Port of Vancouver, USA

TERMINAL NO. 1 WATERFRONT DEVELOPMENT

PROJECT NARRATIVE | DECEMBER 2016

nbbj | BergerABAM

Terminal 1 Waterfront Development

TYPE IV REVIEW NARRATIVE

State Environmental Policy Act
Planned Development (Concept Development Plan)
Shoreline Substantial Development Permit
Shoreline Conditional Use Permit
Archaeological Predetermination Review
Tree Permit

Applicant:
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Submitted to:
City of Vancouver
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PORT OF VANCOUVER
TERMINAL 1 WATERFRONT DEVELOPMENT
Type IV Review Narrative

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1.0 INTRODUCTION AND SUMMARY

This narrative is provided in support of the Terminal 1 Waterfront Development (the project) the Port of Vancouver USA (the Port) proposes to construct at its Terminal 1 located along the Columbia River in downtown Vancouver (City). The project is located in the Columbia River Renaissance district of the Vancouver City Center Vision (VCCV) subarea plan.

The conceptual master plan (the plan) proposes to develop the 10.37-acre site with approximately 355 residential units (apartments and possibly live/work units), 62,000 square feet of retail space, 200,000 square feet of commercial office space and a 160 room hotel (including retail, restaurant and event and support office space). The project also includes the potential reuse of approximately 36,600 square feet of existing building area as a "market place". In addition to these elements the plan includes public amenities including an extension of the Columbia River Renaissance Trail, and enhancement of the existing pier to add new civic open spaces and amenities (see Figure 1. Illustrative Site Plan). At this time, the Port is requesting approval of the conceptual master plan pursuant to Vancouver Municipal Code (VMC) 20.630.080(C), as well as approval of other required permits necessary to implement the plan. As established by VMC 20.620.030 B, the plan will:

- Assure that the proposed development is considered as a whole and will conform to the comprehensive plan and the underlying requirements of the zoning district.
- Assure that phased development is properly coordinated.
- Provide the Port and its development partners with reliable assurances of the City's expectations for the overall project as a basis for detailed planning and investment.
- Coordinate the master plan process with the requirements of the state Shoreline Management Act (SMA)[1] and the *City of Vancouver Shoreline Master Program* (SMP).

The plan approval process follows the requirements of VMC 20.260, Planned Developments. The Port is seeking approval of the conceptual master plan according to VMC 20.260.030(A)(1). After approval of the plan, individual buildings would require detailed plan (site plan) and design review approvals prior to building permit issuance.

[1] Revised Code of Washington Chapter 90.58.

This narrative is provided to support the following City permit approvals:

- Planned development approval with concept development plan
- Shoreline Substantial Development Permit (SSDP) and Shoreline Conditional Use Permit (SCUP)
- State Environmental Policy Act (SEPA) planned action concurrence
- Critical areas permit (frequently flooded areas, fish and wildlife habitat conservation areas, and geologic hazard areas)
- Archaeological predetermination survey
- Tree plan/tree removal
- Concurrency certificate

The project team and contact information is indicated below. Inquiries should be directed to Matt Harding at the Port.

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2.0 PROJECT LOCATION

The site is located in downtown Vancouver on the north bank of the Columbia River in Clark County, Washington (Figure 3. Vicinity Map). The plan area encompasses the parcels shown in Table 1; all are owned by the Port (See Drawing C-1 in Appendix C). Some of these parcel boundaries extend beyond the project area and the total acreage of the parcels exceeds the size of the project area.

Table 1. Site Parcels

Parcel	Size (acres)	Township, Range, Section, 1/4 Section
48843-000	4.01	SW 1/4,S27,T2N,R1E and SE 1/4,S28,T2N,R1E
48841-000	2.25	SW 1/4,S27,T2N,R1E
48844-000	1.35	SW 1/4,S27,T2N,R1E
502240-000	2.00	SW 1/4,S27,T2N,R1E
502245-000	0.24	SW 1/4,S27,T2N,R1E
502246-000	0.69	SW 1/4,S27,T2N,R1E
502250-000	1.58	SW 1/4,S27,T2N,R1E

In addition to the parcels noted in Table 1, the project area includes aquatic land that is owned by the state and managed by the Port through a port management agreement with the Washington State Department of Natural Resources. [2] The street addresses of the former hotel and the existing office building are 100 Columbia Street and 110 Columbia Street, respectively.

3.0 BACKGROUND

In 2015, the Port prepared, with public input, a master plan for the property. [3] The preliminary master plan defined a vision for the Port's development of their property as part of the ongoing effort to improve and revitalize the Columbia River waterfront in downtown Vancouver as envisioned by the City in the VCCV adopted in 2007.

The Port plays a key role in the local, regional, and national economies through investments in facilities and leveraging improvements with private investment and other funding to attract jobs and development to Vancouver. Port facilities are leased to customers and tenants that generate jobs, infuse business into the economy, contribute to state and local taxes, and provide the region with access to the global marketplace. The Port's mission is to provide economic benefit to the community through leadership, stewardship, and partnership in marine, industrial, and waterfront development. The proposed project supports this mission.

[2] Includes lands that are landward of the ordinary high water mark (OHWM)

[3] Port of Vancouver Waterfront Development Master Plan November 13, 2015 Available at: http://www.portvanusa.com/assets/POV-Waterfront-Dev-Master-Plan-111315.pdf

The Port initiated the development of the master plan for Terminal 1 in April 2015. The 8-month planning effort included discussions with the Port Commission and Port staff, City staff, Columbia Waterfront LLC and other stakeholders, and the general public. The process included an information-gathering effort to analyze the site conditions, assess potential uses, and envision possible program elements. Stakeholder interviews were conducted to solicit ideas and ascertain community values, and identify opportunities for development. Throughout the process, several Port Commission workshops were held to explore aspirational ideas and values for the future development. The workshops included discussion among commissioners and members of the public who were in attendance.

The master plan for Terminal 1 was presented to the Port Commission in September 2015 and modifications were made based on input received from the commission and staff. The *Port of Vancouver Master Plan* (accepted by the commission in October, 2015) proposed a mix of uses, including office, hotel, residential, and retail organized around the existing overwater pier structure and the adaptive reuse of the Terminal 1 building as a central marketplace.

Over the last several months, the Port has developed more refined site information, including planning-level geotechnical and soils assessments, site survey boundary and topography data, and structural data for the Termina1 1 building and the existing pier structure. This new information enabled the Port staff and commissioners to further evaluate the site constraints and development potential for the Terminal 1 site and to make adjustments to the planned uses and intensities.

4.0 SITE DESCRIPTION

A description of the project site's existing conditions follows.

4.1 Comprehensive Plan

The City of Vancouver Comprehensive Plan 2011–2030 designates the site as Commercial. The site is also located in the VCCV subarea and is included in the Columbia West Renaissance subdistrict.[4] The Columbia West Renaissance subdistrict was adopted to facilitate the development of public access along the Columbia River shoreline and to encourage the development of shoreline priority uses (water-dependent, water-related, water enjoyment, and/or environmental protection). The VCCV was adopted in 2007 and the City established the area as a Planned Action.

4.2 Zoning and Land Use

The site is zoned City Center (CX) (VMC 20.630) (Figure 4. Zoning Diagram). The CX designation is intended to promote a mix of uses in a dense urban neighborhood. The CX zoning prohibits industrial uses and encourages primarily office, service, mixed-use, and single-use residential buildings and accessory parking, with

[4] See page 22 of the Vancouver City Center Vision and Subarea Plan Vancouver, Washington.

limitations on surface lots. The site is also included in the Columbia River Shoreline Enhancement Plan District (VMC 20.620) and is within the Airport Height Overlay District (VMC 20.570).

The site includes the Columbia River and adjacent uplands, which are subject to the Washington State Shoreline Management Act (Revised Code of Washington [RCW] 90.58) as implemented by the City's SMP. The Columbia River and land 200 feet landward from the OHWM of waterbodies are subject to the regulatory requirements of the SMP. Portions of the land waterward of the OHWM are designated as Aquatic and areas 200 feet landward of the OHWM of the Columbia River are designated High Intensity (Figure 4. Zoning Diagram).

The existing development on the project site was developed a considerable time ago and there is limited record of development approvals. The former Centennial Center was demolished for the construction of Columbia Way and there are no known outstanding conditions related to that demolition. There are no other known land use cases on the subject site.

4.3 Existing Structures and Development

The site includes existing parking, landscaping, buildings, and overwater structures that have been constructed at various times in the past (see Drawing C-1 in Appendix C). The site is accessed from Columbia Street, which forms the eastern boundary of the site. Columbia Way was constructed through the site in 2015 and divides the site roughly in half from east to west. Columbia Way connects Columbia Street to Esther Street and extends west to Grant Street.

