILITY NEW TRESTLE			
DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NOTED	7704	7704-STR-003	D



PLAN
SCALE: 1:125



SECTION
SCALE: 1:125

- NOTES:**
- CHART DATUM ELEVATIONS BASED ON TABLE 5, "RECOMMENDED DESIGN WATER LEVELS AT STEVESTON, DEAS ISLAND, AND NEW WESTMINSTER" FROM DOCUMENT "GUIDELINES - SHORELINE PROTECTION: INSPECTION, MAINTENANCE, DESIGN AND REPAIR (FRASER RIVER) v1.0".
 - CHART DATUM IS 1.38m ABOVE GEODETIC.
 - CONTOUR ELEVATIONS SHOWN ARE CHART DATUM.
- SPITFIRE LAND SURVEY NOTES:**
- THIS PLAN REPRESENTS FIELD SURVEY CONDUCTED BETWEEN MAY 1 AND MAY 20, 2022.
 - CONTOUR INTERVAL IS 0.3m.
 - UAV DRONE ACCURACY DELIVERABLES ± 40mm, GPS UTILITY INVERT SURVEY ACCURACY ± 30mm.
- TRIDENT HYDROGRAPHIC SERVICES NOTES:**
- SITE CONDITION BATHYMETRIC AND LIDAR FORESHORE SURVEY WAS CONDUCTED BY TRIDENT HYDROGRAPHIC SERVICES ON MAY 2ND 2022.
 - ALL UNITS ARE IN METERS.
- DESIGN VESSEL SPECIFICATION:**
- HANDYMAX 40000 TO 50000 DWT.

ISSUED FOR TENDER

NOT FOR CONSTRUCTION

File name: Z:\Jobs\A To H\DP-World_Canada\7704_Canola Oil Study\9 Drawings\5 CAD\4 Struct\7704-STR-004.dwg - 7704-STR-004
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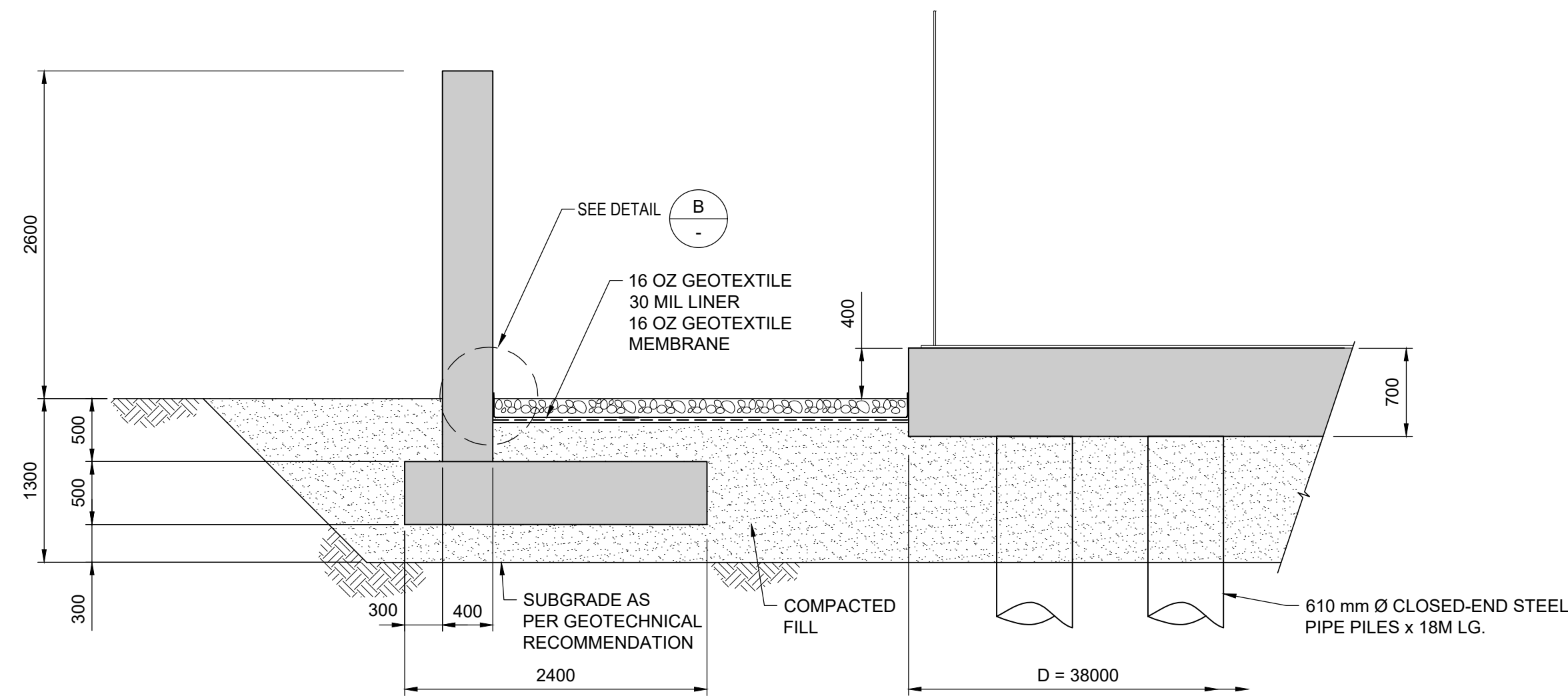
PROFESSIONAL SEAL

