

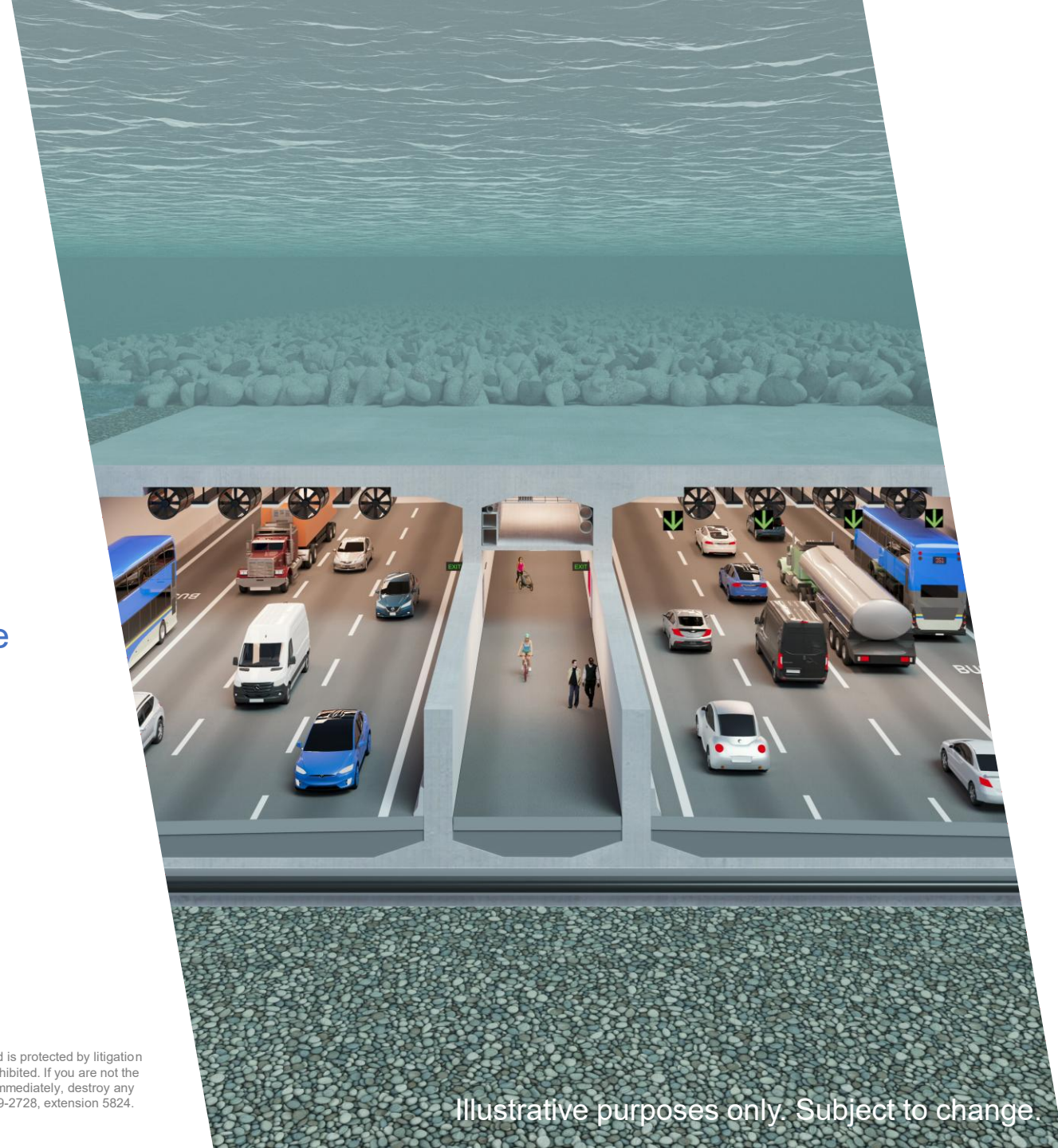
Fraser River Tunnel Project

Project Planning and Overview of
2026/2027 Early Construction Works

Marine Users Group
April 2nd, 2026

Agenda

1. Project Organization
2. Terms of Reference and Communication (Transparent and Accountable Approach)
3. Construction Works & Ongoing Marine Planning
4. Design Vessel Identification & Ship Grounding Study
5. Upcoming Early Works
6. Next Steps / Moving Forward



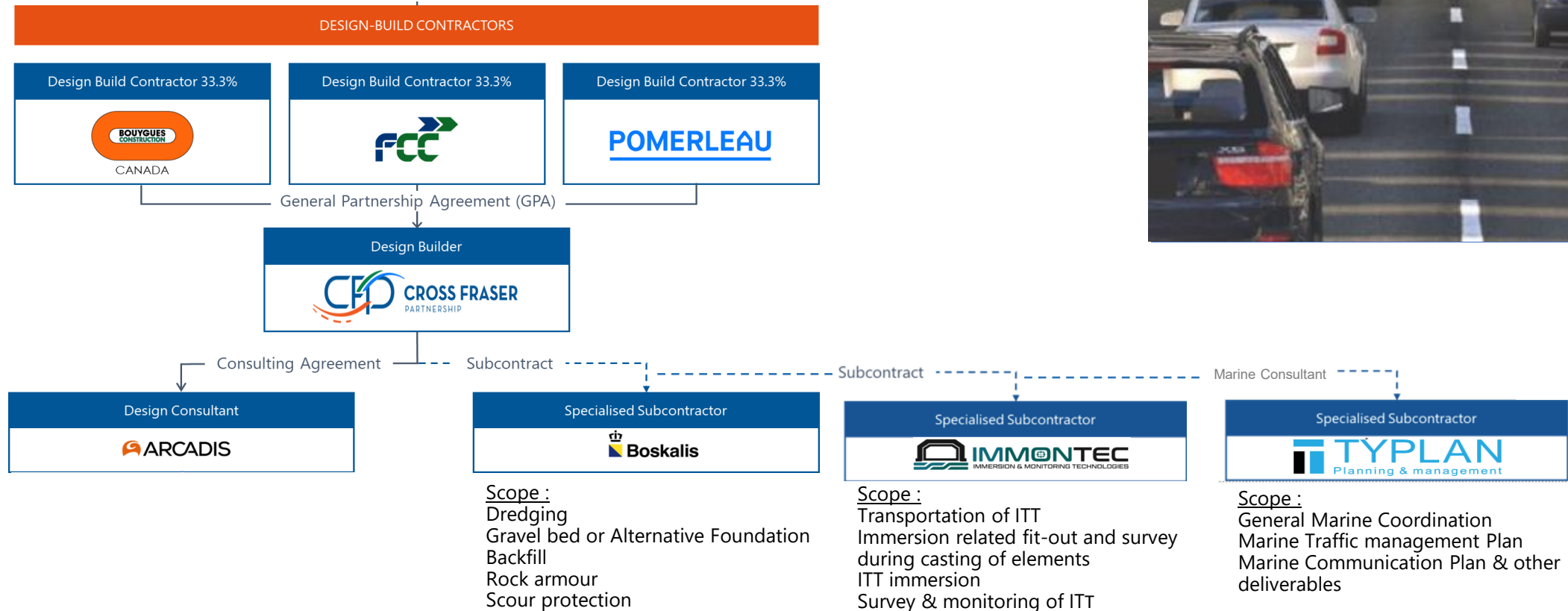
Project Organization



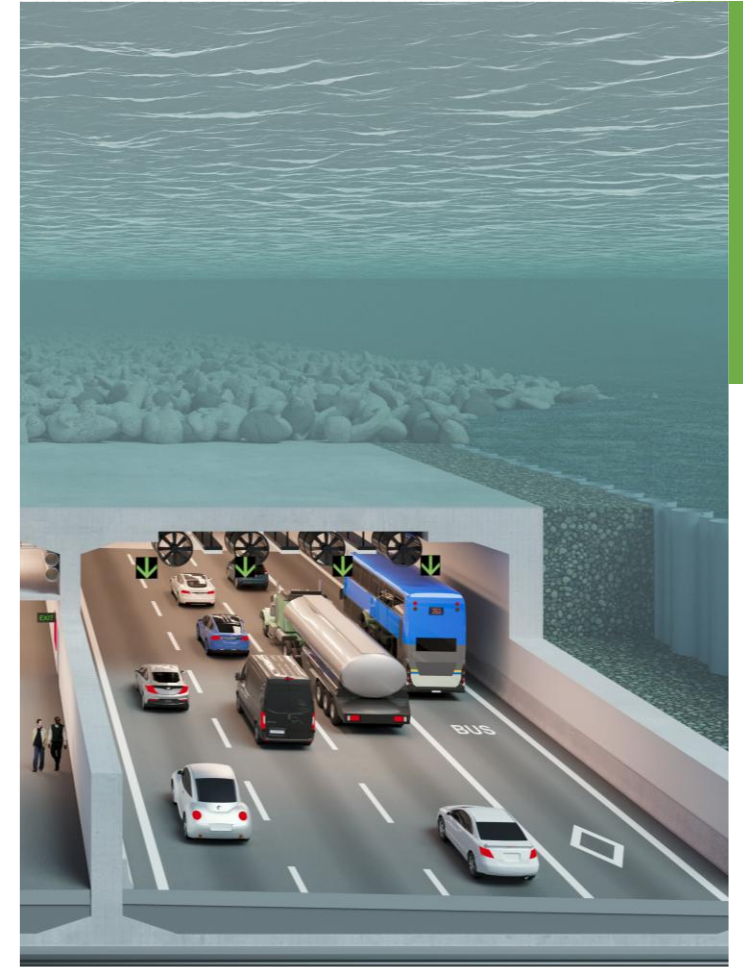
Cross Fraser Partnership



transportation
investment
corporation



Terms of Reference and Communication



Terms of Reference

Marine Users Group (MUG)

Objective: A working group for FRTTP to inform marine users of Project-related construction activities and provide a forum for two-way discussion regarding interests and concerns.

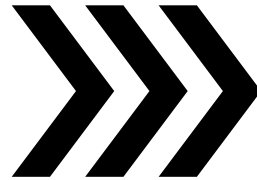
Marine Operations Technical Group (MOTG)

Objective: A forum for FRTTP to inform marine stakeholders of Project-related construction activities and work collaboratively with terminal operators and key providers who use the Fraser River in their operations to help manage supply chain issues.

A copy of the TORs will be provided to each group/representative for information.