The Terminal 1 pier and warehouse were constructed in 1926 following the transfer of the pier to the Port from the City. The pier is constructed primarily of numerous wooden piles with a concrete and wood decking. There are also areas of steel piles at mooring points. The pier originally extended approximately 1,300 feet along the shoreline. In 1959 the Terminal 1 warehouse was remodeled into the restaurant. Meeting rooms were added in 1962 followed by the motel in 1965-1966 with additional rooms and a remodel completed in 1970-1973. The approximately 55,000-square-foot hotel included 160 guest rooms, banquet rooms, and a swimming pool, along with an additional 30,000-square-foot restaurant/bar. The Port anticipates removal of the west and north wings of the hotel in early 2017. The amphitheater that constitutes the west end of the pier was constructed in 1991 and the float for small boats was added in 1993. The amphitheater is constructed of steel piles with a concrete deck. The pier is used for various marine purposes, including moorage by river cruise ships.

The Columbia Business Center is located on the west end of the project area. This two-story office building is owned by the Port and leased to multiple tenants. This structure was constructed in 1968 and provides 8,000 square feet of general office space.

The remainder of the site, including land located north of Columbia Way, is primarily devoted to asphalt parking lots to serve the existing uses.

To the north of the site is a berm/structure on which the BNSF Fallbridge Subdivision is located. This east-west rail corridor contains two tracks in this location. In addition, the Port's rail access line branches off the BNSF line at this point. This line provides access to the Port for rail traffic. West of the site are Blocks 1 and 2 of the Waterfront Development. These blocks are undeveloped but are part of the master plan approved by the City. The City is also in the process of constructing a waterfront park immediately adjacent and downstream of the project site. The park will include a section of the Columbia River Waterfront Renaissance Trail that will connect with the current public access improvements at the amphitheater. East of the project site between Columbia Street and Interstate 5 (I-5) is a paved asphalt parking lot and bicycle and pedestrian connection to the I-5 bridge. South of the site is the Columbia River.

City owned Pearson Airfield is located approximately 2,000 feet east of the project site. While not directly adjacent to the site, planes utilizing the airfield pass over the site during landings and take-offs. The airfield is a general aviation facility without scheduled commercial airline service. It has a single, 3,275 feet long runway with approximately 175 based aircraft and approximately 50,000 aircraft operations per year (2010).

Table 2. Study Area Calculation contains a summary of the existing site area, land and shoreline areas, overwater and other structures, parking, and road right-of-way.

Table 2. Study Area Calculation

Item	SF	Acres
Land Area		
Street Rights-of-Way	102,799	2.36
Developable Block Area	191,888	4.41
Upland Open Space (Renaissance Trail, Daniels Way, and adjacent open spaces)	66,144	1.52
Shoreline Area	11,696	0.26
Total	**372,527**	**8.55**
Overwater Pier Structure		
Wood Pier/Piling System Steel/Concrete	62,250	1.43
Amphitheater & Ramp System	14,625	0.33
Small Boat Moorage/Gangway	2,750	0.06
Total	**79,625**	**1.82**
TOTAL STUDY AREA	**452,152**	**10.37**
Total Overall Project Development Area		
Shoreline Area	**LF**	**%**
Open Shoreline Edge	269	28%
Shoreline Under Pier	680	72%
Total	**949**	**100%**
Structures	**SF**	
Red Lion at the Quay South Wing	23,390	
Red Lion Lobby Area and Wings	16,490	
Terminal 1 Building	17,500	
Columbia Business Center	8,000	
Total	65,380	
Parking	**Quantity**	
Vehicle Spaces	242	
Americans with Disabilities Act (ADA)	7	
On Street Parking	34	
Total	**283**	
Road Right-of-Way**	**SF**	**Acres**
Columbia Way	48,912	1.12
Proposed North Access Way	34,805	0.80
Access Way 5	19,082	.44
Columbia Street and Shoreline Area	28,607	0.65
Total	**131,406**	**3.01**

4.4 Natural Conditions

Natural conditions on the site are summarized in the following sections.

4.4.1 Geology and Soils

Soils on the site are composed of fill material, according to Clark County GIS. Land composed of fill material is classified as a liquefaction or dynamic settlement hazard area per VMC 20.740.130(A)(2)(a)(2). Portions of the site are identified by the National Earthquake Hazard Reduction Program rating as a Site Class C, which does not qualify as a geologic hazard according to the VMC, and slopes on the site range from 5 to 10 percent (excluding engineered slopes). Additional information on geology and soils is contained in the critical areas report (Appendix G).

4.4.2 Vegetation and Habitat

The project site includes the Columbia River, which provides habitat for a variety of aquatic species. The river is the southern boundary of the Port-owned parcels listed in Table 1. Aquatic habitat within the project site is limited because of the shading and piles associated with the existing pier and the riprapped shoreline. The riverbed drops off quickly to deep water with limited shallow-water habitat and no aquatic vegetation.

Because of the existing pier and other development on site, there is limited habitat on the upland portions of the site. The only upland habitat consists of vegetation along the Columbia River both upstream and downstream of the existing pier. Vegetation on the upland portion of the site consists of landscaping and perimeter plantings around existing structures and parking lots with some limited riparian vegetation in areas not devoted to overwater structures. Additional information on habitat conditions is contained in the critical areas report (Appendix G).

4.4.3 Wetlands

A review of available resources, including the Clark County GIS Online mapping tool and the National Wetlands Inventory did not indicate the presence of wetlands on or near the project site. This was confirmed by qualified wetland professional following a site visit (see Appendix G).

4.4.4 Waterbodies

The site includes the Columbia River, a Type S shoreline of the state, and it is known to support resident and anadromous fish species, marine mammals, and a variety of bird species. The river at his location is approximately 2,600 feet wide. The U.S. Army Corps of Engineers (USACE) maintains the river as a navigation channel to a minimum depth of 35 feet.

4.4.5 Floodplains

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 53011C0481D, a small section of the project site paralleling the Columbia River, approximately 50 feet landward from the water's edge, contains a 1 percent annual chance of a flood event (100-year floodplain). Land adjacent to the shoreline of the Columbia River (approximately 10 feet landward of the OHWM) is

designated as a Floodway. The Floodway includes the river channel and adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation. Portions of the project site are also located within an area that has a 0.2 percent annual chance of a flood event (500-year floodplain).

5.0 PROJECT DESCRIPTION

The following project description represents the proposed plan (Figure 1. Illustrative Site Plan). The plan represents an update from the *Port of Vancouver Waterfront Development Master Plan* accepted by the Port Commission in 2015. The proposed plan details remain consistent with the overall vision and project elements defined by the Port Commission.

The plan defines a vision for the Port's Waterfront Development that is consistent with the Port's mission to provide economic benefit to the community through leadership, stewardship, and partnership in maritime-related development. The planning process that preceded the design of the Port's Waterfront Development identified the following guiding principles for future development at the site:

- Provide public access to the Columbia River waterfront.
- Develop public assets in a financially responsible manner.
- Use sustainable development practices.
- Interpret the Port's history as an economic development engine for Southwest Washington.
- Create a development that supports the community through economic growth and job creation.

5.1 Proposed Master Plan Buildings and Uses

The proposed plan anticipates a mix of uses and building typologies on four blocks (Figure 2. Block Diagram) organized along the Columbia River waterfront. As proposed, the individual buildings represent varying scale and massing and are intended to express both a horizontal and vertical mix of uses with taller, denser structures oriented toward the north portion of the site (Block A and Block C), mid-level buildings fronting Columbia Way and the Columbia River edge (Block B and Block D), and lower structures, such as the Terminal 1 building, located on the pier structure (Figure 1. Illustrative Site Plan).

The plan includes approximately 10 acres that comprises upland developable areas (blocks), an existing overwater pier structure, and shoreline areas. The developable area is organized around the four blocks, each fronting Columbia Way as the primary access. In addition, the existing pier will accommodate a retail-oriented "marketplace use". The City's CX zone and the allowable building heights support a mix of uses, including office, retail, residential, and special uses promoting waterfront access, entertainment, and recreational uses along the waterfront.

Figures 5 and 6 illustrates the allowable building heights and building envelopes as imposed by zoning standard. The proposed building heights are labeled in black; maximum zoning height allowances are labeled in blue. Based on the allowable building height for the study area, a total of 2,531,192 square feet of development could be accommodated on the proposed blocks. The allowable building heights (and total allowable square footage) will be predicated on a final decision by the Federal Aviation Administration (FAA) and the City. This final decision may impact the total building height limits for each block and the total allowable area for the project.

Table 3. Allowable Development Area by Block

Block	Area (SF)	Total Estimated Area (SF)
A	48,777	536,547
B	55,005	605,055
C	51,850	777,750
D	36,256	543,840
Waterfront Pier	79,625	68,000
Total	**271,513**	**2,531,192***

*Based on estimated allowable building height per the COV and/or FAA requirements

5.2 Program Description of Uses

The following section describes the key elements of the project, including land use areas, block layout, building square footage, street infrastructure, pedestrian and bicycle connections, vehicle and service access, parking, and urban design standards for buildings, landscaping, and wayfinding opportunities. The plan includes a range of uses distributed over four development blocks, as well as the public use area for the existing pier structure and waterfront area (Figure 1. Illustrative Site Plan).

