

**VANCOUVER AIRPORT FUEL DELIVERY
PROJECT (PROJECT)**

SCHEDULE A

**CERTIFIED PROJECT DESCRIPTION
For
AN ENVIRONMENTAL ASSESSMENT CERTIFICATE**

Table of Contents

1	Introduction	1
2	Marine Terminal.....	1
2.1	Location	1
2.2	Characteristics and Components	2
3	Fuel Receiving Facility.....	4
3.1	Location	4
3.2	Characteristics and Components	4
4	Fuel Pipelines	5
4.1	Location	5
4.1.1	Transfer Pipeline	5
4.1.2	Delivery Pipeline	5
4.2	Characteristics and Components	7

1 INTRODUCTION

Project Location: Richmond, British Columbia (see **Figure 1**).

The Project is composed of the following infrastructure, as described further below:

- Upgrades to an existing marine terminal wharf;
- Facilities at the marine terminal to unload aviation fuel;
- A new fuel receiving facility, consisting of storage tanks, filtration, and pumping systems;
- A new pipeline to transfer aviation fuel from the marine terminal to the new fuel receiving facility (transfer pipeline); and
- A new pipeline to deliver aviation fuel from the fuel receiving facility to facilities at Vancouver International Airport (YVR) (delivery pipeline).

2 MARINE TERMINAL

2.1 Location

The Vancouver Airport Fuel Facilities Corporation (Proponent) owns a waterfront property with an existing marine terminal wharf ¹ located on the north shore of the South Arm of the Fraser River at the foot of Williams Road, City of Richmond, BC, 2.2 kilometres upriver of the George Massey Tunnel (see **Figure 1**). The civic address for this property is 15040 Williams Road, Richmond, BC.

The existing marine terminal property boundary and the approximate area of Water lot DL-924 (Water Lot) are shown on **Figure 2**. Water Lot DL-924 will be expanded outward in the Fraser River to accommodate larger vessels and Project works. This expansion will be included in Vancouver Fraser Port Authority (VFPA) permitting. With the exception of dredging activities for operational navigation, all permanent structures and construction dredging activities associated with the marine terminal upgrades must be situated within the terminal property boundary or within the area of the expanded Water Lot.

¹ 15040 Williams Road. Latitude: 49°08.36' North, Longitude: 123°03.33' West. Legal Description: Section 34, Block 4 North, Range 5 West Except: Part (1.41 acres) shown coloured pink on Plan 4933; Secondly: Parcel A (Plan with Bylaw filed A32824); Thirdly: Parcel B (Plan with Bylaw filed A32824) New Westminster District.

2.2 Characteristics and Components

The marine terminal upgrades that are part of the Project are:

- Upgrading of the marine terminal to meet current seismic design criteria;
- Improving the structural capacity to accommodate aviation fuel vessels;
- Constructing fuel unloading and transfer facilities;
- Structural strengthening and replacement of existing fill material and/or bulkhead perimeter wall;
- Strengthening of existing structures and ground in adjacent upland areas of the marine terminal property;
- Constructing new pipe-pile supported mooring structures as necessary to safely secure vessels, located in upland areas of the marine terminal property;
- Constructing new pipe-pile supported breasting dolphins² and mooring structures as necessary to safely secure vessels, located in-water adjacent to the existing berth face;
- Constructing a new pipe-pile supported unloading platform located in-water and immediately off of or adjacent to the existing berth face;
- Dredging and scour protection works at the base of the existing pipe pile structure and the base of mooring and berthing structures;
- Constructing new pipe-pile structures to support containment boom reels and containment boom anchor points. These works must be located in-water or on the terminal property, immediately upriver and downriver of the berth face;
- Constructing a new pipe-pile supported or floating emergency/utility boat launch facility located in-water adjacent to the property shoreline or on the terminal property; and
- Related ancillary work in support of the primary work listed above.

² An isolated marine structure for berthing and mooring of vessels, and to:

- a) assist in berthing of vessels by taking up some berthing loads;
- b) keep vessels from pressing against the wharf structure; and
- c) serve as mooring points to restrict the longitudinal movement of the berthing vessel.

Other marine terminal site works that are part of the Project include:

- Initial and ongoing maintenance dredging programs to maintain vessel draft and access to the marine terminal from the Fraser River navigation channel; and,
- Constructing a new pedestrian/bicycle trail along the perimeter of the marine terminal property.