Transparent/Accurate Communications and Consistent Information Sharing

- During DEWA (2026), MUG meetings are used to share updates during design development, inform users of in-river investigations, and notify parties of upcoming construction activities
- During main construction, monthly MUG meetings will be undertaken
- MOTG meetings continue to address potential supply chain issues (freight), tug assist availability, and discuss immersions protocols

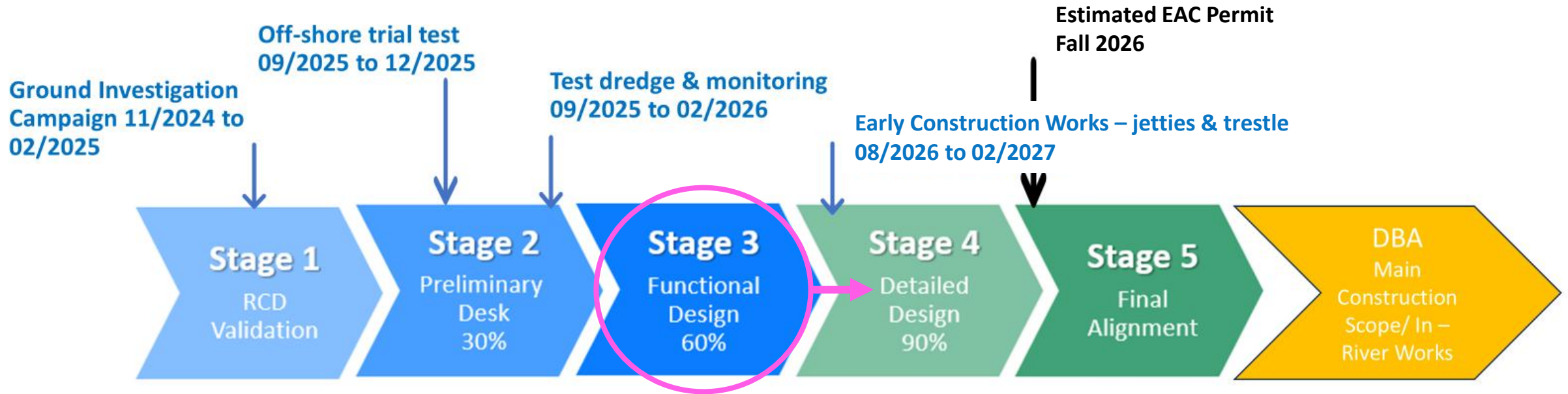


- ✓ Marine stakeholders will be informed of all construction activities affecting navigation via MUG and MOTG
- ✓ Updates on the Marine Supply Chain Logistics Management Plan, tug availability, and freight will be presented to the MOTG
- ✓ Annual MCSPMCP will be presented at the start of all construction seasons and discussed in advance of the works

Construction Works & Ongoing Marine Planning



Design Stages & Early Works Timing



- Navigation channel detours designed to **PIANC** standards were successfully implemented for geotechnical investigations, in-river test program, and test dredges
- Implementation of channel detours throughout construction critical to Project success

Construction Works and Navigation Mitigation

Early Works
(2026-2027)

PROPOSED EARLY WORKS

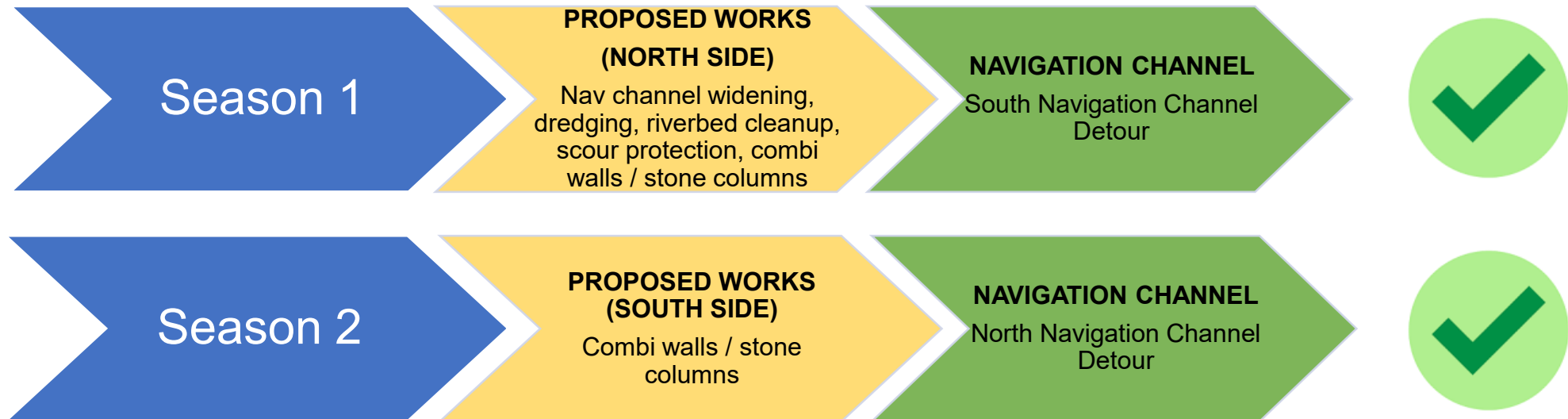
Logistics jetties, trestle bridge, Canfisco demo & bay closure, transition walls

NAVIGATION CHANNEL

Main Navigation Channel / limited use of North and South Detours



Construction Works and Navigation Mitigation



Seasons 1 & 2 – Navigation

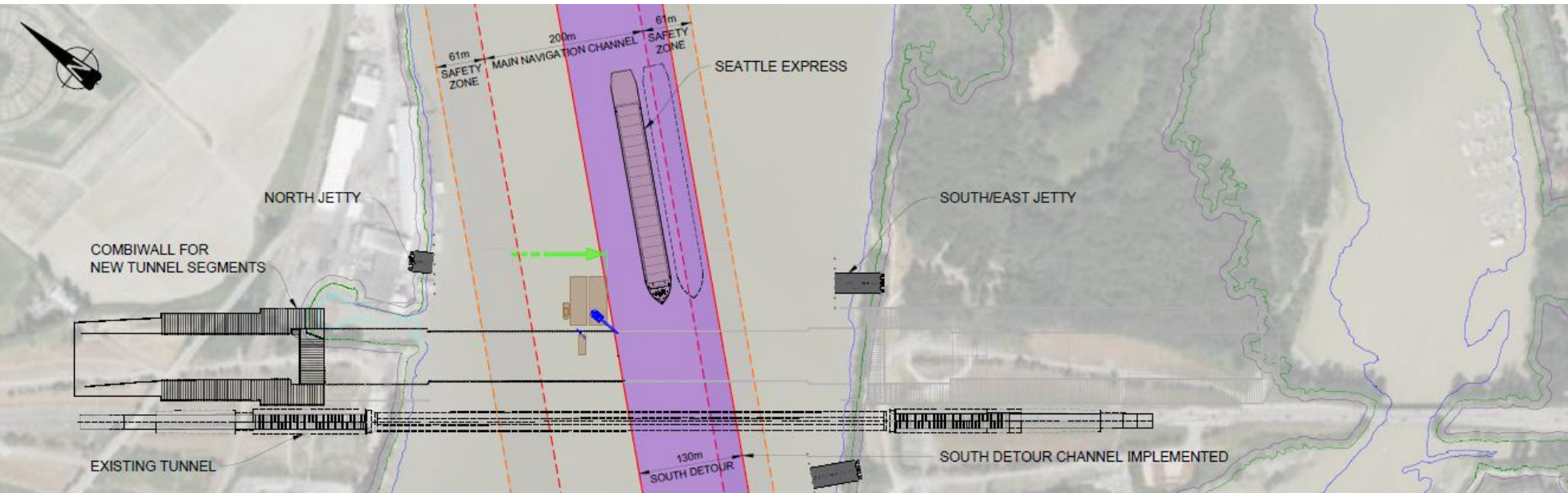
Navigation detour implementation:

- North and south navigation detours allow deep seas transits, Seaspan transits, and CMC transits to continue with limited effect

Further review underway:

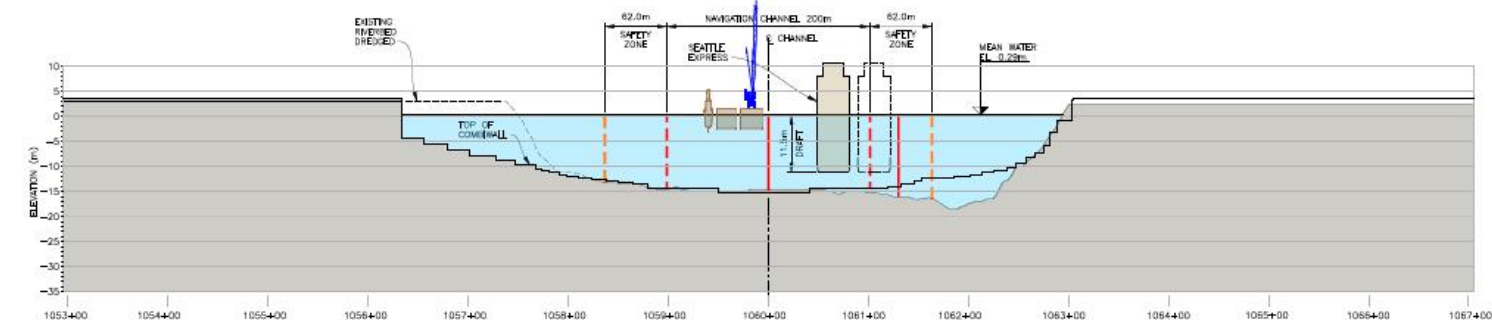
- Short period in which piling activities interfere with the 130m channel detour
- Adequate width available for Seaspan and CMC transits (100m channel)

Navigation – Combi walls



South Navigation Channel Detour

PLAN – VESSEL TRANSIT DURING TUNNEL SEGMENT IMMERSIONS
1:2500

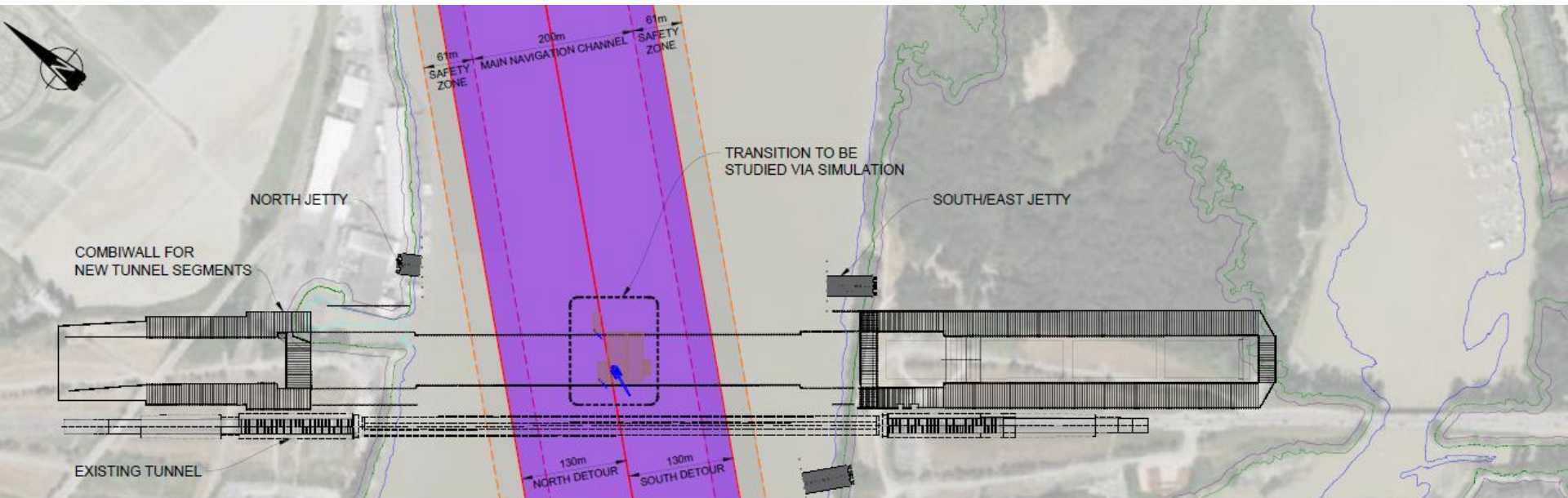


LEGEND:



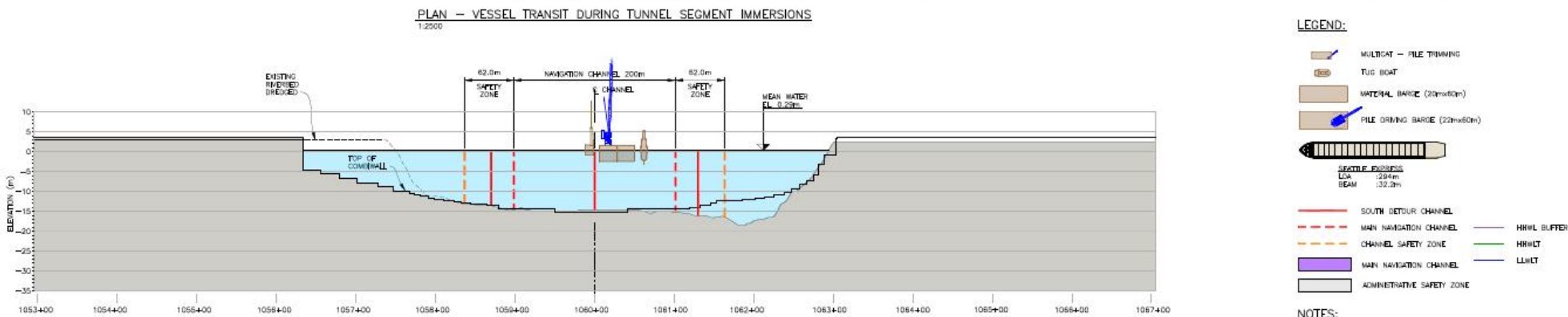
NOTES:

Navigation – Combi walls

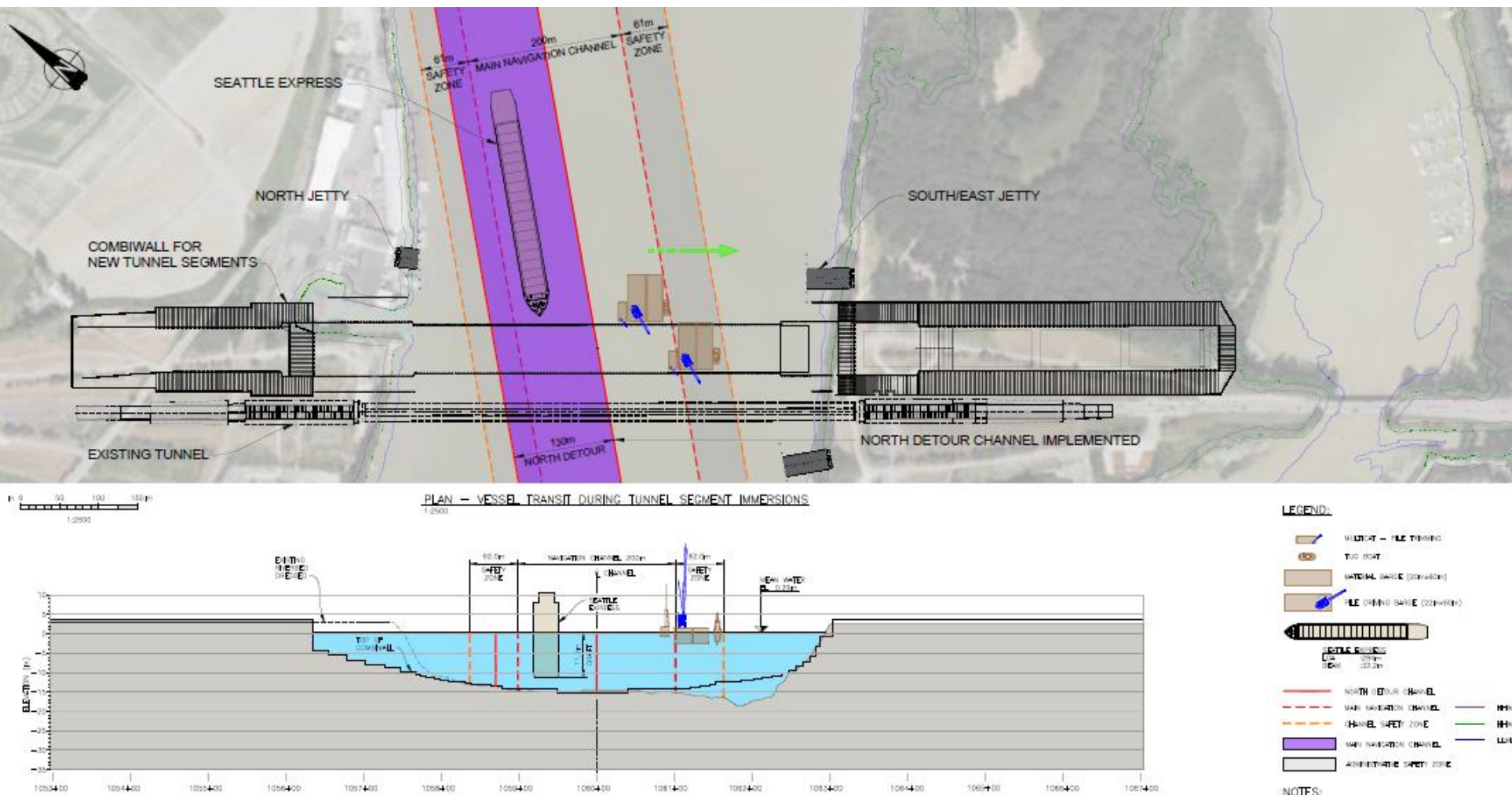


Centre-line activities:

Transition to be studied via simulation



Navigation – Combi walls

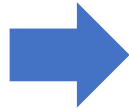


North Navigation Channel Detour

Future Works and Navigation Mitigation

Proposed works:

- Dredging north side, immersion of TE1-4, rock works, interlocking fill, diving operations
- Dredging south side, immersion of TE 5-8, rock works and interlocking fill, diving operations



Navigation channel

- South Navigation Channel (TE 1-3) / centreline transition being simulated
- North Navigation Channel (TE 6-8) / centreline transition being simulated

Constructability, sequencing, and schedule being assessed

Future Works – Navigation

Navigation protection:

- North and south navigation detours implemented to facilitate continued deep sea, Seaspan, CMC transits
- TE1, TE2, TE3 – use of south navigation detour
- TE6, TE7, TE8 – use of north navigation channel detour

Potential restrictions:

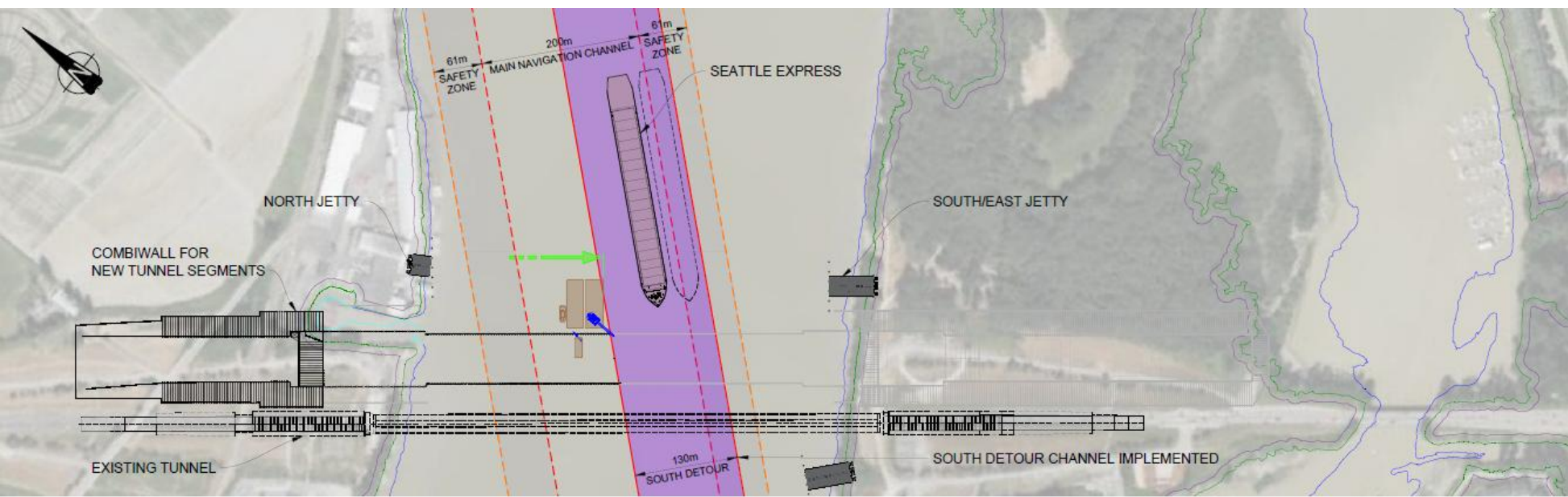
- Centre-line channel works, post immersion rock works, and interlocking fill restrict channel width
- Anchor lines result in potential overlap into navigation channel
- Presence of marine construction equipment

Future Works – Navigation Mitigation

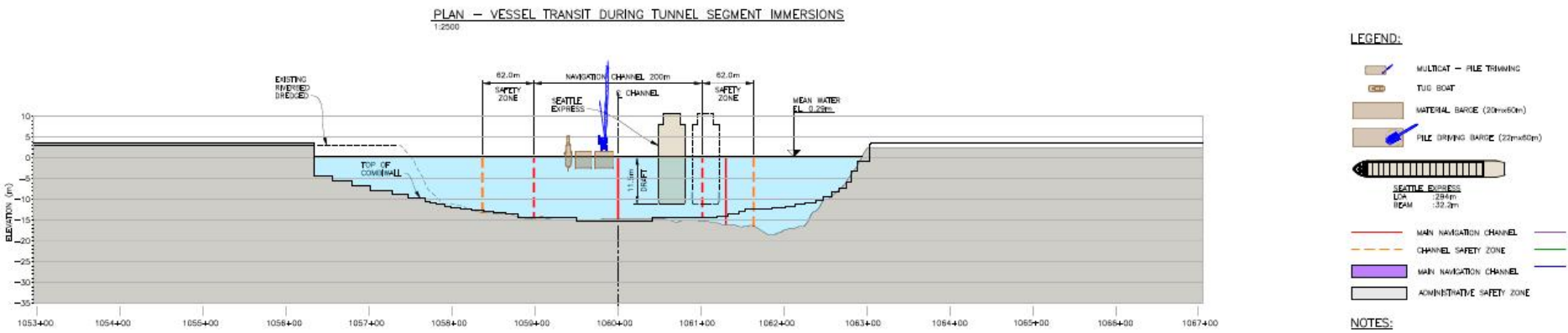
- ✓ • Anchor lines can be slacked to avoid interference
- ✓ • Relocation of the marine construction equipment to accommodate transit
- ✓ • Transit speed restriction to be reestablished