Block A is proposed as a mixed-use development that may include ground-level retail (a combination of shops, restaurants, and retail services), ground-level and second-level residential apartments, and/or live/work units, commercial office above the retail, and a combination of underground and aboveground parking. The parking uses are intended to be part of a project-wide shared use program that supports a 24-hours-a-day, 7-days-a-week mix of uses. The ground-level uses that front Columbia Stree**t**, a primary access to the project from the downtown business district, and Columbia Way are intended to activate the pedestrian experience for both Columbia Street and Columbia Way. Block A building and uses are envisioned to be physically separated from Block C by a pedestrian breezeway corridor fronted by residential units, and/or ground-level retail. The pedestrian breezeway serves as a connection from Columbia Way to Columbia Street and the BNSF railroad underpass and downtown district.

Block B is proposed as a signature mixed-use development that may include flexible, multipurpose uses, such as public/community gathering space, ground-level retail and makers work space (regional craft and small production retail uses), live/work and/or workforce apartments, aboveground office, and potentially

underground parking with access off of Columbia Way. Block B is oriented toward the Columbia River, has primary access off of Columbia Way, and is viewable from Columbia Street from the north. This primary block is envisioned as a notable architectural centerpiece that responds appropriately to the Terminal 1 building marketplace across from the Columbia River Waterfront Renaissance Trail to the south and the future retail space to the west.

Block C uses support a mix of uses that center on a residential function and ground-level retail (shops, restaurants, and retail services). Block C is a slightly larger block and, therefore, provides for the greatest density as well as taller structures. Block C is envisioned to include a combination of underground and aboveground structure parking and possibly up to two residential towers that may accommodate up to 300 residential units. The parking structure will support a 24-hour-a-day, 7-days-a-week shared-use parking program design to accommodate residential units on the block as well as other uses for the project.

Block D is designated for hospitality uses that may include a hotel with an estimated 160 guest rooms, small-event space, restaurant, ground-level retail fronting the Daniels Way pedestrian corridor, and support office uses. This block may also accommodate underground or aboveground structured parking and possible valet drop off and parking. The Block D hotel use is envisioned as a signature hotel with primary access off of Columbia Way and strong orientation of uses fronting the Daniels Way pedestrian feature, the Renaissance Trail, and the Columbia River to the south.

The Waterfront Pier encompasses the existing overwater wood pier and piling structure, waterfront shoreline areas, and the upland Columbia River Waterfront Renaissance Trail and adjacent open spaces connecting the trail to upland street rights-of-way (Access Way 5, Daniels Way, and Columbia Street). The Waterfront Pier is the signature entertainment and recreational destination for the Waterfront Development. This important public access and civic space is proposed for multiple programmed outdoor spaces and activities, with a focus on providing public access to the shoreline of the Columbia River. The Waterfront Pier area will use the original 1920s Terminal 1 building as an adaptive-use marketplace with water-related uses, retail, and a visitor center supporting the American Empress tours and other water-related visitor attractions. In addition, the South Wing of the former hotel will be reused as a market place use and maintained through the initial phases of development. The open pier areas include outdoor civic and entertainment spaces, landscape areas, the lower floating dock access improvements, Columbia River Waterfront Renaissance Trail and waterfront park connections, and emergency service access areas. The existing amphitheater located on the west end of the pier is envisioned to be renovated as an outdoor space supporting passive waterfront uses and activities. Another proposed outdoor space may be located directly west of the Block D hotel site. This programed space may serve as an overflow outdoor

entertainment area for hotel sponsored events. A planned flexible outdoor area is to the east will also serve as flexible use space for events.

A summary of developable site area is provided in Table 4 below. Note: this table highlights ground level site area only and does not account for the total square footage potentially allowed for proposed structures for each Block.

Table 4. Developable Area by Block

Conceptual Totals (Build Out)	SF	Acres	Percent
Block A (Mixed-use)	48,777	1.11	10
Block B (Mixed-use)	55,005	1.26	12
Block C (Mixed-use)	51,850	1.19	11
Block D (Hospitality)	36,256	0.83	8
Pier Area (marketplace)	79,625	1.84	18
Subtotal Developable Area	**271,513**	**6.23**	
Rights-of-way	102,799	2.36	23
Open Space	77,840	1.78	18
TOTAL DEVELOPABLE AREA	452,152	10.37	100

As shown in Table 3. Developable Area by Block, the project area could support a total of 2,531,192 square feet of development on the 10.37-acre site. The allowable development threshold is based on the City's CX zone and allowable building height limitations. This maximum buildout may be affected by factors, such as on-site parking, any future 1-5 bridge replacement project, height limits due to the proximity to Pearson Airfield and land use and intensity reviewed as part of the VCCV adoption and SFEIS. With that understanding, the current plan includes approximately 975,000 square feet of development with an estimated additional 210,500 square feet of site infrastructure improvements related to public right-of-way, pier, and shoreline improvements.

Tables 5, 6 and 7 identify the proposed master plan program at a future buildout, public realm programmed space and proposed uses by block respectively. The square footage estimates and unit counts identified below are inclusive of proposed development uses and area requirements and project parking requirements and are provided for planning and programming purposes. Actual square footage by use for each block will vary from the numbers indicated below but may not exceed the total amount identified for the project. Table 5. Proposed Master Plan Program- Buildout includes an estimate of parking by block. The parking estimates are based on City standards and are projected estimates only. The final parking allocations will likely vary depending on the final design approach to each development project for each block.

Table 5. Proposed Master Plan Program – Buildout

Development Type	Proposed Amount			
	Target SF	Unit	Percent	Blocks
Terminal 1 "Marketplace"	25,000		4	Pier Area
Office Buildings[a]	200,000		21	A,B,C,D[1]
Retail (including restaurant)	62,000		6	A,B,C,D
Hotel	105,500	160 rooms	12	D
Residential: Apartments	245,500	355 units	25	A,B,C
Subtotal Gross SF	**638,000**			
Parking	310,500	809 stalls	32	All
Total Developable Area	**948,500**		**100**	

Table 6. Proposed Master Plan Public Realm Program – Buildout

Public Realm Type	Proposed Amount			
	Target SF	Acre	Percent	Blocks
Rights of Way				
North Access Way	34,736	0.80	13	A,C
Columbia Way	48,912	1.12	19	All
Access Way 5	19,083	0.44	7	C,D
Waterfront Pier	76,175	1.75	29	-
Shoreline	15,015	0.34	6	-
Renaissance Trail/Daniel's Way	66,143	1.52	25	B,D
Total Public Realm Program	**260,064 SF**	**5.97**	**100**	

Table 7. Proposed Development Program by Block

BLOCK A	**Anticipated Development Area**		
Lot Coverage: 58% *Block Area: 48,777 SF* *FAR: 2.50* *Allowable Height: 120'* *Proposed Height: 98 feet*			
Use	**GSF**	**Unit**	**Percent Area**
Retail	6,600	-	6%
Office	100,000	-	84%
Residential (Live/work/Apartments)	12,000	11	10%
Hotel	n/a	-	-
Sub-Total	**118,600**		**100%**
Parking	42,750	114 stalls	-
TOTAL	**161,350**	**-**	**-**
SUGGESTED GSF[1]	165,000	**118 stalls**	

Table 7. Proposed Development Program by Block (Continued)

BLOCK B	**Anticipated Development Area**		
Lot Coverage: 66% *Block Area: 55,005 SF* *FAR: 2.73* *Allowable Height: 120'* *Proposed Height: 88'*			
Use	**GSF**	**Unit**	**Percent Area**
Retail	30,000	-	20%
Office	100,000	-	62%
Residential (Live/work/Apartments)	27,000	44	18%
Hotel	n/a	-	-
Sub-Total	**157,000**		**100%**
Parking	62,625	167 stalls	-
TOTAL	**219,625**		
SUGGESTED GSF[1]	222,000	**170 stalls**	

BLOCK C	**Anticipated Development Area**		
Lot Coverage: 88% *Block Area: 51,850 SF* *FAR: 4.29* *Allowable Height: 160'* *Proposed Height: 128'*			
Use	**GSF**	**Unit**	**Percent Area**
Retail	13,400		6%
Office	n/a		-
Residential (Live/work/Apartments)	206,500	300	94%
Hotel	n/a	-	-
Sub-Total	**219,900**		**100%**
Parking	117,375	313 stalls	
TOTAL	**337,275**		
SUGGESTED GSF[1]	340,000	**316 Stalls**	

Table 7. Proposed Development Program by Block (Continued)

BLOCK D	**Anticipated Development Area**		
Lot Coverage: 64% *Block Area: 36,256 SF* *FAR: 3.35* *Allowable Height: 160'* *Proposed Height: 96'*			
Use	**GSF**	**Unit**	**Percent Area**
Retail	12,000		12%
Office	n/a	-	-
Residential (Live/work/Apartments	n/a	-	-
Hotel	105,500	160	88%
Sub-Total	**117,500**		**100%**
Parking	73,500	176 stalls	-
TOTAL	**191,000**		
SUGGESTED GSF[1]	195,000	**180 stalls**	

WATERFRONT PIER	**Anticipated Development Area**		
Allowable Height: 15[2]' *Proposed Height: 35'*			
Use	**GSF**	**Unit**	**Percent Area**
Retail (marketplace)	25,000	-	-
Pier Structure	76,175	-	-
Upland Improvements (Renaissance Trail, Daniel's Way)	66,143	-	-
Shoreline Open Space	15,015	-	-
Parking[3]	14,250	25 Stalls	
TOTAL	**196,583**		

[1] Suggested GSF is provided as a target program range, subject to change and reviewed during site plan review process.
[2] Per the SMP. The existing buildings exceed this height (as measured from OHWM) but are considered conforming per the provisions of the SMP. See Narrative Section 7 for details.
[3] Parking associated with waterfront retail development to be located in upland block areas.