The transfer pipeline (see **Section 4**) components situated within the marine terminal property boundary or within the area of the Water Lot, as expanded, are:

- Mechanical articulating unloading arms with leak-free connection points;
- Connection piping crossing the marine terminal property's existing dike right-of-way either above grade or through an encasement, then connecting to a valve station and fuel testing facility situated on the marine terminal property; and,
- Piping located on above-ground pipe racks with the exception of the dike crossing and beginning of transfer pipeline to the fuel receiving facility.

Other general features to be constructed on the marine terminal property are:

- An operations building,
- Spill response equipment caches and deployment system,
- Fire detection and response systems,
- Drainage system with separator system,
- Staff parking area,
- Perimeter security fencing,
- Closed-circuit television cameras, and
- Lighting towers.

3 FUEL RECEIVING FACILITY

3.1 Location

The new fuel receiving facility must be located on approximately 12 acres of VFPA industrial zoned land, situated in the southwest corner of the larger parcel of VFPA lands identified as “Lot #1, Plan 74529”³ (**Figure 2**). The specific boundary of the leased area will be determined by the VFPA Project Permit

Fuel must be received into the tanks of the fuel receiving facility from a transfer pipeline connecting the marine terminal (see **Section 4**). Fuel must be stored in the tanks and then delivered to YVR by a delivery pipeline (see **Section 4**).

3.2 Characteristics and Components

The facility must be designed to receive, store, and deliver aviation kerosene fuel.

The components of the new fuel receiving facility are:

- A maximum of eight aboveground storage tanks, each up to a maximum height of 15 metres from the foundation base. Total combined storage capacity of the facility must not exceed 80 million litres;
- Containment dike surrounding all tanks or groups of tanks;
- Operations building;
- Inbound fuel filtration system;
- Outbound pumping system;
- Outbound fuel filtration system;
- Waste fuel collection and storage system;
- Controlled storm drainage and oil/water separator system;
- Electrical power generation and distribution equipment, including transformers, switchgear, multiple voltage distribution, emergency generator and uninterruptible power supply systems;
- Potable and fire water systems;
- Fixed foam distribution system;

³ Latitude: 49°08.32' North, Longitude: 123°03.18' West.

- Sanitary sewer connection;
- Diesel fuel storage for emergency back-up generator systems;
- Staff parking area;
- Fuel quality control and sample building;
- Perimeter security fencing and closed-circuit television cameras;
- Lighting towers; and
- An access road following the inner perimeter of the fenced area with space set aside for vehicle parking.

4 FUEL PIPELINES

The Project includes two fuel pipelines:

1. A transfer pipeline with a maximum length of 0.6 kilometres and a maximum diameter of 600 millimetres; and
2. A delivery pipeline with a maximum length of 16 kilometres and a maximum diameter of 300 millimetres.

4.1 Location

4.1.1 Transfer Pipeline

The transfer pipeline must be located on the Proponent's marine terminal and on property owned by the VFPA, with the exception of an underground crossing of Williams Road. The property boundaries within which the transfer pipeline corridor must be located are shown on **Figure 2**.

4.1.2 Delivery Pipeline

The delivery pipeline must be located within the boundaries of property owned by VFPA, the BC Ministry of Transportation and Infrastructure, the Vancouver Airport Authority, or the City of Richmond as shown on **Figures 2 to 7**.

The delivery pipeline corridor route is described below:

- North from the new fuel receiving facility to the Francis Road right-of-way, crossing a Canadian National Railway right-of-way to reach Francis Road;
- West along the Francis Road right-of-way to Highway 99. The pipeline corridor width required for locating and constructing the pipeline is up to 10 metres either side of the right-of-way centreline;
- North along Highway 99 to Bridgeport Trail. The corridor width required for locating and constructing the pipeline is the Highway 99 right-of-way;

- West and then northwest along Bridgeport Trail to Van Horne Way. The pipeline corridor width required for locating and constructing the pipeline is up to 12 metres either side of the trail and road centreline;
- Southwest along Van Horne Way to Charles Street. The corridor width required for locating and constructing the pipeline is the Van Horne Way right-of-way;
- West along Charles Street to River Road. The corridor width required for locating and constructing the pipeline is the Charles Street right-of-way;
- Southwest along River Road to No. 3 Road. The corridor width required for locating and constructing the pipeline is the River Road right-of-way;
- Northwest along No. 3 Road to the pipeline crossing under Moray Channel. The corridor width required for locating and constructing the pipeline is the No. 3 Road right-of-way. For approximately 150 metres before the pipeline crosses under the Moray Channel, the corridor width required for locating and constructing the pipeline is up to 200 metres;
- Crossing under Moray Channel to Grauer Road;
- West along Grauer Road to the airside perimeter service road (North Perimeter Road). The corridor width required for locating and constructing the pipeline is up to 50 metres to the south of the road centreline. The northern boundary of the pipeline corridor width is defined by:
 - The Grauer Road right-of-way along the section of road that runs northwest;
 - The south property boundary of Sea Island Conservation Area lands along the section of road that runs west and turns north onto North Perimeter Road; and,
- North/northwest along North Perimeter Road to the existing fuel storage and handling facilities. The corridor width required for locating and constructing the pipeline is up to 50 metres either side of the road centreline. The pipeline will terminate on airport land leased by VAFFC.