**Simulations are being undertaken to confirm navigation width limits and mitigative measures.*

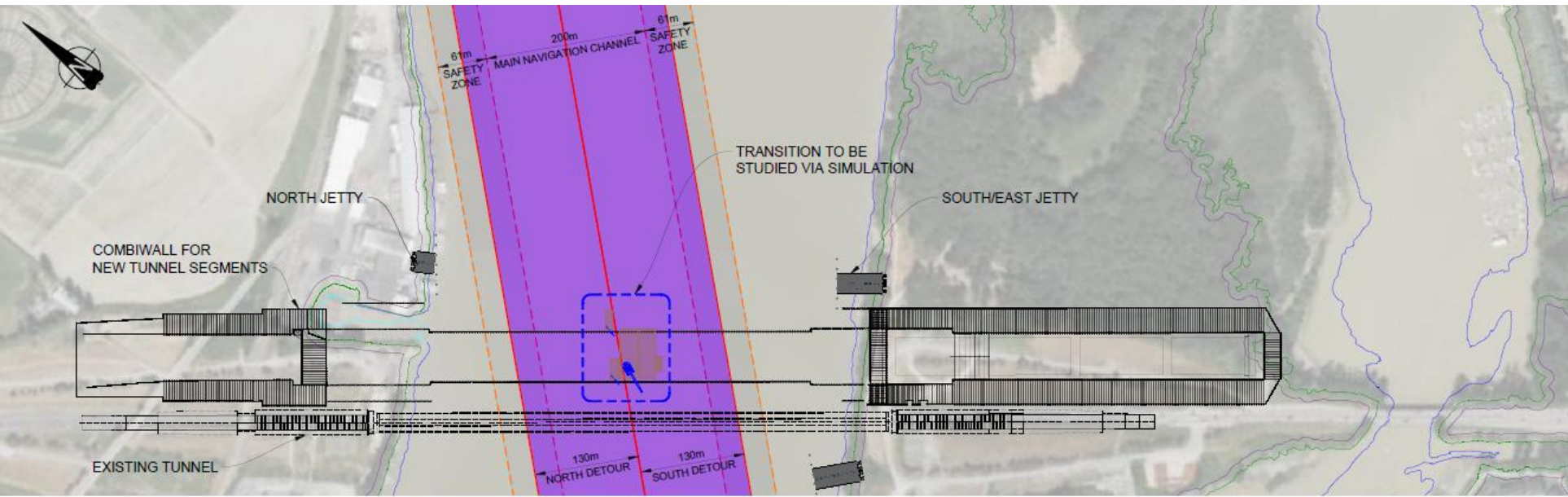
Navigation – Pre/Post Immersion Works



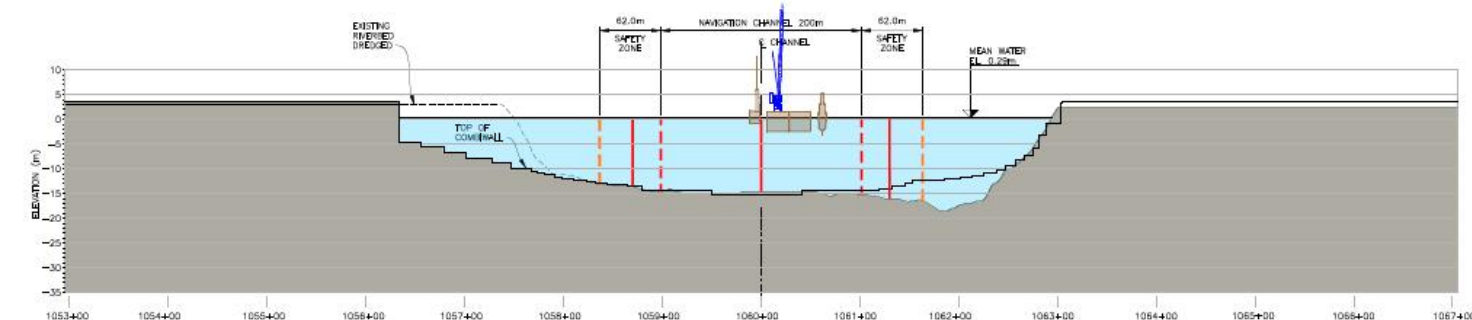
South Navigation Channel Detour



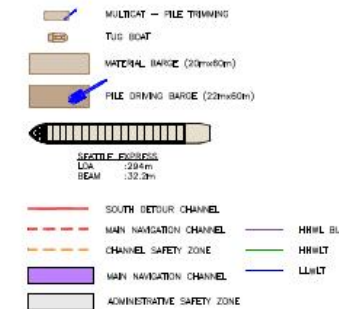
Navigation – Pre/Post Immersion Works



PLAN – VESSEL TRANSIT DURING TUNNEL SEGMENT IMMERSIONS
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LEGEND:

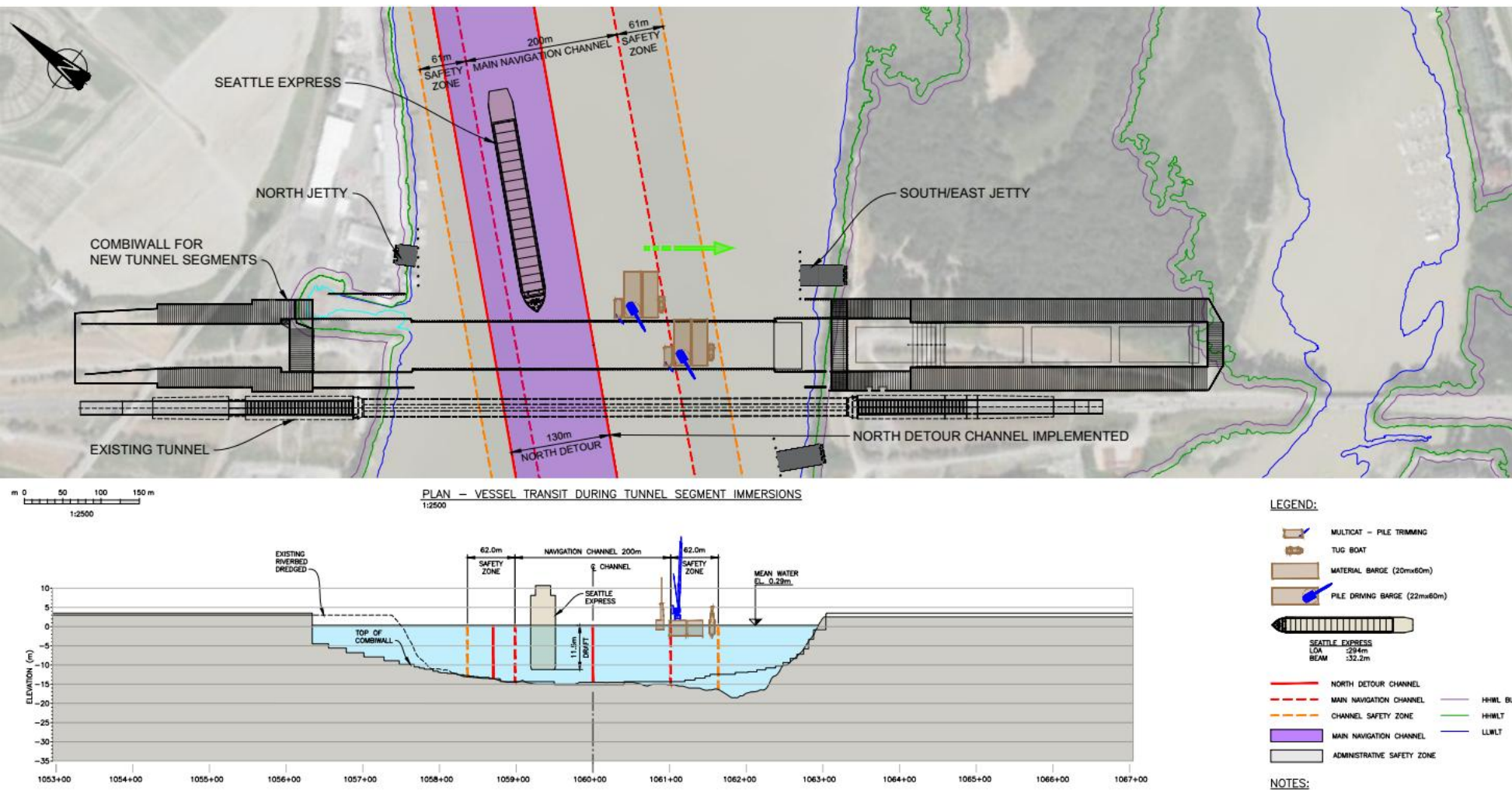


NOTES:

Centre-line activities:

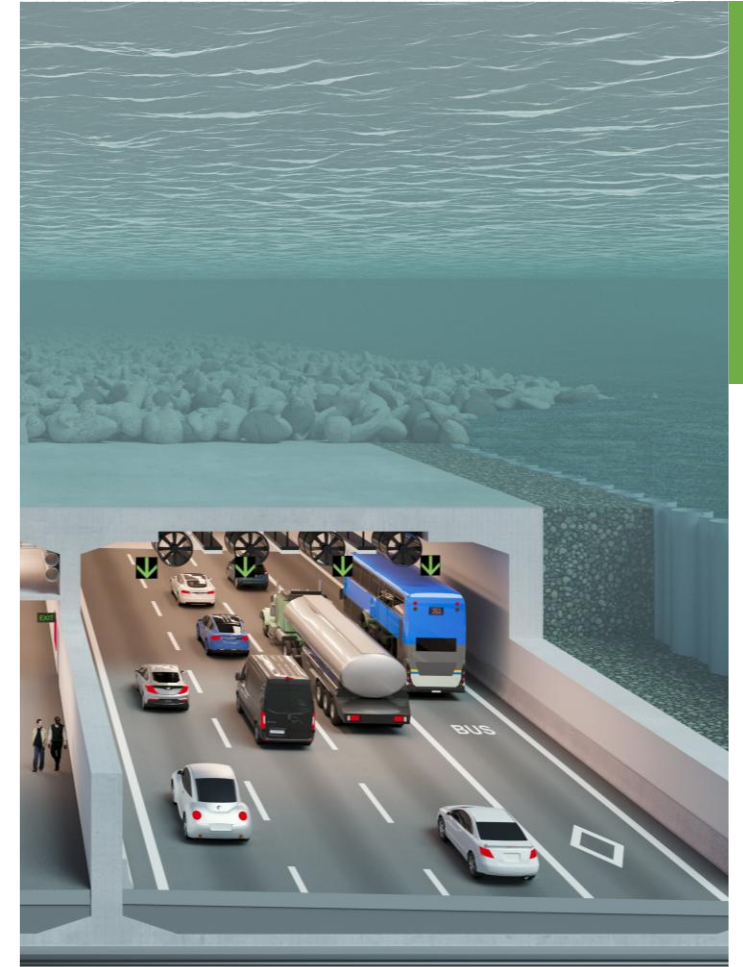
Transition to be studied via simulation

Navigation – Pre/Post Immersion Works



North Navigation Channel Detour

Design Vessel Identification & Ship Grounding Study



Ongoing Planning Towards Final Design

- Design vessel identification
- Ship Grounding Study (physical modelling)
- Immersion construction sequencing
- Continued vessel simulations

Design Vessel

- Used for protection berm design, vessel collision analysis, design understanding from navigation perspective
- Based on vessels currently using the river and any future vessels that could use the river
- CMC tug, tow patterns, and Seaspun Energy and Ferries transit frequencies and patterns also studied

Terminal Name	Location	Port Trade Sector	% of Fraser River Ship Calls - 2024
DP World – Fraser Surrey	Surrey (Brownsville)	Containers, Bulk, Breakbulk & Liquid Bulk	52.0%
Wallenius Wilhelmsen Solutions	Delta (Annacis Island)	Auto's	41.5%
Lafarge Cement	Richmond (Fraser Lands)	Bulk	4.2%
Tilbury LNG	Delta (Tilbury Island)	Liquid Bulk	0.2%
Vancouver Airport Fuel Facility Corporation	Richmond (Fraser Lands)	Liquid Bulk	2.1%

Design Vessel Selection

- Based on VFPA Operations support vessel types, sectors and percentage of calls made on the Fraser River

Vessel Type	Trade Sector	# of Calls	% of Calls
Car Carrier	Auto's	262	42.1%
Container	Container	109	17.5%
RORO	Break Bulk	20	3.2%
Bulker	Bulk	149	24.0%
Cargo	Break Bulk	66	10.6%
Tanker	Liquid Bulk	12	1.9%
Other	N/A	4	0.6%
Total		622	100.0%