5.2.1 Streets and Transportation Facilities

The project will establish four city blocks organized along the recently completed Columbia Way—a minor arterial street connecting Columbia Street to the east and the Columbia Waterfront project to the west. Columbia Way includes two travel lanes, a left-turn lane at Columbia Way and Columbia Street, and 12-foot-wide sidewalks with street trees. Existing streets are shown on Appendix C, Drawing C-1. Table 8 summarizes the key characteristics of existing roadways serving the immediate area of the project.

Table 8. Existing and Proposed Transportation Facilities and Roadway Designations

Roadway	Classification	Cross Section	Speed Limit	Sidewalks?	Bicycle Lanes?	Median?	On-Street Parking?
Columbia Street[a]	Minor Arterial	2 lane	25 mph	Yes	Partial[b]	None	No[c]
Columbia Way	Minor Arterial	2-3 lane	25 mph	Yes	Shared	No	Yes
Esther Street	Minor Arterial	3 lane	25 mph	Yes	Yes	Partial	No
Access Way North	Local Access - Option B	2-lane	25 mph	South side only	No	No	No
Access Way 5	Minor Arterial	3 lane	25 mph	Yes	No	No	Yes

a A left-turn lane is provided northbound on Columbia Street at Columbia Way.
b Striped bicycle lanes are provided northbound and southbound on Columbia Street north from the Columbia Way intersection.
c On-street parking provided north of the BNSF Railroad Bridge along the east side of the roadway, ending between West Fourth Street and West Fifth Street.

Proposed improvements to streets and transportation facilities include street improvements to the North Access Way (from Columbia Street to Esther Street), Access Way 5 (from North Access Way to the Columbia River Renaissance Trail), Daniels Way pedestrian corridor (minimum width of 26-feet), and improvements related to the Columbia River Waterfront Renaissance Trail connecting Vancouver Waterfront Park, Columbia Street, and the multiuse Columbia River Waterfront Renaissance Trail to the east (Figure 9. Public Realm).

The Columbia River Waterfront Renaissance Trail connection is an important design element for the project and is a priority project identified in the VCCV. The trail currently connects Wintler Park with Esther Short Park and is part of the larger Lewis & Clark Greenway Trail planned by the *1996 Trail & Bikeway System Plan*. The trail section proposed will accommodate pedestrians and bicycles and provide access for service and emergency vehicles. The width of the trail corridor will vary; in general, it will be as wide as feasible and serve as a promenade-type of corridor with a rich palette of material choices, wayfinding, signage, landscaping, and public art elements.

Columbia Way will serve as the primary access to the area and the project site. The Columbia Way/Columbia Street intersection is a signalized four-way intersection with a dedicated left-turn lane on Columbia Way to Columbia Street north.

On-site parking will be provided in a dispersed parking approach where each block is envisioned to accommodate some level of required parking on site. Block A and Block C will provide the majority of the required parking. As planned, parking proposed on Block A and Block C will be accessed via Access Way 5 and/or North Access Way. On-street bicycle parking and long-term secured bicycle parking are planned for the on-site parking structures. Any proposed hotel guest loading/unloading area will be of sufficient size to accommodate customer loading

and queuing on site. A valet parking area off of Columbia Way may operate as a one-way movement counterclockwise. If hotel valet service is provided on Columbia Way, the existing tree-lined sidewalk area on the north side of the hotel will need to be configured in a manner that preserves adequate sight distance at the driveways.

5.2.2 Pedestrian Connections

Columbia Way is the primary thoroughfare that bisects the project. This street includes vehicle travel lanes, on-street parking, tree-lined 12-foot-wide sidewalk areas, and concrete pavement at key intersections. Columbia Way will serve as the primary pedestrian connection through the site with direct access to adjacent side streets and pedestrian connections to the waterfront.

Proposed lateral street rights-of-way include Access Way 5, Daniels Way, and a series of breezeways or alleys designed to accommodate pedestrians as a primary means of access and circulation.

Daniels Way is envisioned as a pedestrian corridor or modified "woonerf" – a street primarily focusing on pedestrian amenities while allowing service and emergency vehicles. Daniels Way will include special pavement and crossing treatments, narrow travel lanes, wide pedestrian access, and street trees. The street cross section eliminates vertical curbs to encourage a stronger pedestrian environment. The intersection of Columbia Way and Daniels Way will include a change of material to possibly include a modified traffic table (also called a speed table) as a raised portion of the street, usually containing a crosswalk. The traffic table intersection is a flat surface level with the adjacent sidewalk and contains approach ramps meant to slow automobile traffic. The intersection would also have flush curbs with sidewalk bollards or rolled curbs to provide traffic calming and enhance pedestrian connectivity.

A raised traffic table intersection at Columbia Way and Daniels Way may be designed to accommodate future public transit and other vehicle movements through the intersection. Daniels Way will intersect with the Columbia River Waterfront Renaissance Trail and waterfront pier to invite pedestrians through the development and along the Columbia River.

The planned Access Way 5 located west of Block D will connect to the North Access Way to the north and terminate at the Columbia River Waterfront Renaissance Trail connection.

Bicycle routes and/or marked pavement are included along Columbia Way as currently constructed. The extension of the Columbia River Waterfront Renaissance Trail through the site will serve as a primary bicycle and pedestrian route. This section of the trail is envisioned as a wide promenade and shared bicycle and pedestrian facility marked by enhanced surface materials, lighting, public art and wayfinding and interpretive signage.

5.2.3 Transit Connections

Public transit does not currently serve the site. The closest route to the site is C-TRAN Route 39, VA/Rose Village. Near the project site, the route follows Sixth Street at approximately hourly intervals between 7 a.m. and 7 p.m. The closest stop is located on the west side of Columbia Street just north of Sixth Street (Esther Short Park) approximately 1,000 feet north of the site. Numerous other routes serve the downtown Vancouver area. In addition, a bus rapid-transit line – the Vine – that will link downtown Vancouver with the Fourth Plain Boulevard corridor is under construction. Once operational in early 2017, service is anticipated at a frequency of 10 minutes during peak hours and 15 minutes during non-peak periods. The Vine stop closest to the Port property is anticipated to be located on West Seventh Street near Main Street (this is within the 1/3-mile walk shed identified by C-TRAN as supporting the Vine).

It is anticipated that future bus rapid transit or other high-frequency transit service would extend into the site, the adjacent project, and into downtown Vancouver if extended through the site along Columbia Way. Should transit be extended to the project site the preferred location for a new transit stop should in close proximity to the Daniels Way/Columbia Way intersection.

5.2.4 Service Access and Loading Zones

Proposed service access and loading zones within the project will be located away from Columbia Way wherever feasible, with access to service areas and loading zones off adjacent streets.

Service and off-street parking access will be strategically placed away from pedestrian-oriented spaces as much as possible with exception of the Columbia River Waterfront Renaissance Trail and Daniels Way access that may be required to serve as an emergency access corridor in addition to primarily providing pedestrian access. If feasible, for Blocks A, C, and D (if applicable), vehicle access to trash and loading zones will be through parking structures. Block B may (or may not) include structured parking. If no parking is provided on Block B, service access for Block B and the Terminal 1 marketplace may have to be provided from Columbia Street to the east of the project. Service access to Block B will be determined in part if a future I-5 bridge crossing is a site constraint.

5.3 Phased Development Program

The plan will be implemented in a multi-phased, multi-year approach. Development will be implemented by both the Port and private partners for various phases and building projects. The phases are not intended to be sequential and are independent in both time and geography unless identified otherwise.

The phases reflect the current master plan and are based on the projected short- and long-term development program needs. The phasing program represents a level of flexibility.

The initial phases are intended to address the short-term maintenance needs of the existing pier and long-term pier and structural piling replacement, as well as new infrastructure, such as street rights-of-way, utilities, interim surface parking, the Columbia River Renaissance Trail, and small park areas. Additional phases, including development blocks, will address specific planned development uses for upland blocks, such as hospitality, office, retail, residential, and the Terminal 1 marketplace on the pier structure. The timing of development phases may also be linked to the ongoing pier structural maintenance and repair program and any required pier replacement.

5.3.1 Phase 1

Phase I (Figure 10. Phasing Plan: Phase 1) anticipates the demolition of the former Red Lion Rotunda[5] and the Columbia Business Center building. Development includes, Terminal 1 building utility relocations, and interim pier, Terminal 1 and South Wing building repairs and infrastructure improvements, such as seismic and ground improvements, utility changes, and the partial removal of the Terminal 1 building breezeway. In addition, Phase I is anticipated to include North Access Way road improvements to connect to Columbia Street, interim public space improvements at the amphitheater and upper pier decking, and interim renovation modifications to the exterior of the Terminal 1 building. Interim modifications will be limited to the interior of the building and other renovations, such as; reduction in the building footprint and windows, siding, and roof area that do not constitute an exterior alteration to the structure. Portions of the final repairs of the wood structure under the pier will be addressed in a series of sub-phases anticipated to happen over the three to four years. The sequence and timing of final pier repairs will be further analyzed as demolition and restoration work begin for the pier/Terminal 1 building and public space infrastructure.