A complete delivery pipeline corridor route is shown in **Figure 7**.

4.2 Characteristics and Components

Permanent facilities related to the pipelines are:

- “Pig” launching/receiving assemblies at either end of each pipeline⁴;
- Emergency shutdown valves at the following locations:
 - marine terminal;
 - new fuel receiving facility (at the exit point of the fuel transfer pipeline and the entry point of the fuel delivery pipeline);
 - either side of the Moray Channel, one on Lulu Island and one on Sea Island; and
 - fuel storage and handling facility at YVR.

⁴ ‘Pigging’ refers to the use of inspection gauges or ‘pigs’ to perform various maintenance operations on a pipeline, including cleaning and inspection. This is accomplished by inserting the ‘pig’ into a ‘pig launcher’ (or ‘launching station’). The launcher / launching station is then closed and the pressure-driven flow of the product in the pipeline is used to push the ‘pig’ along the pipe.



Figure 1 General Location of Project Components

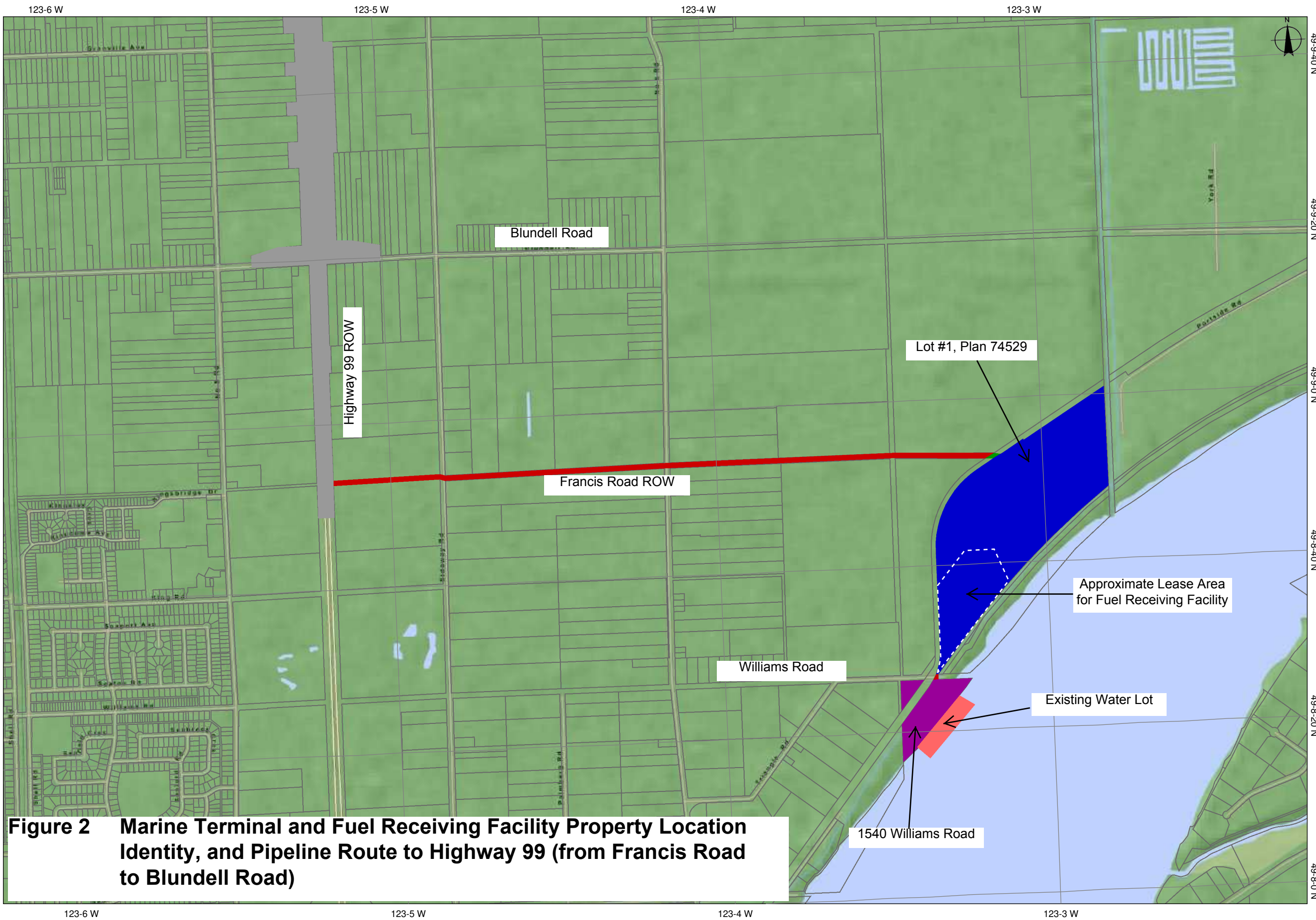


Figure 2 Marine Terminal and Fuel Receiving Facility Property Location Identity, and Pipeline Route to Highway 99 (from Francis Road to Blundell Road)

- Crown Provincial - Head Lease administered by Vancouver Fraser Port Authority
- Crown Provincial Land - BC Ministry of Transportation and Infrastructure
- Crown Federal Land - Vancouver Fraser Port Authority
- Crown Federal Land - Vancouver Airport Authority
- Crown Municipal Land - BC Municipality of Transportation and Infrastructure
- Private Property - Proponent's Existing YVR Fuel Storage Facility
- Private Property - Proponent
- Private Right-of-Way - Canadian National Railway
- Integrated Cadastral Fabric - Outlined

0 200 400 m.
Scale: 1:14,000

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Datum/Projection: NAD83, Albers Equal Area Conic



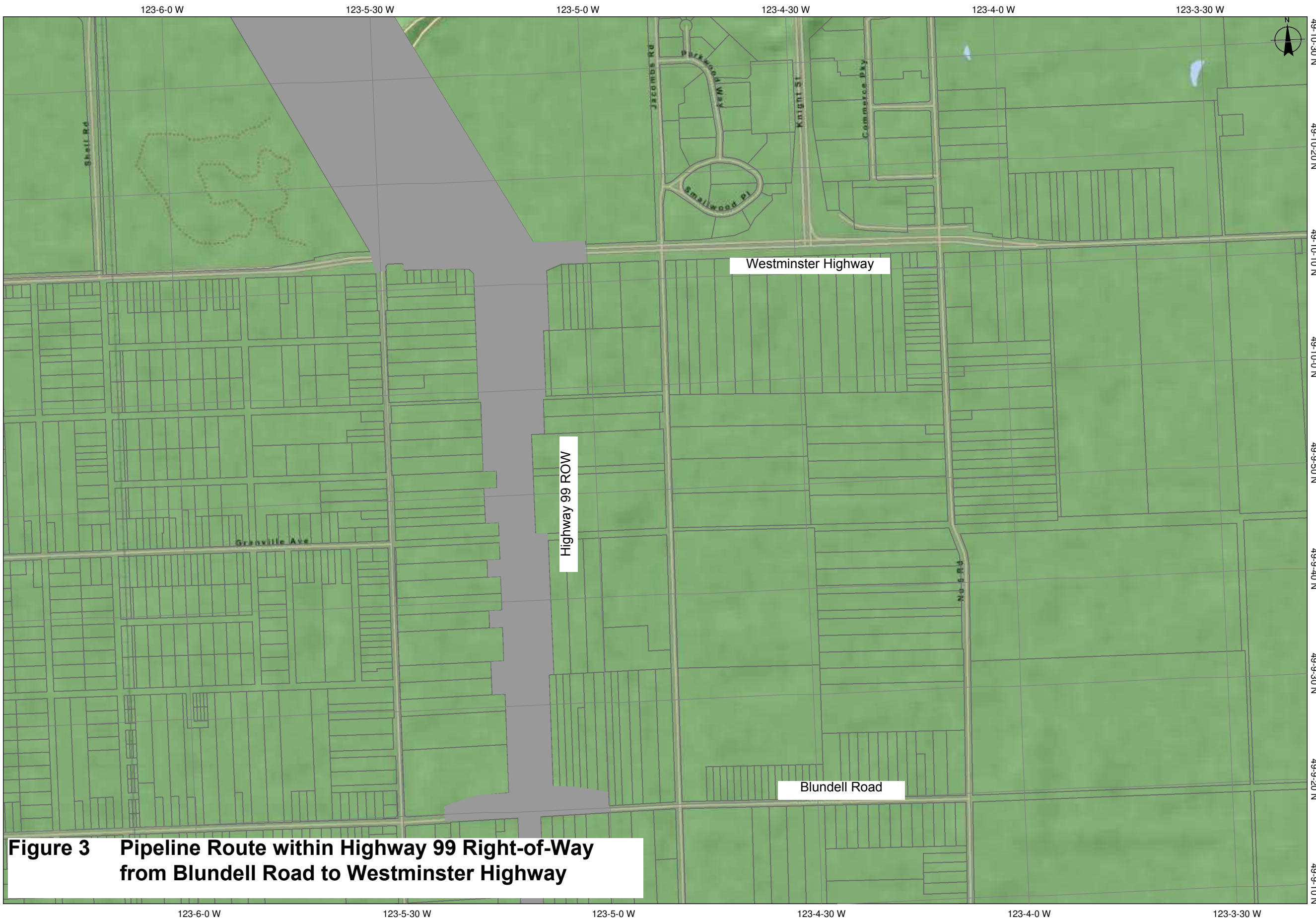
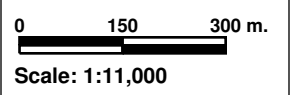