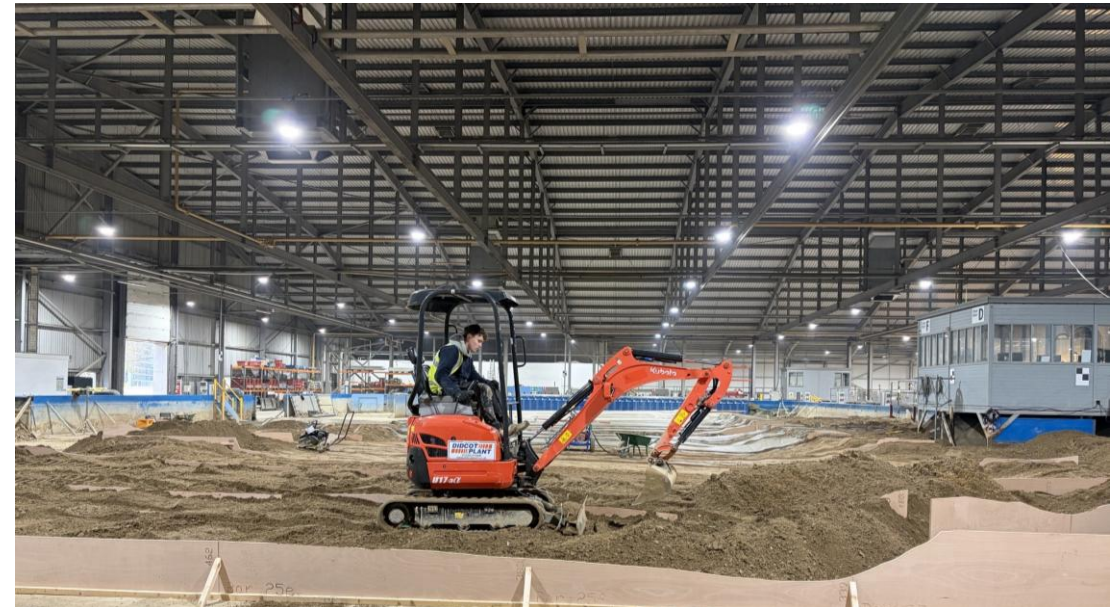
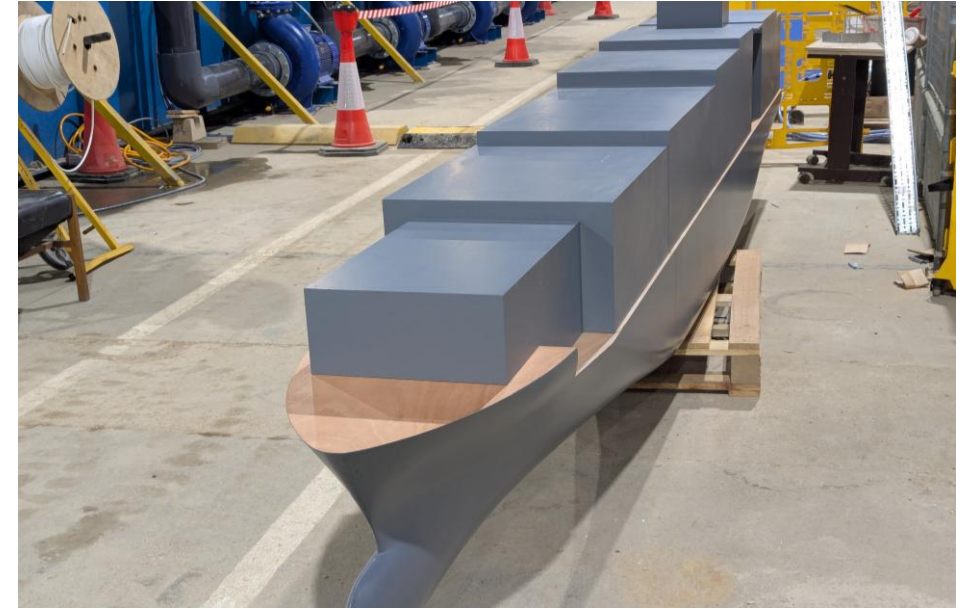


Design Vessel: Seattle Express



Ship Grounding Study

- Miniature scale model: Project infrastructure and design vessel
- Physical modelling based on various river flows associated with the in-river work periods
- Results will be shared via MUG (*expected in June*)

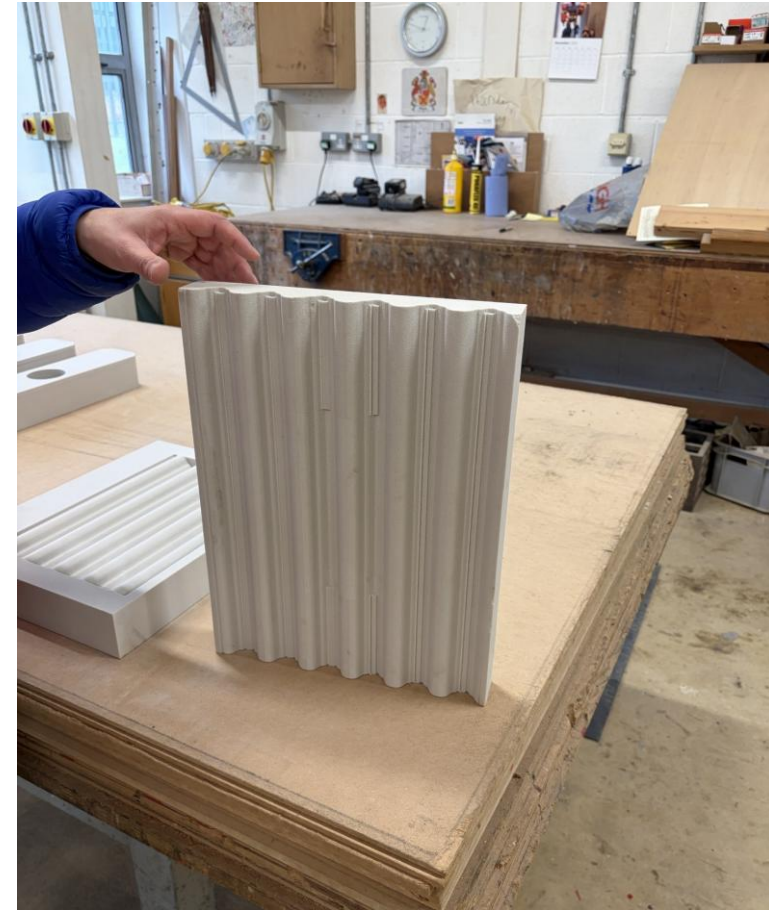


Physical Model

Fraser River Morphology



Transition walls (early works & construction seasons 1 and 2)



Physical Model

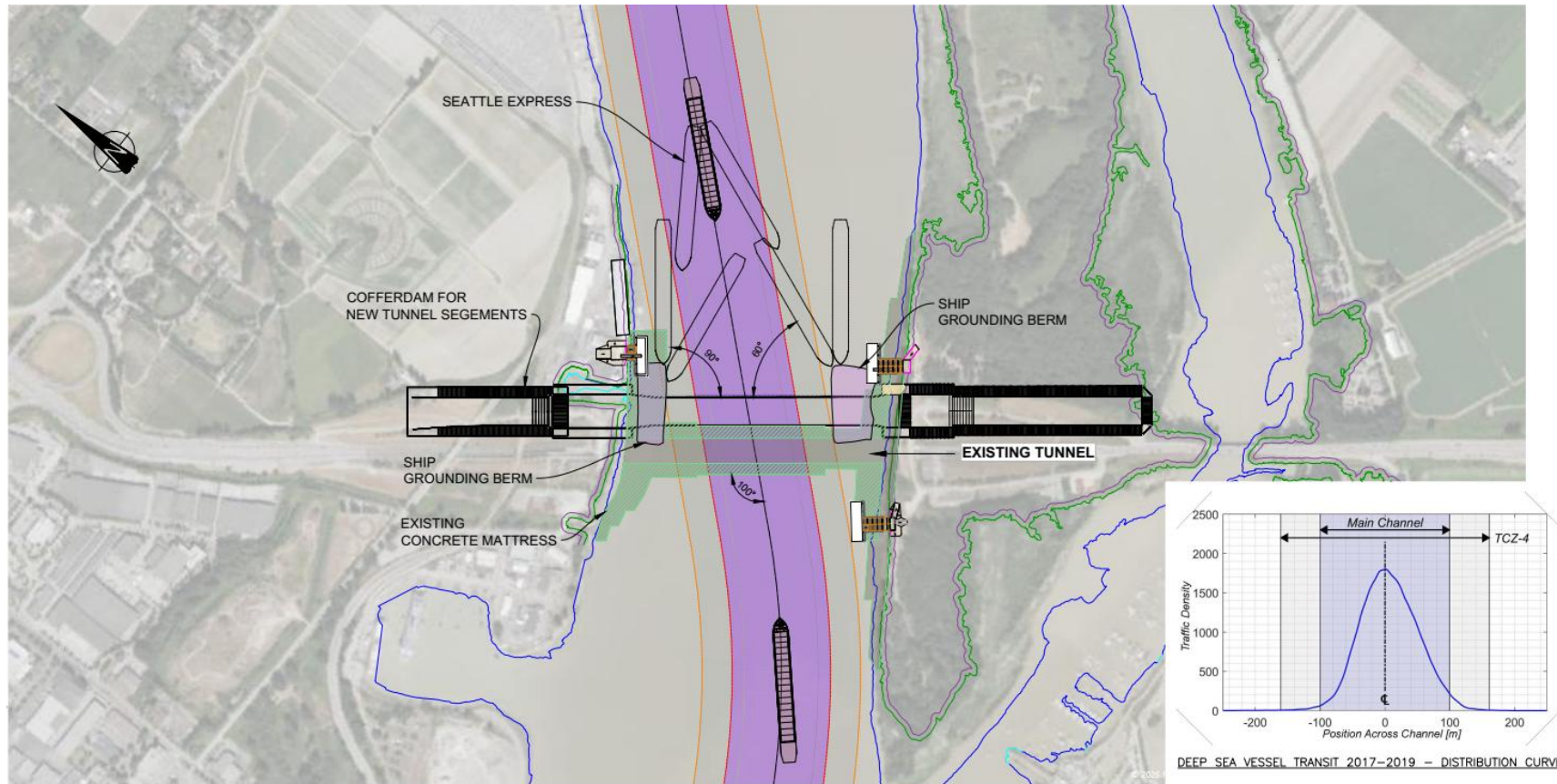
Model of the Fraser River



Project infrastructure

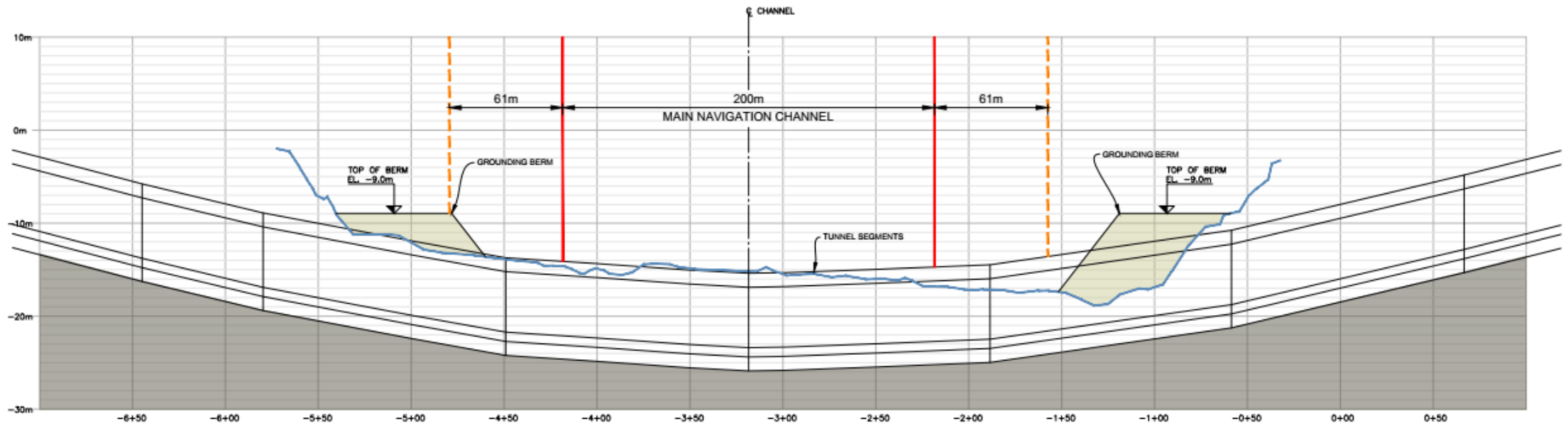


Ship Grounding Berm Design – Subject to Downstream Transits



Ship Grounding Berm

- Design will predominantly be outside of the Administrative Safety Zone (-9.0m)
- Acknowledgement that Seaspan and CMC members navigate in the safety channels