VANCOUVER FRASER PORT AUTHORITY
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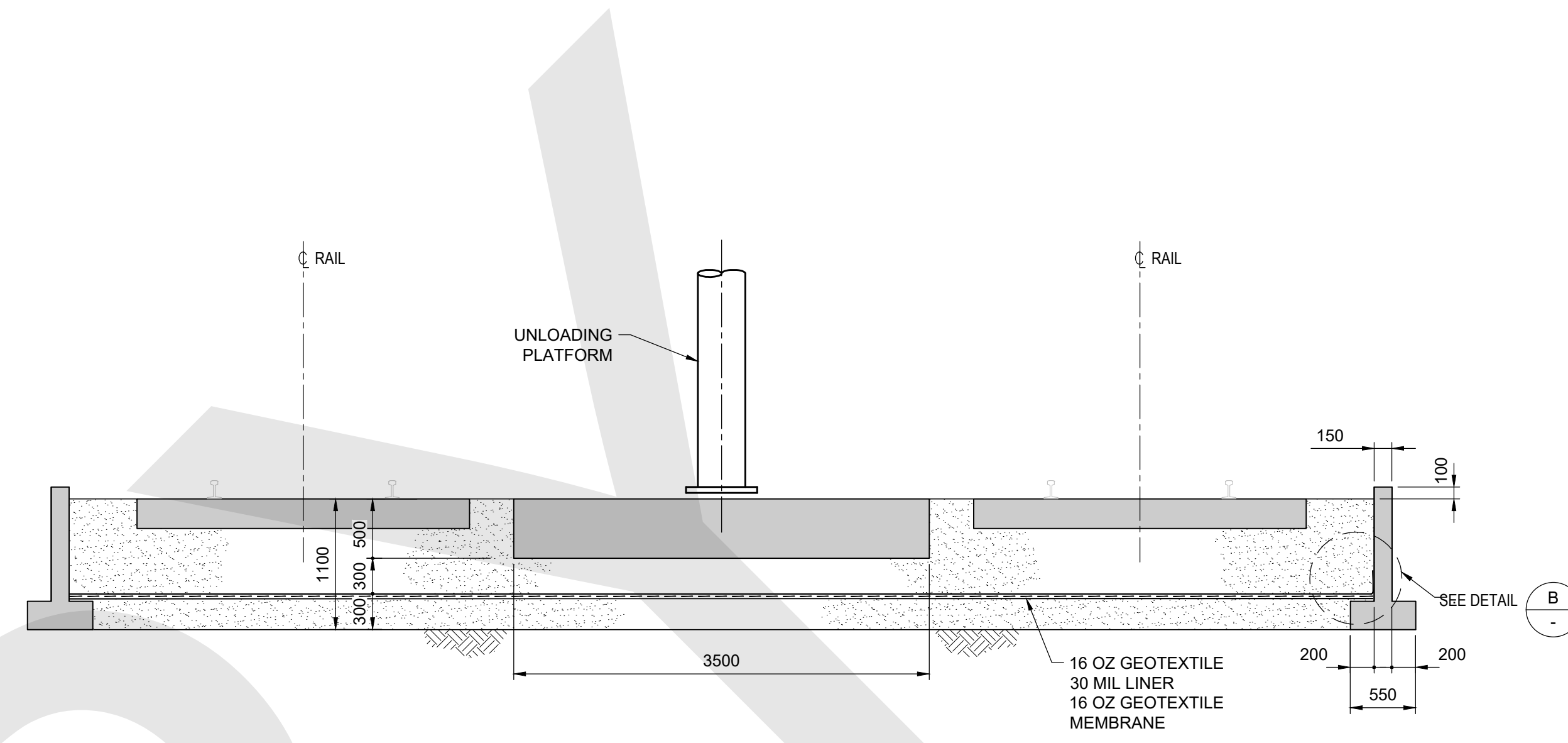