The North Wing and West Wing of the Red Lion (60,000 square feet) are anticipated to be removed in early 2017. The area defined by the North Wing and West Wing will be used for interim surface parking in the area designated as Block B. Interim parking will require stormwater, parking lot paving and landscaping improvements to convert the former building area to parking.

The following area calculations illustrate the uses and square-foot coverages affected by Phase 1.

[5] The rotunda is the covered vehicle area serving the former hotel lobby area. It is anticipated that it will be demolished prior to the completion of interim parking improvements planned in this area.

Table 9. Phase 1 Uses and Square Foot Coverages

Pier Improvement	GSF
Red Lion South Wing renovation (interim use)	11,600
Red Lion Lobby renovation (interim use)	7,500
Terminal 1 Building interior remodel (interim improvements)	17,500
Total (Est.)	36.600

GSF = gross square feet

That portion of the existing wharf supporting the existing Terminal No.1 restaurant, conference center, hotel lobby and south hotel wing will undergo a series of maintenance and repair activities to extend the life of the structure by 10 years or more. The following activities are planned:

- Pile repair involving cutting piles at an elevation where no pile deterioration is present and adding a new sub-cap with posts above or splicing new posts above using concrete filled steel collars. Where the pile is cut near or below the mudline, the pile will require a spliced collar connection to avoid a buried wood connection.
- Post repair consisting of removal of deteriorated section of post and fill with new sub-cap and spacing corbels. Alternatively remove and replace post to below bent cap above.
- Remove and replace sub-cap and corbels with new connecting steel straps and thru-bolts.
- Remove and replace deteriorated sections of bracing with new members or splice new members with new connections.
- Add horizontal and longitudinal cross-bracing.
- Provide new bolts and hardware with possible splices to new member pieces.

The remaining portion of the wood pier extend west to the more recent concrete structure will be rebuilt with a modern code-compliant structure in phases, taking place over a number of years, within a 10-year time period. The likely method of replacement would be to install new steel or concrete pipe piles through the deck surface of the existing timber wharf. The deck structure would be constructed with concrete pile caps, precast concrete deck panels and concrete topping slab or a full-depth cast-in-place deck. Surface features including the plaza and lawn would be installed on the finished deck surface. As the structure is rebuilt, the original timber members would be removed with the timber piles pulled or cut below the mudline. The area of the pier and deck elevation would remain the same as the existing structure. The expected number of new driven steel or concrete piles is less than the current number of timber piles.

5.3.2 Phase 2

Phase 2 (Figure 11. Phasing Plan: Phase 2) of the Waterfront Development is intended to improve portions of the public realm and amenity space along the waterfront. This phase will include shoreline vegetation restoration to remove non-native invasive plant species, removal of the existing concrete ADA ramp (while maintaining the piles at grade as bank protection measures), upland ground improvements and waterfront site improvements, such as the Columbia River Waterfront Renaissance Trail and Daniels Way and Access Way 5 right-of-way connections at the waterfront. The Columbia River Waterfront Renaissance Trail and related amenities may be completed in stages or as a single project, depending on future grant funding and requirements. Improvements could include the full redevelopment of the amphitheater and access ramp and other civic space improvements on the pier, such as the tree garden and open space.

Improvements could include the full redevelopment of the amphitheater and access ramp and other civic space improvements on the pier, such as the tree garden and open space. The pier deck will likely be reconfigured to accommodate new programmed outdoor uses. It is anticipated that the existing concrete ramp that extends down from the current flag plaza and parking area down to the amphitheater will be removed. The existing deck surface would be removed and replaced with concrete pile caps and precast concrete deck panels with a concrete topping slab or a full-depth cast-in-place deck. Surface features would then be completed. Additional steel pipe piles will be necessary for structural support and would be installed after the existing deck surface is removed. An existing moorage float would remain and a new ramp installed to the new deck surface. Additional floatation may be needed for the float to accommodate the heavier weight of a new ramp. The shoreline would be enhanced with plantings following removal of the concrete ramp to the flag plaza and parking area. Existing remnant piles within the area may be removed or cut off. The impact of the anticipated new piles would be off-set by the reduction in piles in other areas of the pier and the restoration of the shoreline.

A new segment of the Columbia River Waterfront Renaissance Trail will be constructed upland from the existing pier and bulkhead wall. The continuous River Trail is envisioned as a wide open landscaped promenade that will accommodate both pedestrians and bicycle users. At the terminus of Access Way 5, at the Columbia River Waterfront Renaissance Trail a pedestrian overlook feature will be incorporated. This design element may include a seating area, hand rail and interpretive signage and may be constructed over fill or support by piles and would be landward of the OHWM. At the east end of the project, the Columbia River Trail will intersect with Columbia Street in the vicinity of the City owned small pocket park and public art sculpture. This area may require some re-design and the relocation of the existing public artwork in order for the new trail to connect to the Columbia Street right-of-way.

5.3.3 Phase 3

Phase 3 (Figure 12. Phasing Plan: Phase 3) is the initial development phase of the mixed use blocks. The primary focus for Phase 3 includes the hospitality use on Block D, including hotel rooms (an estimated 160 guest rooms), lobby and event space, retail, restaurant, and support office uses. As envisioned, the primary hotel guest access will be accommodated off of Columbia Way with a guest drop-off zone. Hotel service access will be located on the west side off of Access Way 5.

Phase 3 may also include development of Block A with office, residential, and ground-level retail.

As part of the Block A construction phase, the North Access Way will be completed for that section from Columbia Street west to Block 1 of the adjacent Waterfront development. North Access Way will provide access to on-site parking on Block A and C as required. Per the current parking strategy plan, it is anticipated that a combination of interim at-grade surface parking and underground or aboveground parking may be included for each development block to accommodate new development (see section 5.7.1 for information about parking).

5.3.4 Phase 4

Phase 4, (Figure 13. Phasing Plan: Phase 4) includes Block C site development that could include a combination of ground-level retail, underground and/or aboveground parking, and two-residential towers supporting up to 300 residential units. This phase will require a transition from on-site, interim surface parking to a combination of underground and aboveground parking intended to support the remainder of uses for the waterfront project.

5.3.5 Phase 5

Phase 5 (Figure 14. Phasing Plan: Phase 5) Block B site development may include a multi-purpose, mixed-use program, such as maker and specialty craft uses, retail, live/work and apartment residential, and possibly a public gathering assembly use space for events. Block B is envisioned to include a separate retail use on the west end of the block adjacent to the Daniels Way pedestrian corridor woonerf and underground parking to support the residential and mix of uses.

The proposed future building footprints for Block B have been planned based on possible future impacts resulting from by a potential I-5 bridge replacement project. As illustrated in Figure 1. Illustrative Site Plan, the potential bridge alignment could directly impact the southwest corner of Block B, as well as portions of the existing pier and Terminal 1 building footprint. As a result, the Block B building footprint as shown responds to a potential southbound structure design drip line edge.[6]

[6] The potential bridge alignment reflects the previously planned but not constructed Columbia River Crossing (CRC project. The CRC project is not currently active.

5.3.6 Phase 6

Phase 6 (Figure 15. Phasing Plan: Phase 6) includes the long-term complete refurbishment and restoration of the Terminal 1 marketplace and pier civic uses on the original wood pier and deck of the pier structure. This phase includes the completion of the Terminal 1 building and pier improvements. In addition, portions of the Terminal 1 marketplace may be impacted by the future I-5 bridge replacement project. As such, the Terminal 1 building footprint for Block B may not be allowed to extend under a potential new I-5 bridge. Final renovation plans for the Terminal 1 marketplace will take this into consideration at a future time.[7]

5.4 Hours of Operation

The Port of Vancouver USA waterfront is envisioned as a 24-hour, active, mixed-use development integrating office, retail, residential, and hotel uses organizing around the central Terminal 1 building marketplace and waterfront pier. The mix of uses is intended to work in harmony – attracting residents as well as visitors to downtown Vancouver and the Columbia River. The vibrant Waterfront Development project provides universal access and encourages innovation, while promoting a sustainable and healthy environment and the rich cultural and community values in the area.

The project is an integral part of downtown, even before Phase 1 development of the site begins. The waterfront urban design and public spaces encourage a range of uses to promote a safe pedestrian experience, with active amenities and opportunities for entertainment and events at the waterfront.

5.5 Building Types

5.5.1 Overall Building Types

The Occupancy and Construction types for the building contemplated by the plan include, but are limited to, the following:

- B Business and office
- R-2 Hotel and apartments
- R-3 Permanent residence
- U Carports at R2

The specific construction types will be determined once detailed planning and design occurs for the buildings.