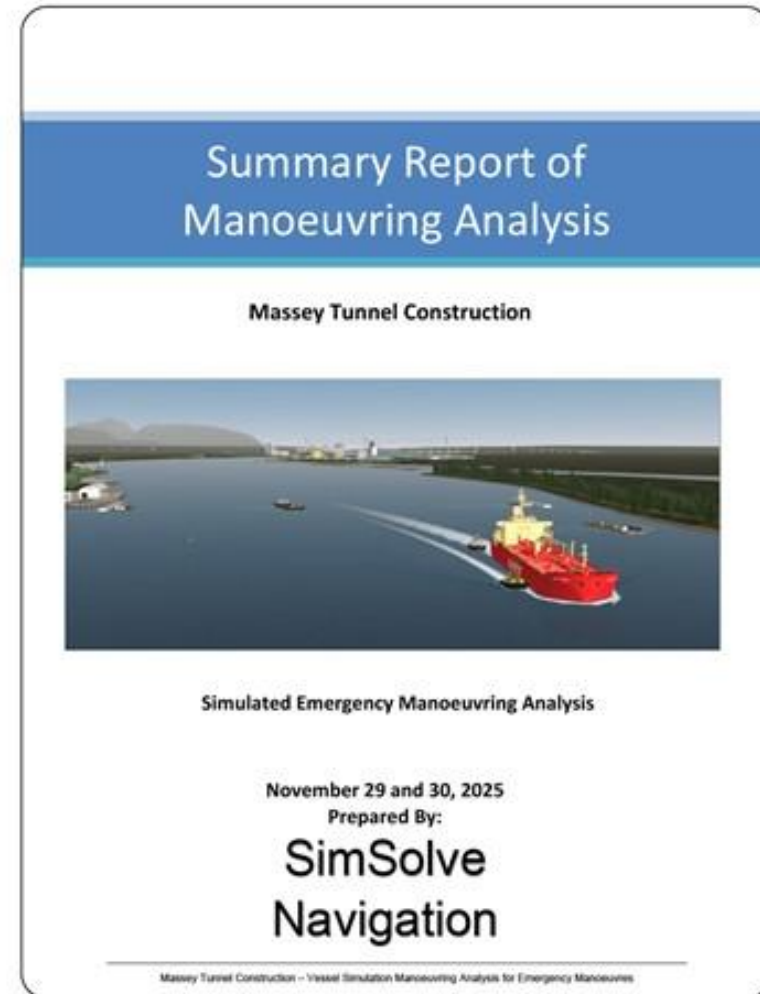


Vessel Simulations



Vessel Simulations

- Complexities of transits require additional simulations
- Two sets of simulations undertaken to normal vessel transits via north and south detours
- Purpose was to test constraints created by proposed geotechnical testing and logistics jetties
- Inbound and outbound transits using north/south detours were simulated to verify current tug escort packages for tankers provide sufficient positional and control in the event of machinery failure



Vessel Simulations – Observations

- Existing escort tug requirements for tankers has been confirmed, but similar simulations are required for other vessels to accommodate restricted channel widths
- Realization of the emerging construction positioning that restricts marine navigation will require ongoing simulations
- Additional simulations have been undertaken to review vessel speed impact via the tunnel during construction, and to avoid floating equipment with vessels that may not require escort.
- Future simulations could involve other users of the river to ensure a transparent process

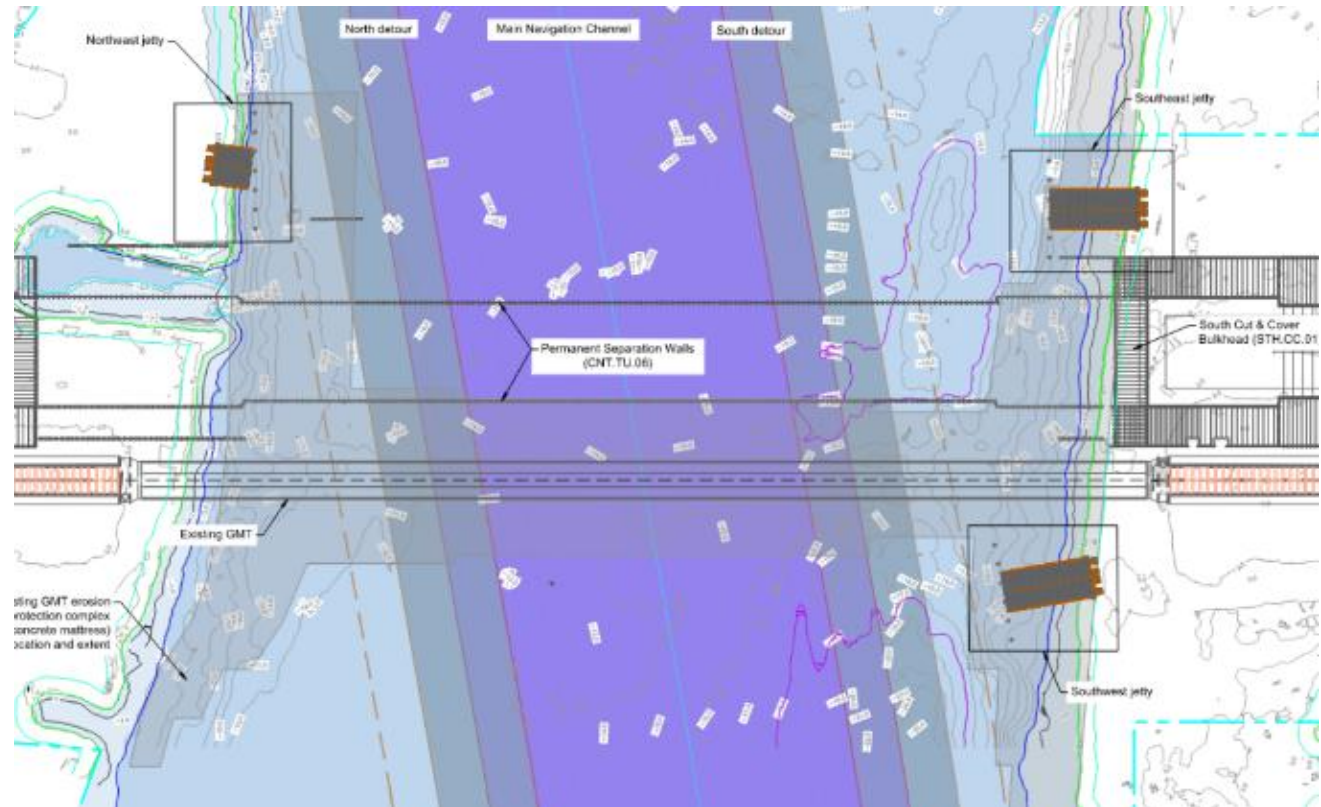
Upcoming Early Construction Works

2026-2027



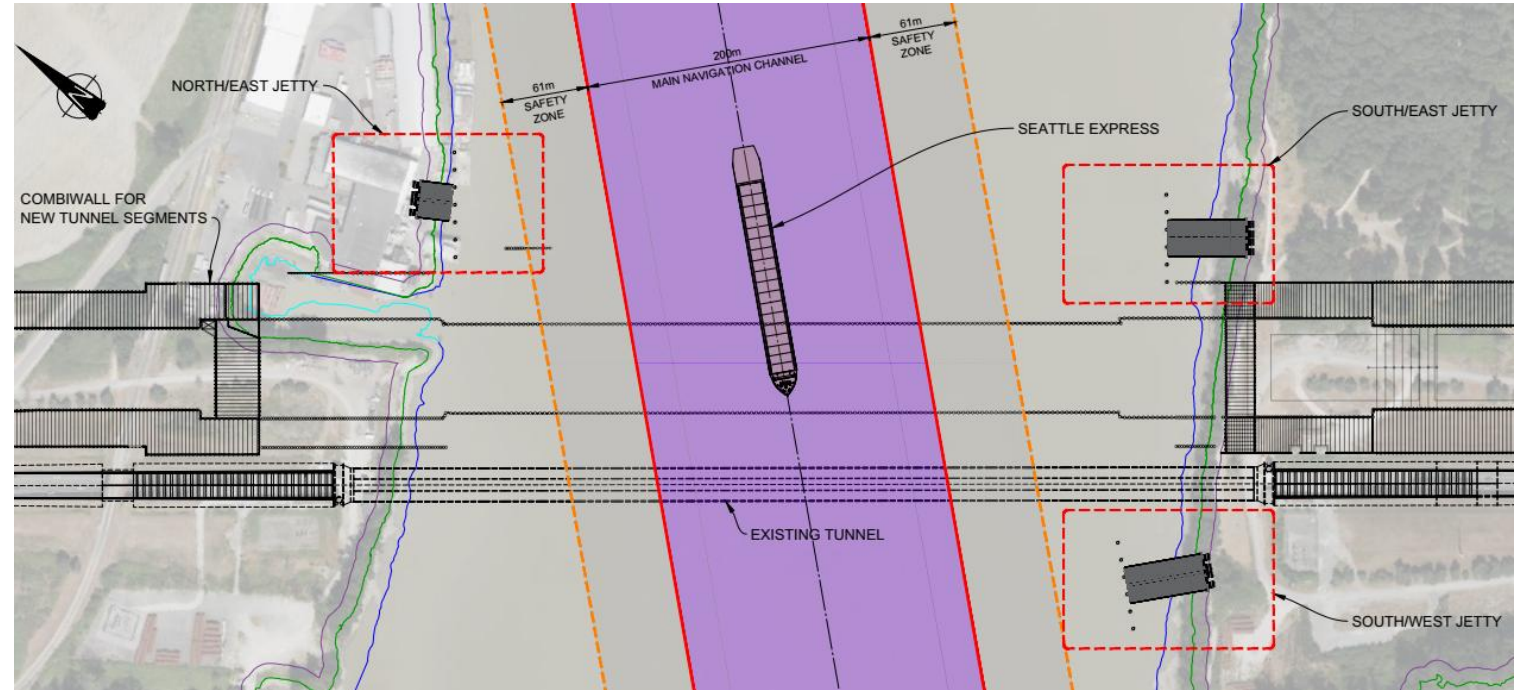
Upcoming Early Works (2026-2027)

- Logistics jetties (NE SW SE)
- Temporary trestle bridge
- Demolition of Marine Structures at Canfisco Shore / closure of Canfisco Bay
- Transition wall (North and South)