CONSULTANT			
TITLE			
CANOLA OIL TRANSLOAD FACILITY NEW LOADING ARM DECK AND TRESTLE			
DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NOTED	7704	7704-STR-004	J



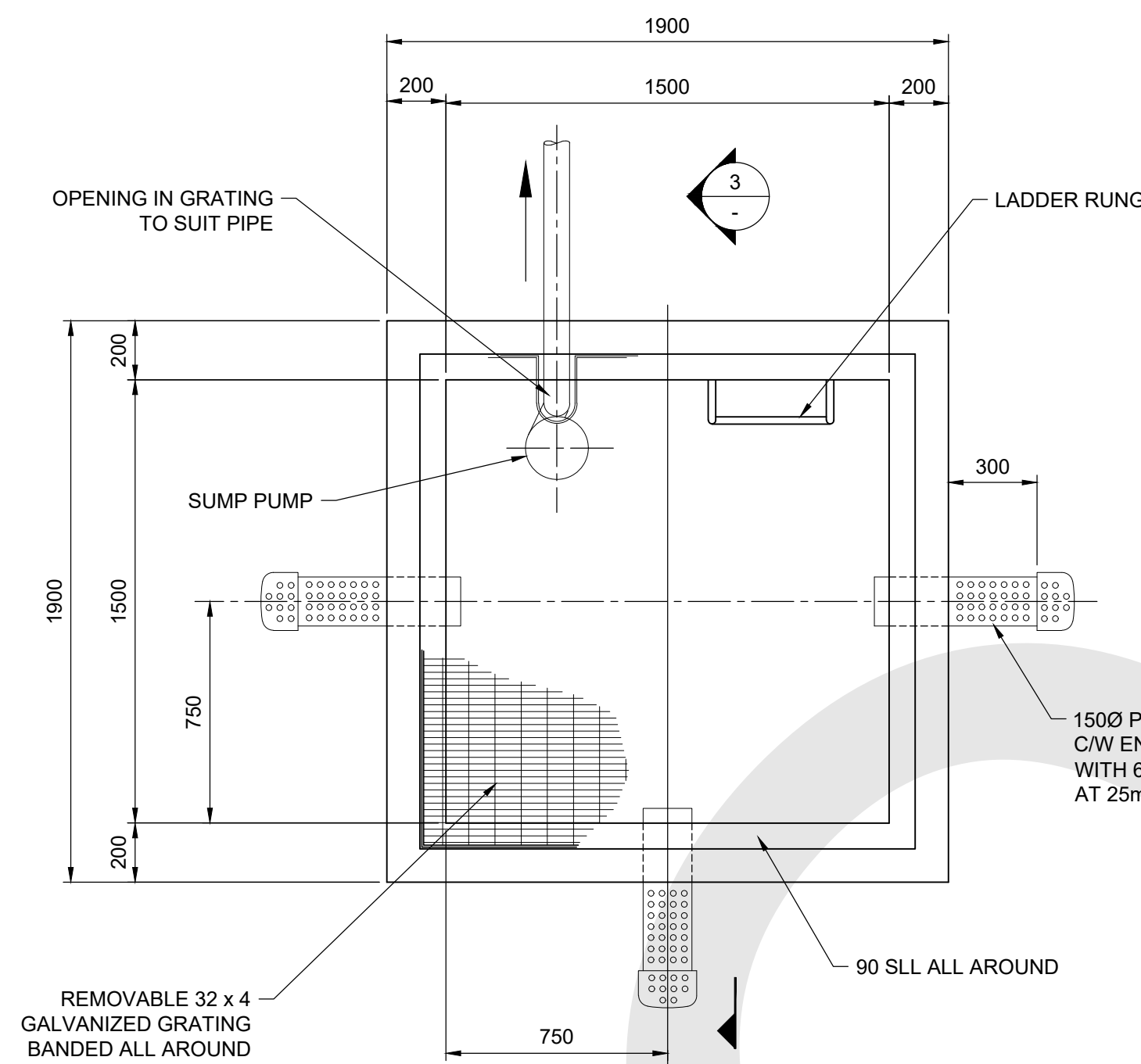
SECONDARY CONTAINMENT

SECTION 1
SCALE: 1:40
GA-001



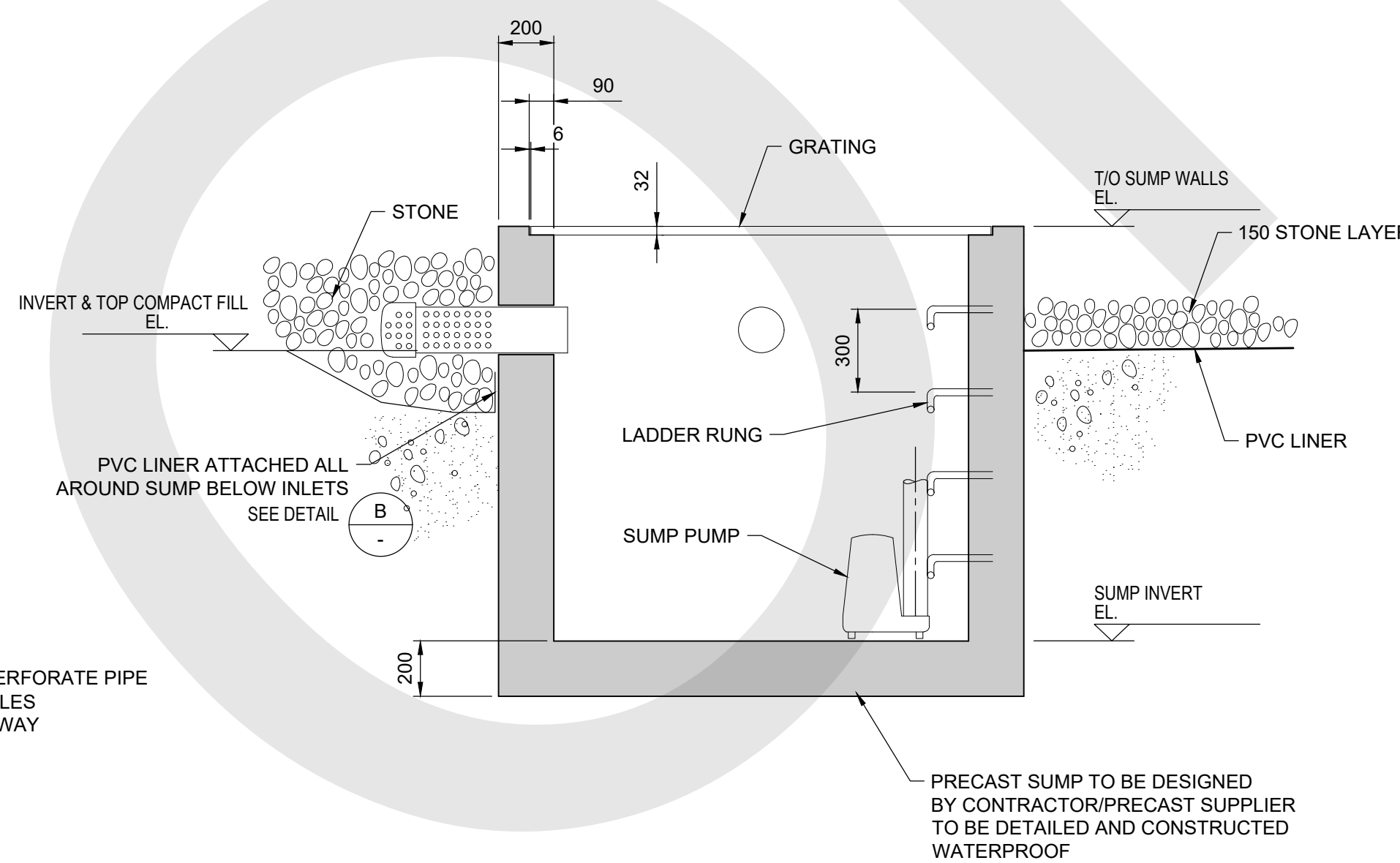
RAIL CONTAINMENT

SECTION 2
SCALE: 1:40
GA-001

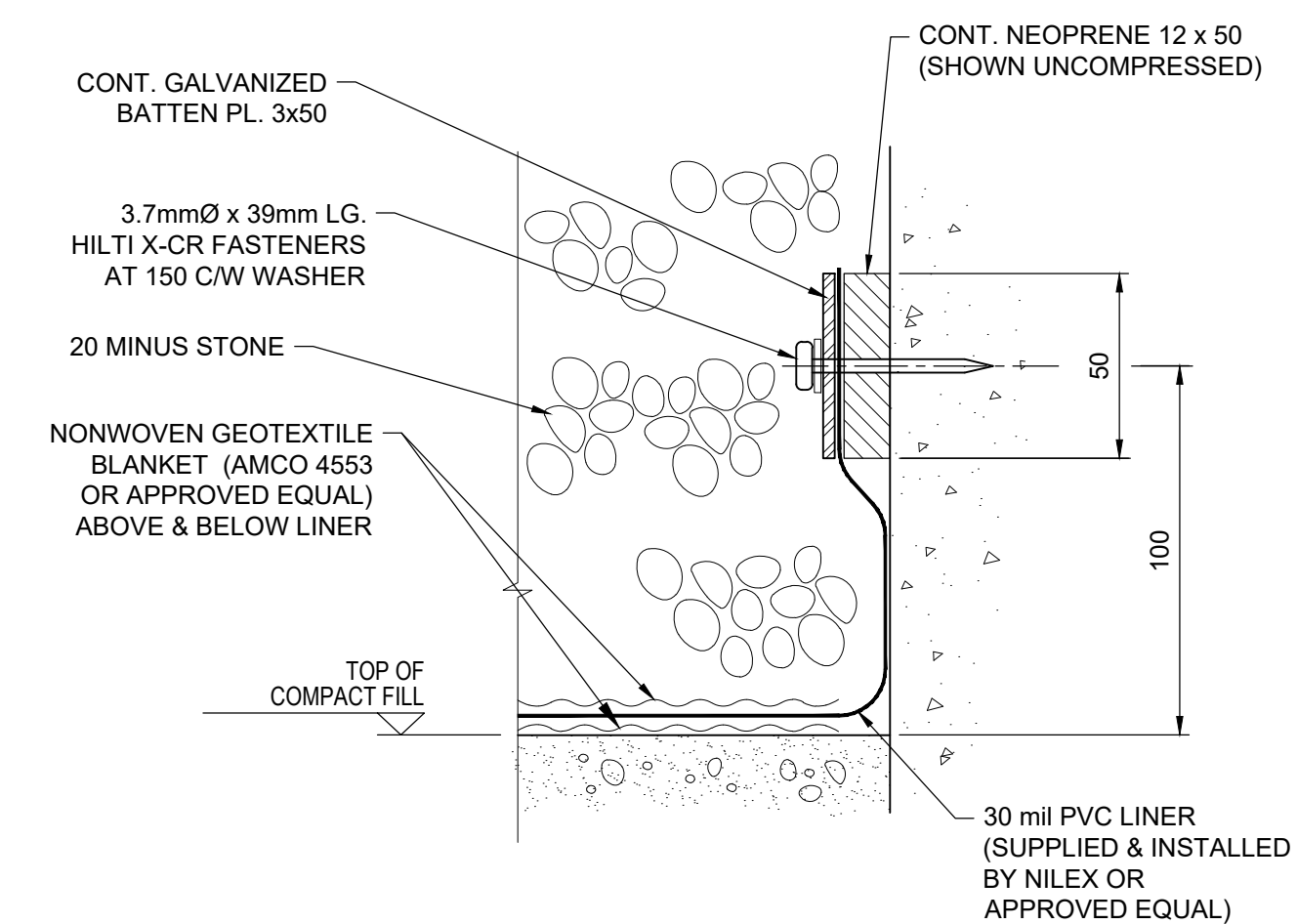


SUMP - PLAN