5.5.2 Terminal 1 Building

The Terminal 1 building is the only building that will be retained on the site upon completion of the project. Originally constructed as a simple shed structure for warehousing, it was 100 feet north-south by 320 feet east-west, for a total of

[7] Under the current SMP, the use of the Terminal 1 building is non-conforming. The selected method of meeting the intent of the plan reflects this status. If the SMP is amended to allow the use the Port may select an alternative method to achieve the intent such as demolishing and reconstructing the building.

approximately 32,000 square feet. The outer bays were originally 35 feet wide and 18 feet tall (minimum height), while the central 30-foot-wide bay measured approximately 22 feet tall. Siting of Terminal 1 allowed easy access around the entire perimeter to facilitate freight movement. The building was located 22 feet off the southern edge of the pier and a minimum of 10 feet west of the eastern edge. Rail spurs allowed rail access on both long sides of the warehouse building.

As previously described, the Terminal 1 building was later incorporated into the Red Lion Hotel structure, which built out to the edge of the pier. It is unclear what, if any, portions of the original building remain. At one point, the easternmost portion of the structure was removed for installation of the current I-5 bridge. Careful deconstruction of the existing facility may be necessary to mitigate and preserve portions of the current building use and configuration.

5.6 Design Standards

As required by VMC 20.260.070(C)(6), design standards have been developed for the project and are included as Appendix D. The design standards are intended to provide a comprehensive approach to site development, building design, public realm and landscapes to ensure the long-term viability of the project and to maintain compliance with design standards contained in the Downtown District (Chapter 20.630) City Center Waterfront requirements.

The purpose of the City's requirement for design standards is to govern the urban form of the area by establishing urban design standards intended to guide the development of a variety of mixed uses within the area. The standards specify design parameters based on anticipated uses in the area and establish the necessary building-to-street and building-to-building relationships, thoroughfare and landscape standards for the area. The Design Standards will apply to all future development in the project.

The City Center Waterfront Standards VMC 20.630.080.D. list the following design and development standards to be addressed as part of any development within the City Center (CX) Zone.

1. Street Grid
2. Traffic Calming
3. Sidewalk
4. Street Lights
5. Parking
6. Link to City Center
7. Pathways, Open Spaces, and Connections
8. Landscape Plans
9. Building Design
10. View Protection
11. Sustainable Site and Development Design

5.7 Allowable Building Heights

Maximum building height limits in Downtown Vancouver vary from 35 feet minimum (along the shoreline) to 300 feet along I-5 (Figure 5. Vancouver Height Map). This range of allowable heights reflects the City's intent to create a smooth transition between high-density downtown, neighboring single-family neighborhoods, shoreline viewsheds, and the protection of Pearson Airfield protected surfaces established by the City. The "envelope" or potential height profile of downtown blocks would create a buffer along I-5 and account for incoming and outgoing air traffic from Pearson Field Airport to the east.

Building height limits on the project range from 35 to 160 feet. The most restrictive limit (35 feet) corresponds to the City's shoreline regulations within the first 100-foot horizontal distance inland of the OHWM. In the next 100 feet in the shoreline district, an increase to a 45-foot maximum building height is allowed. Per Section 6.3.4.7 of the SMP, commercial buildings within the project are allowed to use the height limits of the zoning district.

VMC 20.630.050.C includes footnote/superscript 1 in Figure 20.630.4 that needs to be addressed by the project: the lower height (60 or 80 feet) indicated in the ranges is the maximum building height permissible outright; the higher height (120 or 160 feet) is conditional subject to the following:

1. Up to 50 percent increase (to 90 or 120 feet) is allowed outright, provided the increase complies with FAA regulation, Part 77, and will not impact safe air navigation.
2. Over 50 percent and up to the maximum (120 feet or 160 feet) may be allowed by the Planning Official through the site plan review process, if:
    a. the height increase receives an issuance of a determination of no hazard to air navigation; and
    b. the gross floor area of the building at each floor above 90 feet or 120 feet is less than or equal to 12,000 square feet.

Floor plates limited to 12,000 square feet are typically residential or hotel uses. Depending on the market conditions, taller buildings may be appropriate for office, residential, and/or hotel uses, but office floor plates limited to 12,000 square feet are very inefficient and hard to lease.

Figure 6. Building Envelope Diagram illustrates the permitting "building envelopes" which indicate the allowable heights as dictated by City zoning.

Allowable building heights increase from east to west. The shoreline zone (the first 100 feet and 200 feet from the edge of the Columbia River) allow limited heights of 35 feet and 45 feet except for mixed use developments (see Section 6.3.4(7) of the SMP) which can increase heights to those established by the base zone. City height

limits would allow buildings up to 60 to 120 feet tall on the eastern edge of the site, or Block A and Block B. The tallest buildings could be located on the western portion of the Port property (Block C and the northern edge of Block D, with a height allowance of 80 to 160 feet. New structures that are not water-dependent are not allowed overwater or beyond the existing shoreline, although repair and maintenance of the existing Terminal 1 building is allowed.

5.7.1 Parking

The proposed parking plan for the project includes a combination of interim surface parking lots and future underground and aboveground structured parking that will be implemented over time. Based on the proposed buildout development program, a minimum of 809 parking spaces is required. This is based on City's parking standards for the CX zone.

Currently, the subject property is used in part as surface parking lots that support the Warehouse 23 restaurant at the former Red Lion Inn and the Columbia Business Center on the project site. The property also includes the Red Lion Inn structure that is currently closed for business and being demolished. Approximately 238 designated surface parking spaces are available on site at this time. An additional 84 spaces serving the amphitheater are provided on adjacent Block 2 of the Vancouver Waterfront Development, which is outside the immediate project development area.

5.7.1.1 Phased Parking Improvement Strategy

At full buildout (Figure 20. Parking Phasing Plan: Phase 5), most off-street parking for employees, residents, and visitors will be provided on Block A and Block C via Columbia Way to North Access Way. Unless otherwise designated, employment and public parking will be accessed from the Access Way 5 and North Access Way corridor along the north side of the site. In addition, it is anticipated that Block B and Block D will also provide a limited number of parking spaces within the structure (either under and/or above-ground). Service access and parking for Block B will be provided off Columbia Way, most likely using an existing drive access and curb cut. Because this curb cut already exists on Columbia Way, no on-street parking will be affected. For Block D, hospitality uses, drop-off guest parking, and/or valet parking services will be provided off Columbia Way. This could impact existing on-street parking. Any proposed structured parking for the hospitality use on Block D will be accessed from Access Way 5 on the north side of Block D.

The project will ensure adequate parking is provided to support each use and phase as required. For the initial Phase 1 and Phase 2 improvements (Figure 16. Parking Phasing Plan: Phase 1 and Figure 17. Parking Phasing Plan: Phase 2), the Port envisions that existing surface parking lots will remain to support the Warehouse 23 restaurant. Following the removal of the North and West wings of the Red Lion, a total of 149 new interim surface parking may be provided on Block B. This interim surface lot will be developed to meet City design standards.

It is anticipated that the parking requirements of Phase 3 development (Figure 18. Parking Phasing Plan: Phase 3) will be satisfied by a combination of surface parking on undeveloped blocks (Block B and/or Block C) and structured underground and/or aboveground parking on the developed blocks as part of mixed-use office and hotel development. Detailed parking calculations will be provided at the time of detailed plan approval for this phase.

For Phase 4 and Phase 5 (Figure 19. Parking Phasing Plan: Phase 4 and Figure 20. Parking Phasing Plan: Phase 5), a combination of underground and aboveground structured parking will be constructed to support current and future development to the total project parking requirements.

5.7.1.2 Off-Site Parking

The project's phased development approach includes an interim surface parking strategy as the project evolves to structured (underground and/or aboveground) parking at full buildout. A parking mitigation plan may also consider temporary off-site surface parking as an interim parking strategy for the project. A parking mitigation plan may also include temporary shuttles and valet parking.

The overall goal is to at least provide a minimum amount of parking to sufficiently support the parking needs of the project and satisfy minimum City standards at all phases of development. The most challenging transition phase will be Phase 4 Block C development. At this time, the interim surface parking on this block will be displaced during the construction of Block C. In order to support the minimum parking requirements while long-term structured parking is being constructed, the Port or developers may be required to seek agreements with adjacent landowners and the City to improve and use off-site surface parking on nearby adjacent lots.

Off-site interim parking may be considered as a strategy to supply adequate parking from one development phase to another. The off-site interim parking would be developed and proposed as part of the detailed site plan approval for the development phase that requires parking. The Port and its developer representatives will collaborate with the City to identify potential off-site locations, parking needs, requirements for surface lot improvements, and the duration of use as required.

5.8 Parks and Open Space Design

The project includes a series of highly programmed civic plaza and public realm spaces, small upland park open areas, and natural shoreline open spaces. The civic park and open space is centered on the existing overwater pier structure and the Terminal 1 building. Each independent public space (civic plaza, park, and open space) will be designed as high-quality uses intended to attract visitors, employees, and local residents to the waterfront.

5.9 Landscaping

The proposed landscape will be organized to highlight the public realm, pedestrian use areas, and outdoor civic uses. Figure 1, Illustrative Site Plan, illustrates the

landscape concept emphasizing street rights-of-way, the Columbia River Renaissance Trail, natural and constructed shoreline areas, civic open spaces, and pier improvements.

The proposed planting plans and amenities (seating, wayfinding, signage, lighting, and specialty uses) will enhance each area of the site to provide interest, color, and material expression throughout the development.