Figure 3 Pipeline Route within Highway 99 Right-of-Way from Blundell Road to Westminster Highway



iMapsBC Mapping
Legend

- Crown Provincial - Head Lease administered by Vancouver Fraser Port Authority
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- Private Property - Proponent
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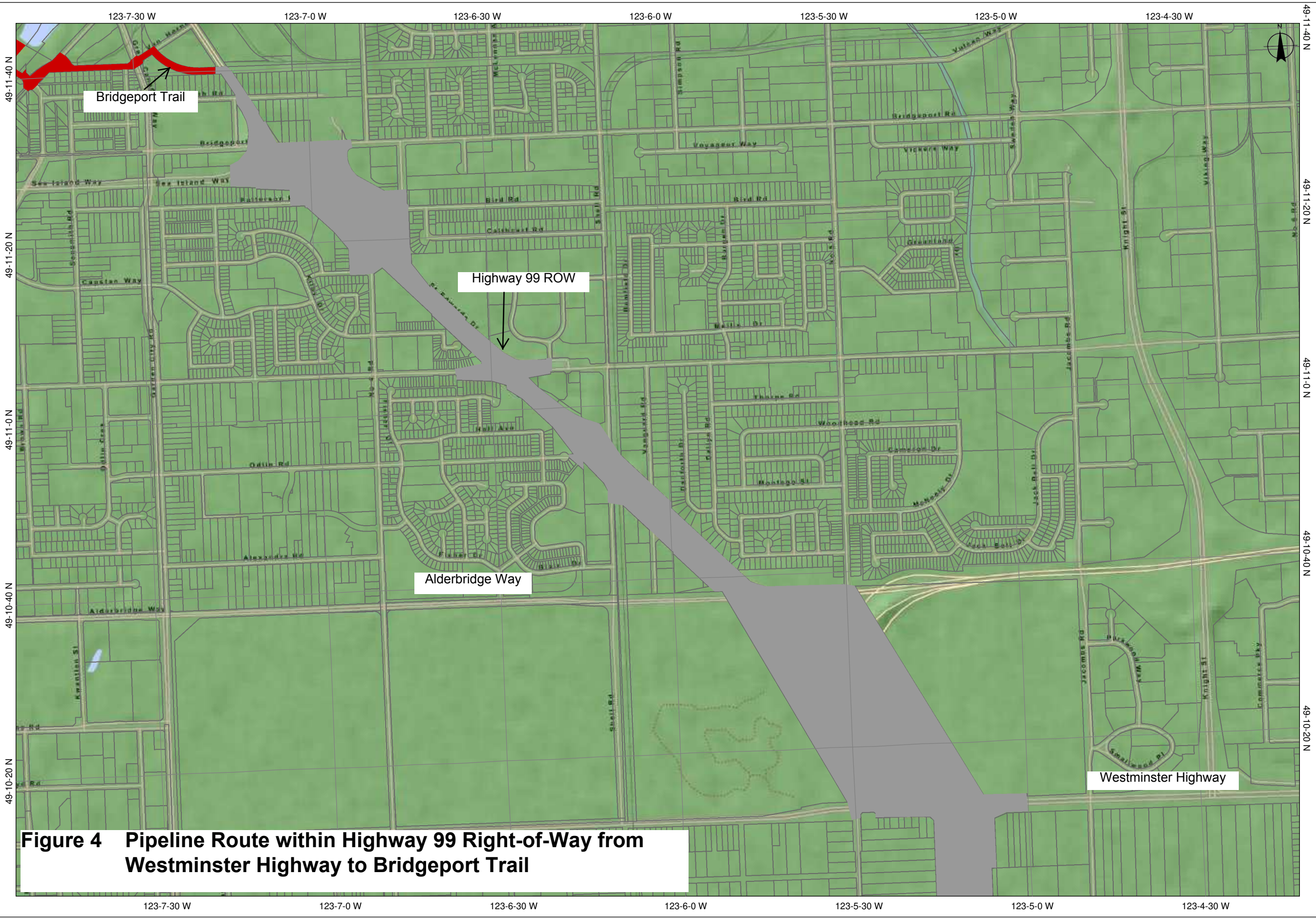
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Figure 4 Pipeline Route within Highway 99 Right-of-Way from Westminster Highway to Bridgeport Trail