DETAIL A
SCALE: 1:20
GA-001



SECTION 3
SCALE: 1:40



DETAIL B
SCALE: 1:2

TYPICAL LINER AT CONTAINMENT WALL, FOOTINGS & CONCRETE SUMP

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

Filename: Z:\Jobs\A To H\DP World Canada\7704\Struct\7704-STR-005.dwg - Layout
Last Saved: Aug-08/22 12:30pm Plotted: Aug-08/22

No.	DATE	DESCRIPTION	DRAWN	CHK'D	DESIGN	CHK'D	APP'D
ISSUE / REVISIONS							

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ISSUE / REVISIONS							
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C	JUN30/22	ISSUED FOR PERMIT	PP	PC	PC	-	DP
B	MAR25/22	ISSUED FOR CLIENT REVIEW	TH	PC	PC	-	DP
A	NOV12/21	ISSUED FOR CLIENT REVIEW	RC	PC	PC	-	DP




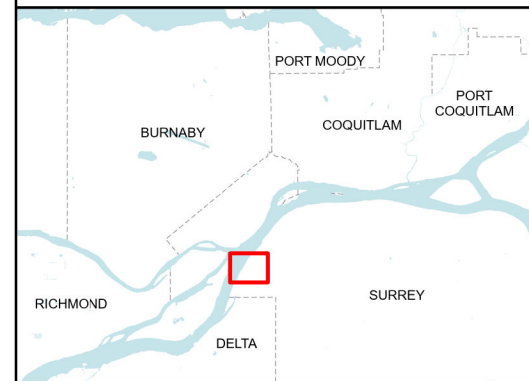
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TITLE			
CANOLA OIL TRANSLOAD FACILITY STRUCTURAL DETAILS SHEET 1			
DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NOTED	7704	7704-STR-005	D

Appendix 2: Location plan

COPY

**PER No. 22-017
Canola Oil Transload
Facility - Fraser Surrey**

-  VFPA Boundary
-  Project Location



**PORT of
vancouver**

Vancouver Fraser
Port Authority

Spatial Data Group
Prepared by: MGM
Created: November 10, 2022
Last updated: November 10, 2022
PLAN# G2022-082