5.9.1 The Riverbank

The intent of the shoreline, bank, and riverfront planting areas is to create natural habitat areas, maintain river views, and encourage sustainability through the use of native and adaptive plant species that require limited water and supplements for survival.

5.9.2 Upland Plantings

The design standards for urban upland non-riparian area should blend some of the native plant species seen on the riverbank with adaptive plants that provide architectural form and interest and can thrive in the urban environment. This portion of the site experiences heavy pedestrian use, so plantings should be kept low to maintain views and tree selections should provide seasonal interest.

5.10 Utilities

5.10.1 Water

Existing 12-inch ductile iron water mains are located in Esther Street and Columbia Street. An existing 8-inch ductile iron water main is located in Columbia Way, between proposed Blocks A and B and ending at the proposed Daniels Way intersection with Columbia Way. This 8-inch water main serves water to the Columbia Shores and Red Lion buildings. There is an inactive water pipe sleeved under the existing Columbia Way road intersection with future Access Way 5 road for future development.

It is anticipated that the adjacent development (the Vancouver Waterfront) will extend the existing 12-inch water main from Esther Street eastward in the future North Access Way to the intersection of future North Access Way and future Access Way 5. The development will continue an 8-inch water main from this intersection south to connect into the existing sleeved pipe at the intersection of future Access Way 5 and Columbia Way.

The proposed design will continue the 12-inch ductile iron main from the intersection of future North Access Way and future Access Way 5 eastward under future North Access Way to connect into the existing main in Columbia Street (Line A). This will complete the water loop from Esther Street to Columbia Street. This main will provide fire and domestic service to proposed Blocks A and C and include laterals for fire hydrants at required spacing along the future North Access Way.

A new 8-inch ductile iron main will connect into the existing sleeved pipe at the intersection of future Access Way 5 and Columbia Way. This main (Line D) will provide a loop south in future Access Way 5, east in the Columbia River Waterfront Renaissance Trail, and north in the proposed Daniels Way connecting into the existing 8-inch main in Columbia Way. A 15-foot-wide utility easement along the alignment is proposed. The 8-inch main will include domestic and fire service to Block D, as well as hydrants needed to provide building coverage to Block D and associated improvements to the waterfront. A service lateral may be provided from the 8-inch main to the existing Terminal 1 building.

Fire apparatus access will be provided along future North Access Way, future Access Way 5, Columbia Way, Columbia Street, the Columbia River Waterfront Renaissance Trail south of Block B, and Daniels Way between Blocks B and D. The corridors will allow for a minimum of two separate emergency apparatus roads for each block with a minimum unobstructed width of 26 feet. Fire hydrants shall be spaced a maximum of 400 feet between hydrants (350 feet from the most remote exterior first floor wall) measured along the fire apparatus access roads and building frontages. Fire access, hydrants and signage shall be designed in accordance with the City's Development Standards for Fire and International Fire Code.

Proposed construction of the water mains will be as follows:

- Phase 2 of development will include construction of the Columbia Renaissance Trail and Daniels Way south of Columbia Way. Water Line D will be constructed at this time.
- Phase 3 of development will include Blocks A and D and the future North Access Way. Water line A will be constructed at this time.

5.10.2 Sanitary Sewer

An existing 14-inch public sewer main runs along Columbia Way with existing 8-inch service laterals to proposed Blocks A, B, C, and D. An additional private service is located off of Columbia Street, which serves the existing Terminal 1 building. The proposed block developments will be serviced by the existing 8-inch laterals.

Proposed Block B construction and development will encroach upon an existing sewer service lateral serving. A new lateral (Line B) will be constructed slightly offset from the existing lateral during the construction of Block B. The proposed lateral will intercept the existing sewer lateral at the Columbia Street right-of-way and provide a new connection to the existing Terminal 1 building.

Adjacent development (the Vancouver Waterfront development project) will construct a new 10-inch sanitary force main along the future North Access Way alignment to the existing sanitary sewer in Columbia Street. The proposed block development sewer demands were calculated and compared to the master service plan and future pump station build-out technical memorandum prepared by

Murray, Smith & Associates (2 October 2015). The proposed development appears to have adequate conveyance capacity for the full projected future build-out of all properties contributing sewer loads to the system and will be constructed in accordance with City standard drawings and regulations.

5.10.3 Stormwater

Stormwater treatment and conveyance for the proposed development will follow the master stormwater plan prepared by HDJ Design Group. The future North Access Way surface drainage will be conveyed either east to Columbia Street or west to Esther Street. Approximately half of the runoff from the right-of-way between Columbia Street and future Access Way 5 will be conveyed east to an existing 12-inch storm main located in Columbia Street while the remaining half will be conveyed west to the intersection of future North Access Way and future Access Way 5. Runoff generated by Blocks A and C will be routed east to the 12-inch storm main in Columbia Street. The adjacent development project has proposed to provide a mechanical vault system to provide water quality treatment to the associated street runoff at the intersection future North Access Way and future Access Way 5. A similar system is proposed at the intersection of future North Access Way and Columbia Street for the remaining associated street runoff.

Stormwater runoff generated by Blocks B and D and the Columbia River Waterfront Renaissance Trail will be collected by a new storm drain system, which will be routed west to connect to the existing system which ultimately drains to the Esther Street outfall.

Storm runoff from the proposed street improvements will be treated by a mechanical vault treatment, such as cartridge catch basin filter units, sized to treat and handle the contributing basin area. Private stormwater will be treated on site in accordance with City standards, if any pollutant generating surfaces (PGS) are included in the design. At this time, however, no PGS are anticipated for the private developments; therefore, no treatment is anticipated for the private stormwater runoff prior to discharge to the public storm main except for interim surface parking. No flow control is required because of the immediate proximity to the Columbia River. Storm mains and laterals will be sized to convey the 10-year storm event. Downstream storm mains that this project will contribute to will be analyzed to ensure they have adequate capacity.

5.10.4 Other Utilities

Natural gas, electricity, communication and other utilities will be coordinated with the utility providers. Columbia Way was installed with multiple conduits that will like be used and extended to serve the individual blocks with necessary utilities.

The pier and pedestrian circulation areas will require a new separated metered service and service pedestal. This service will feed pedestrian lighting, tree well/maintenance receptacles, receptacles for a potential event tent area, and receptacles for the future marketplace.

New street lighting will be provided on at future Access Way 5 and future North Access Way roadways. A new service pedestal with manual bypass meter base will be provided to serve these loads. The size and location of the pedestal will be determined by Clark Public Utilities. Street lighting fixtures installed will be maintained by the City. Underground conductors providing service to these street lights are maintained by Clark Public Utilities.

The proposed future private developments within the project area are divided into four blocks (A, B, C, and D). Each block will have a single primary service connection. Interface points for primary service will be provided by Clark Public Utilities via loop enclosures or vaults at the edges of the proposed development sites. When developed in the future, the private developer for each site will extend the primary conduit to a developer-provided transformer in accordance with Clark Public Utilities Commercial Electric Service Handbook.

The primary electric infrastructure within the public right-of-way is designed and maintained by Clark Public Utilities. Primary electric infrastructure located within private property will be designed and installed by the private developer in accordance with Clark Public Utilities Commercial Electric Service Handbook. After installation and successful inspection, Clark Public Utilities will assume ownership of all primary voltage facilities. Primary electrical equipment and meter equipment shall be accessible to Clark Public Utilities personnel 24 hours a day, seven days a week. Existing primary electric infrastructure has already been designed and installed by Clark Public Utilities.

5.11 Ground Improvements

Geotechnical information indicates that the project site is susceptible to liquefaction and lateral spreading towards the Columbia River during the current International Building Code code-based earthquake. To mitigate for the liquefaction and lateral spreading ground improvements will be installed within a corridor approximately 30 feet wide located along the top of the riverbank for the length of the project.

Several ground improvement techniques are commonly used to mitigate the effects of liquefaction and lateral spreading, including vibro-compaction, vibro-replacement (stone columns), deep soil mixing, and jet grouting. Because of the limited width of the corridor available for ground improvements, it is unlikely that vibro-compaction or vibro-replacement would be used for this project. Ground improvement using deep soil mixing or jet grouting is more likely. Deep soil mixing typically involves mixing wet or dry cement into the soil using a mechanical paddle that is advanced in a similar manner to an auger drill. The columns are typically overlapped to construct continuous mixed panels rather than discrete columns. Jet grouting constructs soil/cement columns by injecting cement grout through high-velocity grout jets. The jets erode the in situ soil and mix it with cement (and sometimes air and water) to create the panels or columns.

Preliminary design efforts show that deep soil mixing installed at an area replacement ratio of about 15% should would be sufficient to meet design criteria. The ground improvement would extend to a depth of approximately 40 to 45 feet below existing site grades. Additional subsurface explorations and engineering analyses will occur as part of final design to further refine the ground improvement design and determine the appropriate ground improvement technique.