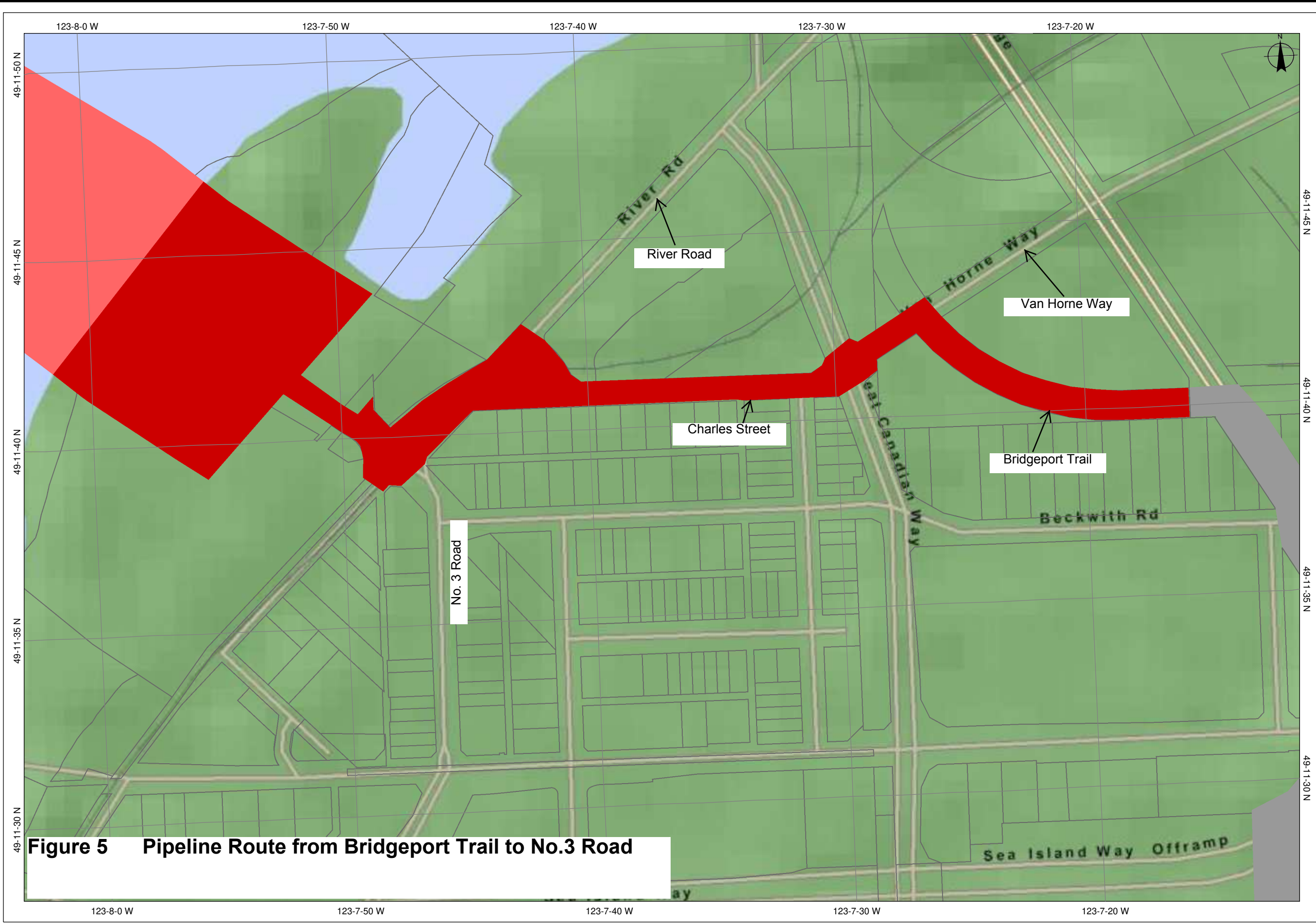
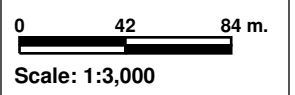