Logistics Jetties

- Three temporary jetties required for the movement of material
- Design optimized to provide more space from navigation channels
- No interferences to navigation (*limited in-river works – will be restricted to the Administrative Safety Channel*)
- Extensive barge movement to support construction

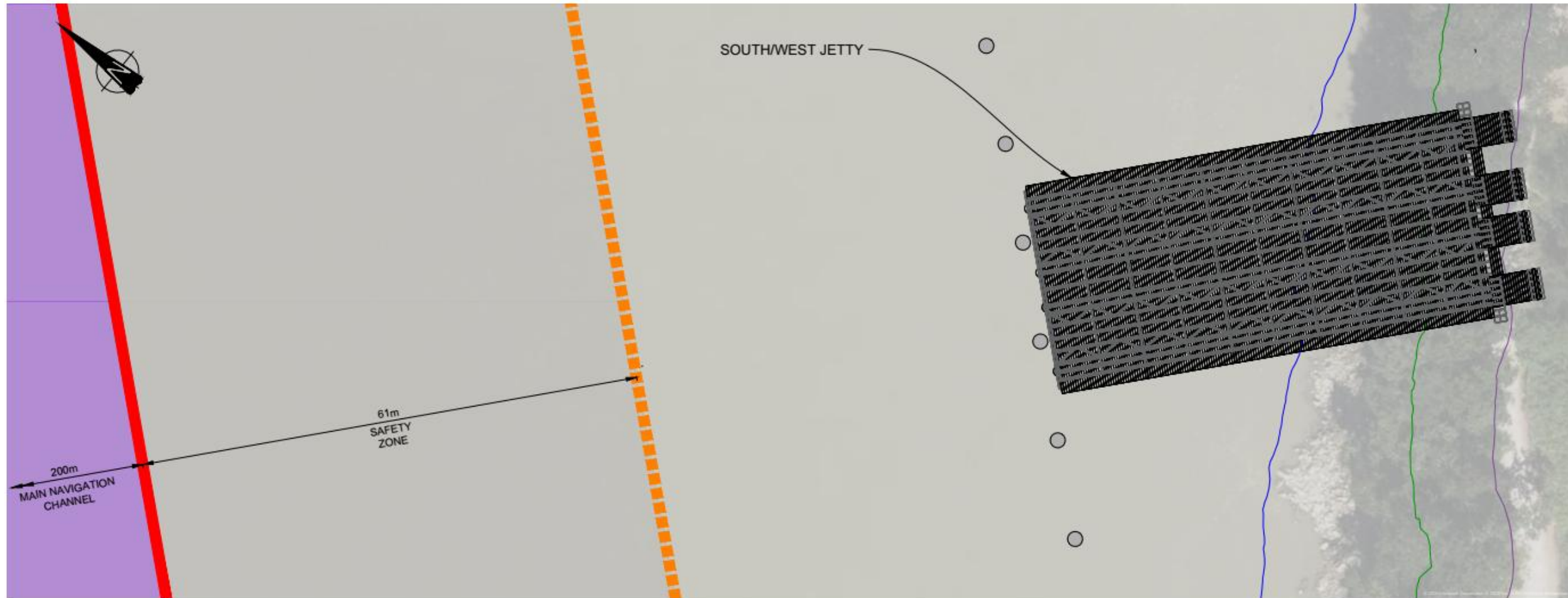


- Main Navigation Channel will be utilized to support deep sea transits
- Local users will be informed of any activities within the Administrative Safety Zone to address Seaspan and CMC transit patterns

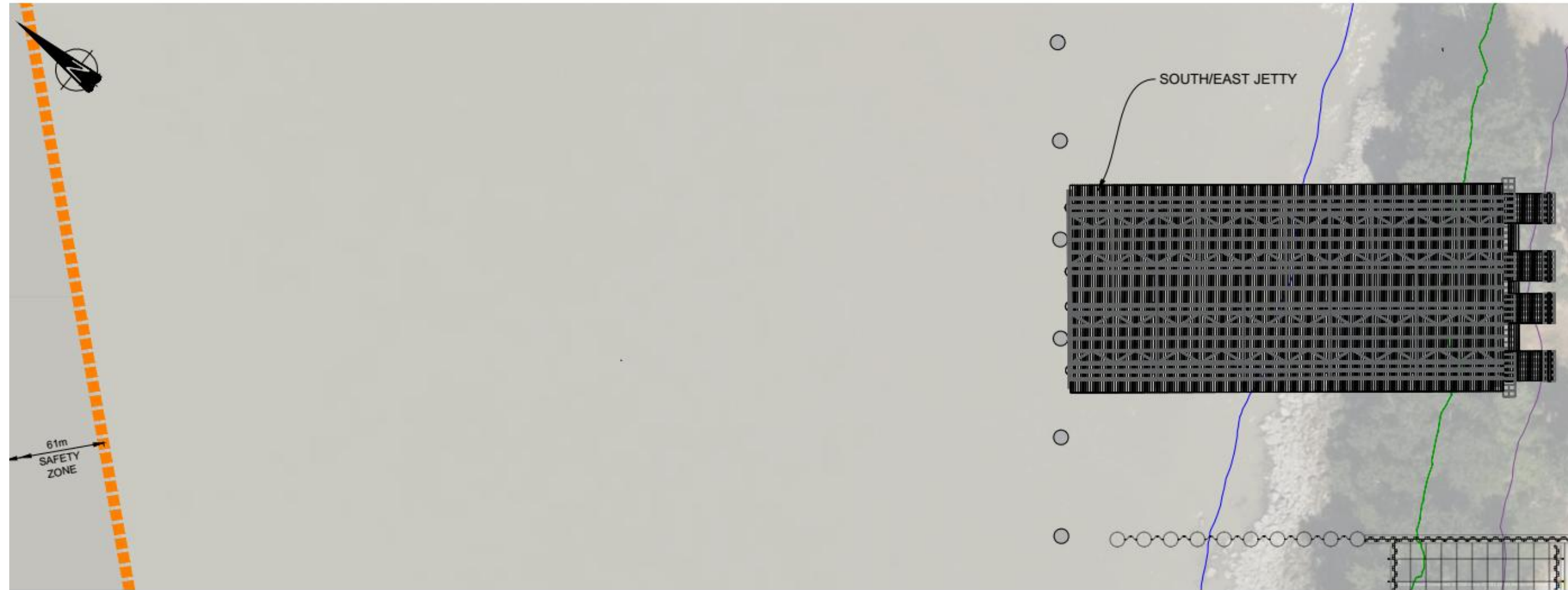
Logistics Jetties – Northeast (Optimized)



Logistics Jetties – Southwest



Logistics Jetties – Southeast



Temporary Trestle Bridge

- Will maintain a 14.5m temporary main navigation channel
- Air draft clearance to match existing Deas Slough Bridge
- Alignment within the existing navigation geometry to optimize depth and bathymetry to facilitate consistent water draught