Figure 5 Pipeline Route from Bridgeport Trail to No.3 Road



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- Crown Federal Land - Vancouver Fraser Port Authority
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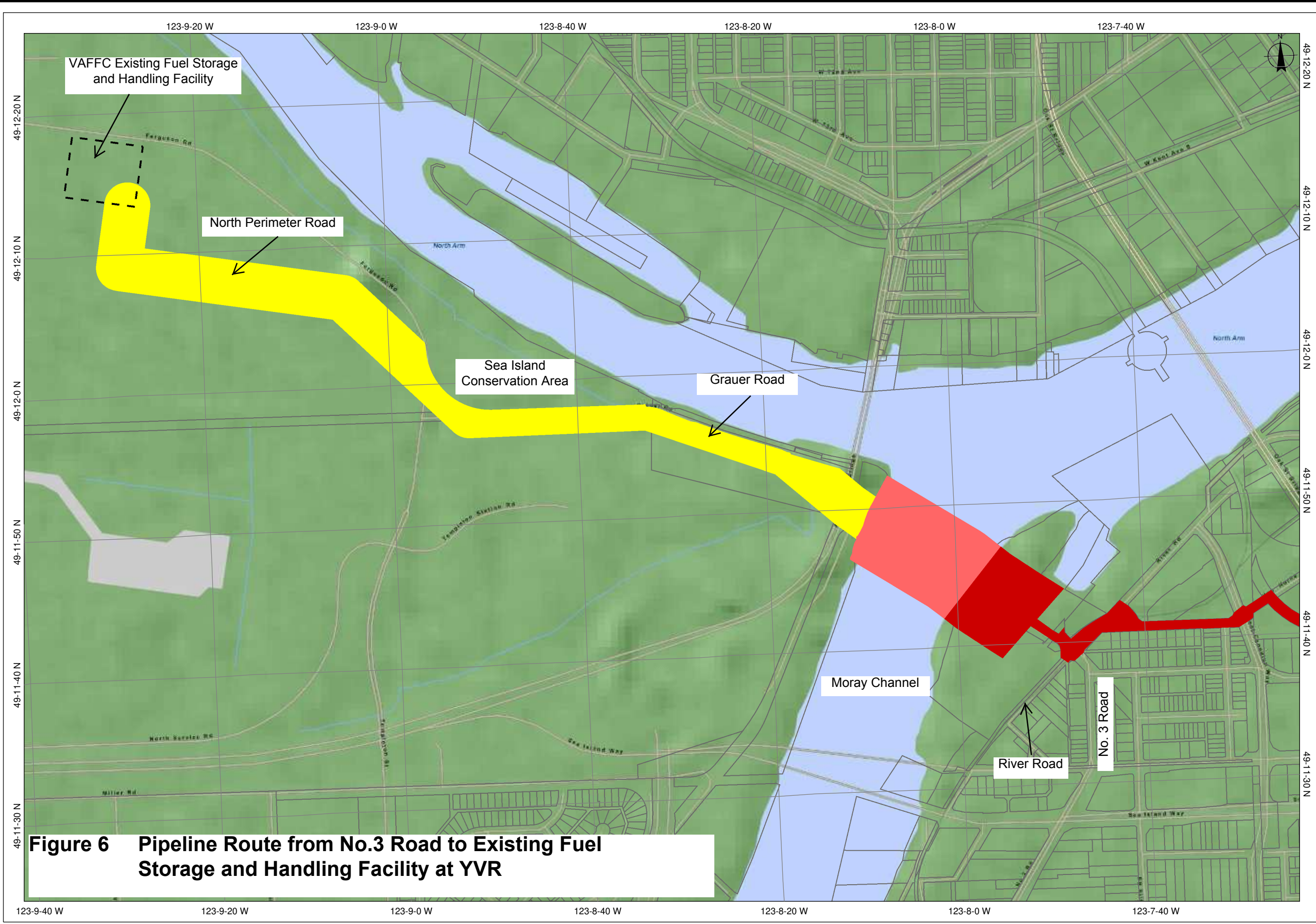
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Key Map of British Columbia