Navigation envelope defined by recreational and commercial vessels



*Recreational use: Typical cabin cruiser
LOA 15,87 x beam 4.7m)*

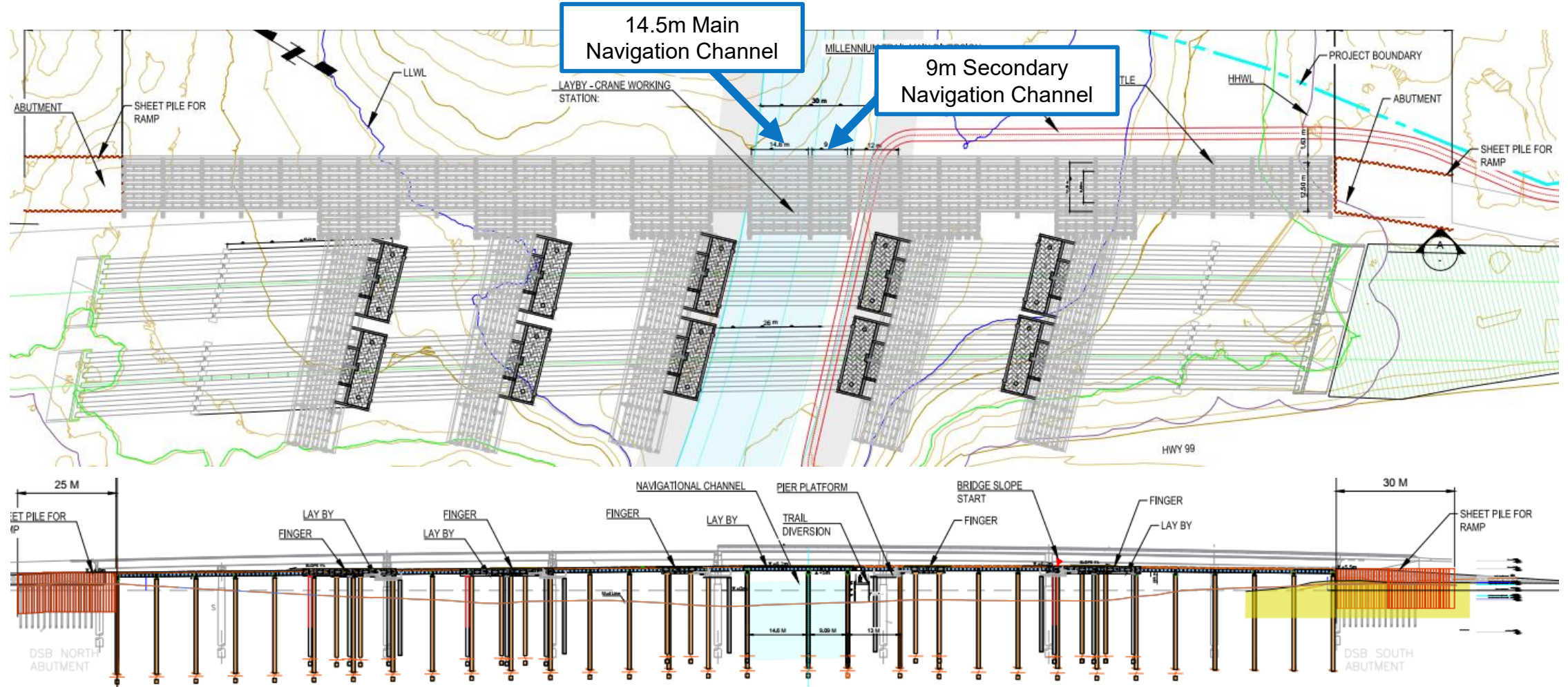


Recreational use: Typical skiff

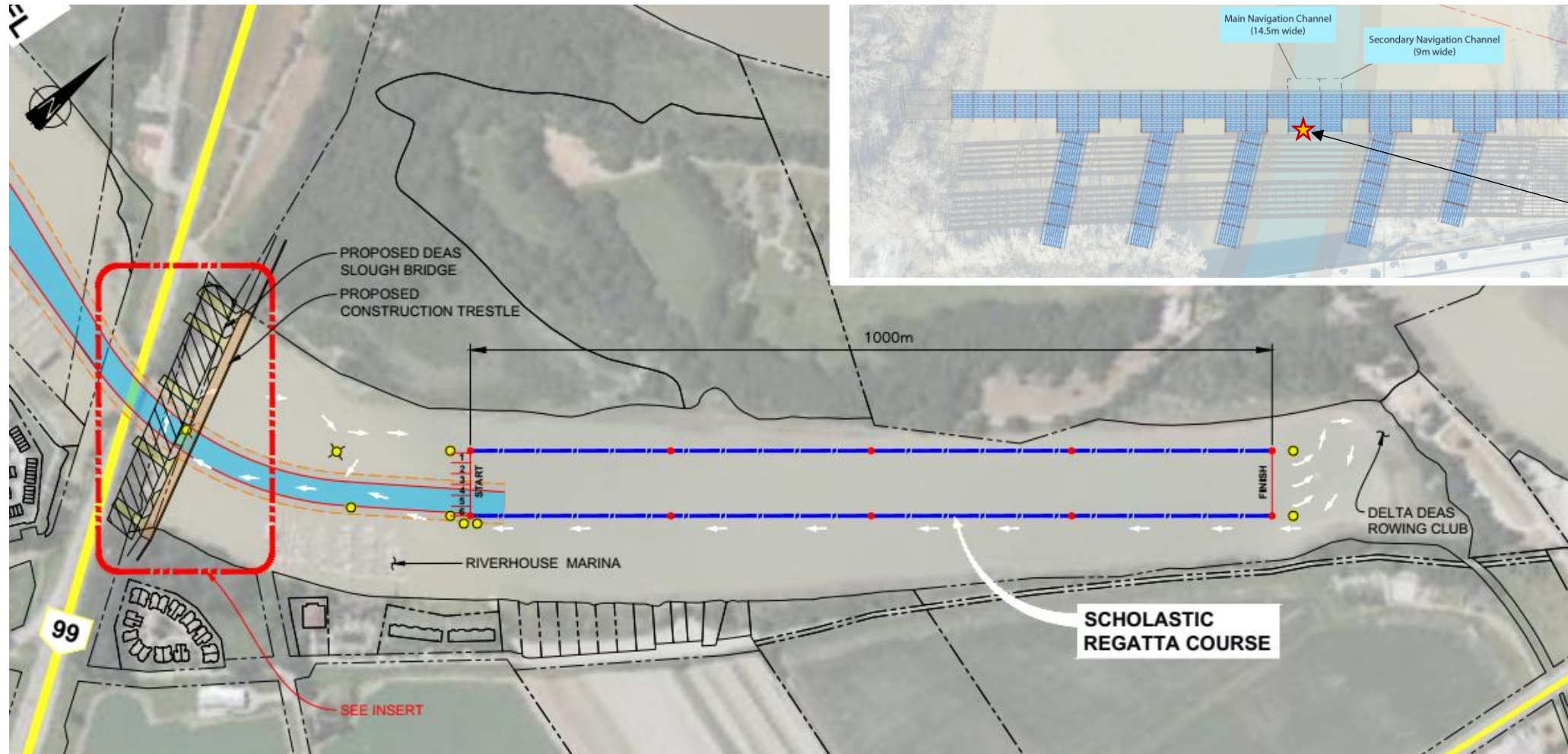


*Derrick Barge FRPD GE#6
(LOA 28.3m beam 12.5m x draught 2.1m)*

Temporary Trestle Bridge

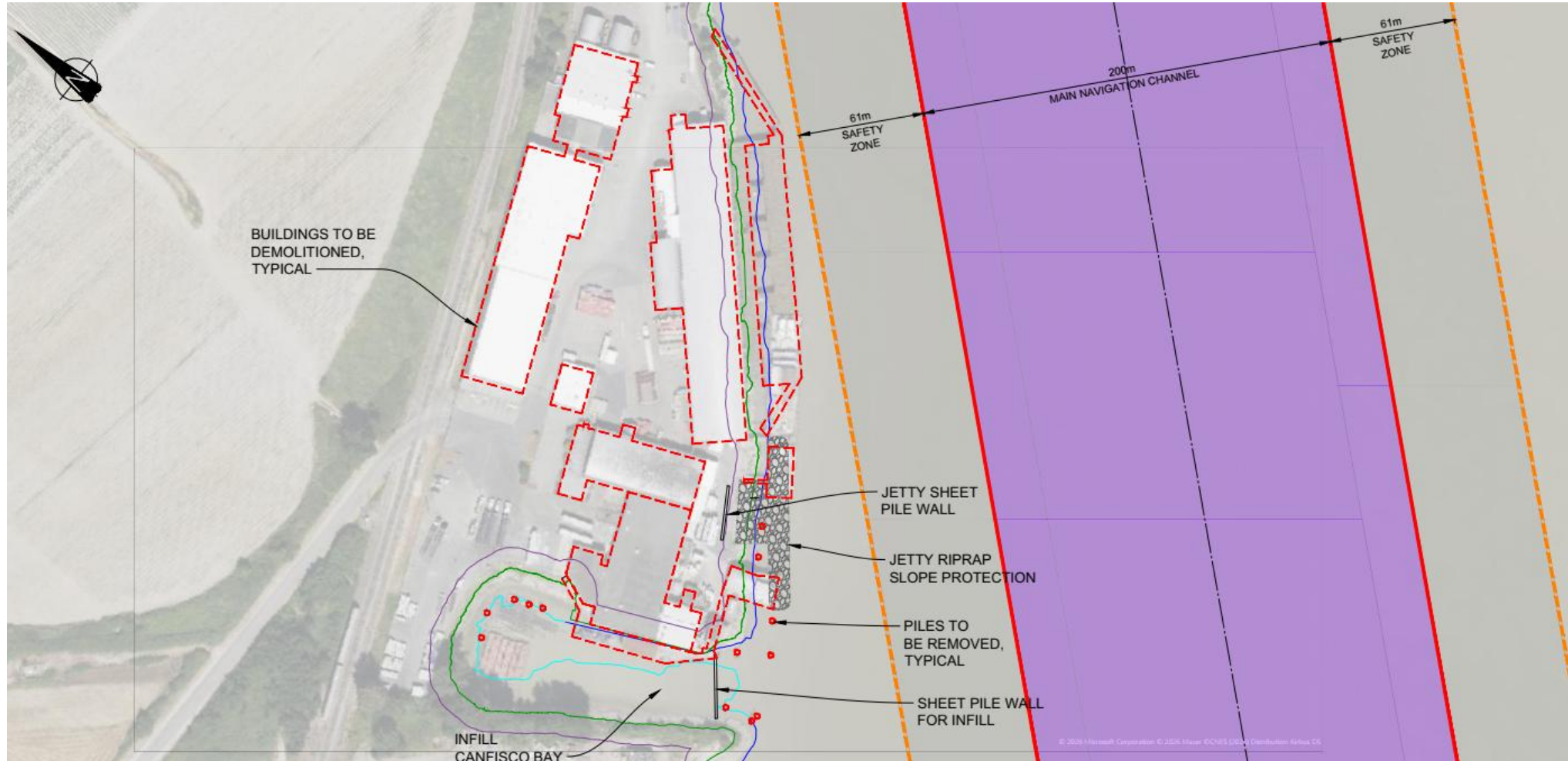


Delta Deas Rowing Club



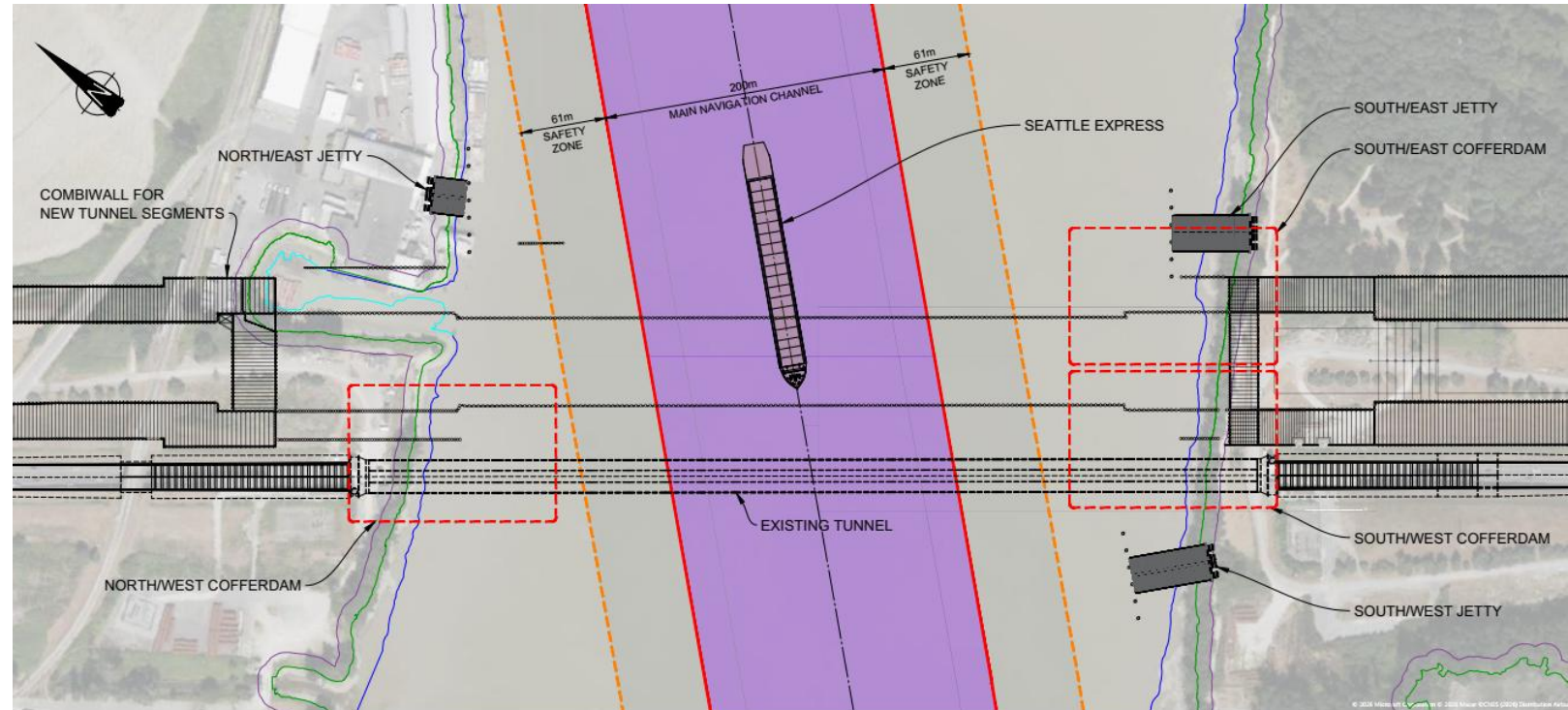
Rowing turning buoy to be relocated further upstream to accommodate regatta

Closures of Canfisco Bay



Combi Walls (early works)

- Access via land using temporary jetty structures, and barges to support phasing during install
- In water construction will avoid infringing upon Administrative Safety Zone on both sides of river
- Main Navigation Channel utilized to support navigation
- A MCSPMCP will be prepared for all works and presented at to mariners



Next Steps / Moving Forward



Key Takeaways to Date

- North/south navigation channel detours have been successfully implemented, and will be implemented throughout construction to facilitate safe and efficient navigation
- CFP continues with Detailed Design which will be completed by the end of 2026 – means and methods continue to change based on consultation with marine stakeholders

Key Takeaways to Date

- CFP undertaking future vessel simulations related to the post-immersion years
- Slacking anchor lines and relocation of marine construction equipment for post immersion activities confirmed
- Annual MCSPMCP will be prepared and presented 8 months in advance
- Plans will detail construction activities, navigation channels to be implemented and mitigation

Communication Frameworks

- MUG/MOTG are the key communications frameworks to facilitate information sharing and transparency
 - Monthly MUG meetings to commence in August 2026
 - MOTG meetings supporting the development of the MLSCMP to continue with FRIA and other stakeholders
- All key documents pertaining to marine navigation and construction staging will be posted on the Project website: highway99tunnel.ca

Next Steps

- Closing comments/questions
- **Next meeting:** May 2026
- Weekly NAVWARNs and Daily Navigation Notices to be provided

Thank You!