VAFFC Existing Fuel Storage and Handling Facility

North Perimeter Road

Sea Island Conservation Area

Grauer Road

Moray Channel

River Road

No. 3 Road

Figure 6 Pipeline Route from No.3 Road to Existing Fuel Storage and Handling Facility at YVR



iMapsBC Mapping
Legend

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Scale: 1:8,000

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Key Map of British Columbia



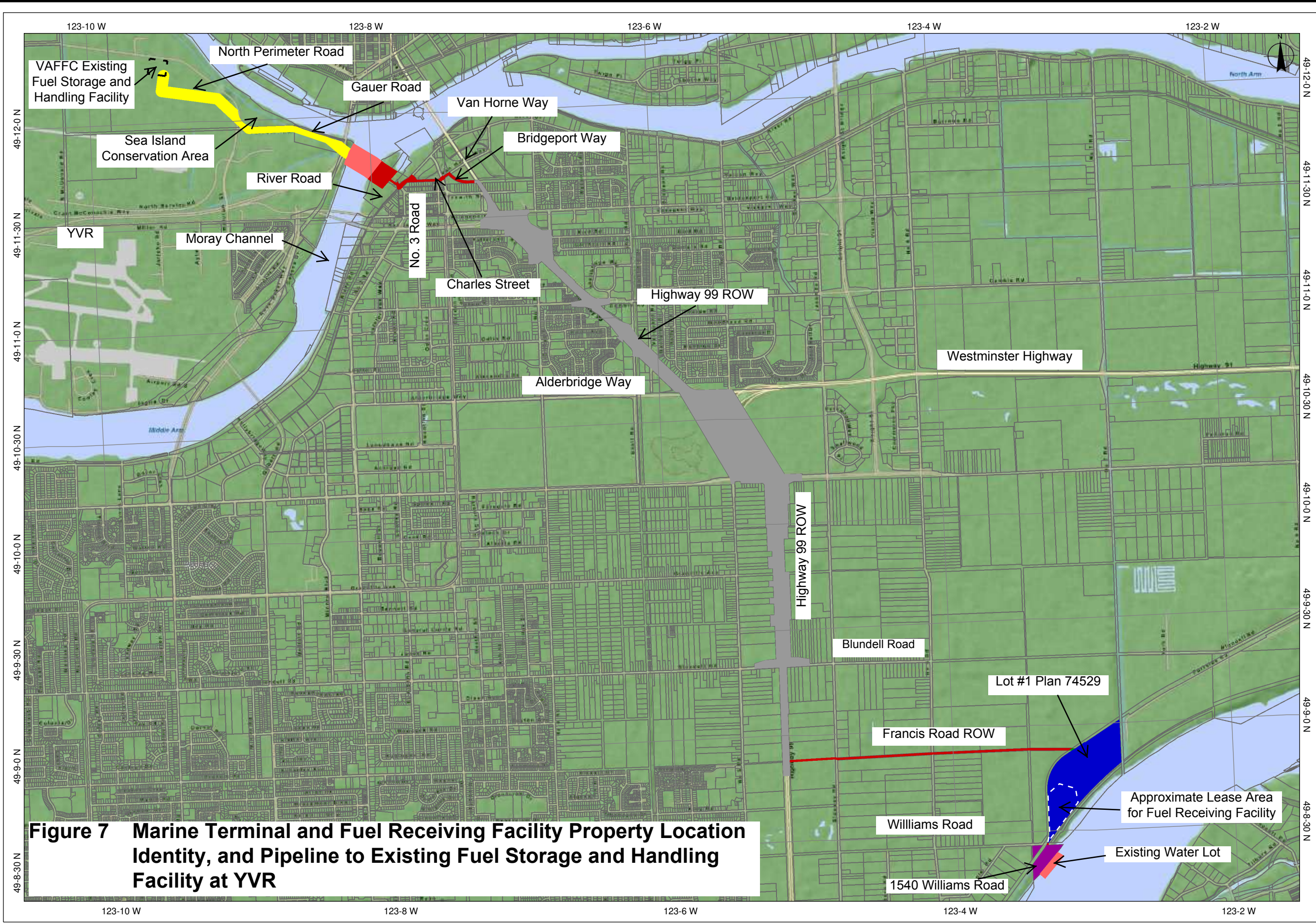


Figure 7 Marine Terminal and Fuel Receiving Facility Property Location Identity, and Pipeline to Existing Fuel Storage and Handling Facility at YVR

BRITISH COLUMBIA
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- █ Crown Provincial - Head Lease administered by Vancouver Fraser Port Authority
- █ Crown Provincial Land - BC Ministry of Transportation and Infrastructure
- █ Crown Federal Land - Vancouver Fraser Port Authority
- Private Property - Proponent's Existing YVR Fuel Storage Facility
- █ Crown Federal Land - Vancouver Airport Authority
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Scale: 1:32,000

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