6.0 CITY OF VANCOUVER DEVELOPMENT REGULATIONS

6.1 Vancouver City Center Vision Subarea Plan

The City adopted the VCCV subarea plan in 2007. It established a vision for downtown Vancouver and created corresponding design guidelines to facilitate future development. The project site is located within the VCCV, specifically within the Columbia West Renaissance District. The Columbia West Renaissance District was identified for housing, hotel, office, retail, light industrial and shoreline priority uses. The VCCV noted the following:

> *Public access to and along the river's shoreline area of the Columbia West Renaissance District is a plan goal. The shoreline area of the waterfront should develop with one or more of the shoreline priority uses…*

The VCCV subarea plan is an established capacity estimate for various development types in the VCCV at the district and overall level. As noted on Page 16 of the VCCV, the goals for each district are not intended to be limits and one district can absorb other districts development goals. Table 10 below shows the overall capacity estimate of the VCCV, the proposed capacity usage by the project, and the remaining capacity after accounting for the cumulative capacity usage of constructed and approved projects.

Table 10. VCCV Overall Capacity Estimate, Usage, and Remaining Capacity

	Retail (SF)	Office (SF)	Residential Units	Institutional (SF)	Hotel Rooms	Light Industrial (SF)
Total Capacity per VCCV	401,000	2,425,000	4,551	591,000	260	100,000
Capacity Use by Other Projects	282,796	1,147,433	4,301	76,373	160	0
Concept Development Plan Proposed Capacity Use	98,000*	200,000	355	0	160**	0
Remaining Capacity	-20,204	1,077,567	-105	514,627	100	100,000

Source: Greg Turner, City of Vancouver
* Includes Terminal 1 marketplace
** Existing on-site hotel (which will be demolished) contains 160 rooms; therefore, no additional hotel rooms will be counted against the remaining capacity.

As shown in Table 10, the project is consistent with the uses identified by and remaining capacity available in the VCCV with the exception that the project proposes an additional 105 residential units. Per the VCCV and Ordinance M-3833

capacity may be transferred from the office category to other categories with additional analysis of the potential impacts from the transfer. [8] In order to determine whether the impact characteristics are similar and do not exceed district goals, an analysis was conducted of specific categories where there are differences between the two uses. These included trip generation, schools, and parks and recreation.

Trip Generation. Per the Trip Generation Manual, 9th Edition, the weekday PM peak hour trip generation of 2.40 apartment units would be equivalent to the weekday PM peak hour trip generation of 1,000 square feet of general office space. [9] The additional 105 residential units would be the equivalent of approximately 44,000 square feet of office. As noted in Table 10 above, there is over a million square feet of office capacity remaining in the VCCV, which more than adequately covers the additional increase in traffic.

Schools. The Final SEIS estimates that approximately 14.5 percent of multifamily residential (MFR) households will include an elementary school student, 5.9 percent will include a middle-school student, and 6.6 percent will include a high school student. As such, at full buildout of the project (355 residential units), approximately 51 elementary school students, 21 middle-school students, and 23 high school students will reside in the proposed project. Based on the maximum number of residential units anticipated by the VCCV this represents an increase of 15 elementary school students, 6 middle school students and 7 high school students than what was discussed in the Final SEIS.

The Final SEIS states that the proposed alternative will result in the addition of 2,600 residential units more than the number of units that would be developed in the VCCV subarea under the no action alternative or under the City's comprehensive plan, which anticipated 1,930 residential units in the district at the time of the planned action ordinance's adoption. Thus, in total, 4,530 new residential units are addressed in the school impact analysis of the proposed alternative in the Final SEIS.

The Final SEIS and the planned action ordinance mitigation document include mitigation measures for cooperative City/School District work to identify innovative approaches that could provide additional school capacity within the VCCV subarea and that the school district can accommodate additional students in existing classroom space, with portable classrooms, adjusting school attendance boundaries

[8] VCCV, Page 16: " …the flexibility to respond to market trends may result in a shift from the residential use category to the office use category or vice versa as long as the impact characteristics are similar and the overall impacts do not exceed plan targets."

[9] Note that condo/townhome units have a lower trip rate per unit. Per the Trip Generation Manual, 9th Edition, the weekday PM peak hour trip generation of 2.87 condo/townhome units would be equivalent to the weekday PM peak hour trip generation of 1,000 square feet of general office space. The apartment rate was chosen for the analysis because the specific unit nature has not been determined and it reflects the worst case scenario.

or building additional school volumes. In addition, the residential portions of the project will generate school impact fees based on the time of the development.

While the shift from office to residential uses will increase the anticipated students within the VCCV the amount of additional students is minor in comparison with the anticipated overall increase anticipated in the VCCV and does not increase students by an amount that would require additional mitigation beyond that already identified in the VCCV.

Parks and Recreation. The Final SEIS indicates that residential units increase the demand on parks and recreation resources while non-residential units do not. The project increase in units over and above the overall increase anticipated in the VCCV will increase population by approximately 168 using the 1.6 residents per unit used in the Final SEIS or 231 using 2.2 residents per unit from the most recent census. This represents an increase of between 2.2% and 3.1%.

The Final SEIS noted that the City standard is five acres of neighborhood or community park land and 1 acre of open space land for each 1,000 persons. The Final SEIS and the planned action ordinance mitigation document include mitigation measures for parks including city actions and that if individual development is of sufficient size to cause Park District #1 to cease to meet park standards the developer shall mitigate for impacts. In addition, the residential portions of the project will generate park impact fees based on the time of the development. The current Vancouver Comprehensive Parks, Recreation & Natural Areas Plan contains an inventory of park land by district. District #1 contains 49.36 acres of Neighborhood Parks, 141.8 acres of Community Parks and 164 acres of urban natural area and currently meets the standard defined in the plan, except for neighborhood parks. Based on the additional population increase the project will not cause the City to fall below adopted level of service standards for parks consistent with the Final SEIS and mitigation document. In addition, the project is providing significant recreation benefits in the form of the trail and other open space that off-set any potential impacts.

6.2 Vancouver Municipal Code Title 11: Streets and Sidewalks

6.2.1 Transportation Concurrency (VMC 11.70)

Appendix H is a transportation compliance letter prepared by Kittelson & Associates, Inc. dated 12 October 2016, which evaluates whether the proposed project will meet the concurrency requirements of the VMC. According to the transportation impact analysis, vehicular traffic associated with the proposed plan will not lower the surrounding road network's level of service (LOS) below the City's adopted levels. The anticipated trip generation from plan buildout falls within the threshold established by the VCCV of 6,610 weekday PM peak hour trips, and will leave 1,608 estimated trips for future development. In addition, the letter concluded that "[t]he study area intersections were all forecast to operate acceptably through the year 2035, and no capacity-based mitigation needs were identified."

Therefore, as the proposed project's anticipated trip generation falls within the thresholds of the VCCV and will not lower the City's LOS below acceptable standards, no transportation mitigation measures are required for concurrency.

6.2.2 Street and Development Standards (VMC 11.80)

The plan provides access from Columbia Way and Columbia Street, both of which are fully constructed to their defined road standard.

Two new public streets will be constructed to provide additional access as required by VMC 11.80.080(A) and 11.80.090. North Access Way will be constructed on the north boundary of the project site and connected to Esther Street by an extension to be constructed with the adjacent development. North Access Way is a Local Access-Option B street. Access Way 5 will connect North Access Way and Columbia Way. Access Way 5 is a Minor Arterial street. Access Way 5 will be constructed as a half-street or completed, depending on the timing of the phase in relation to the work being completed by the adjacent development. Prior to construction, the Port (or the developer of the individual lots) will submit detailed plans for review and approval by the City consistent with VMC 11.80.080(H). The Port will dedicate the rights-of-way of these two streets to the City.

Modifications to Columbia Way are necessary to modify the curb returns constructed on the north side that provide access into the existing parking lot. This will be a pedestrian-only intersection giving access to Daniels Way both north and south of Columbia Way. According to the pre-application conference report (lines 1845-1857), the proposed development area is under a street cut moratorium through the year 2021, pursuant to VMC 11.80.100(B), which prohibits pavement cuts for five years after a street has been constructed, reconstructed, overlaid, or seal-coated. The project will require street cuts for utility installation along Columbia Way, which was constructed in 2015; therefore, a road modification request will be required as an exception to the moratorium. The Port (or developer of the individual blocks) will submit a road modification request at the time of detailed site plan or engineering plan submittal, once the exact locations for street cuts have been determined.

Vehicular access from the public right-of-way is proposed from North Access Way for Blocks A and C, Columbia Way and Columbia Street for Block B, and from Access Way 5 for Block D. Columbia Way and Columbia Street are minor arterials and access is typically prohibited unless no other access is available to the site (VMC 11.80.110). Because the existence of the Columbia River makes no other access possible, access is permitted. Compliance with the specific standard of VMC 11.80.110 will be shown at the time of detailed site plan approval. The plan proposed is consistent with the applicable sections of VMC 11.80.

6.3 Vancouver Municipal Code Title 12: Trees and Vegetation

The provisions of this title include street trees (VMC 12.04) and hazardous vegetation (VMC 12.08). The provisions of VMC 12.04 address the City's tree

selection and maintenance requirements. Street trees for the proposed plan will be installed in compliance with VMC 20.925.060 and maintained in accordance with the provisions outlined in VMC 12.04. A palette of landscape materials is included in Appendix D and specific street tree selection details will be provided with landscaping plans in conjunction with detailed site plan development applications. The plan proposed is consistent with the provisions of VMC 12.04.

The provisions of VMC 12.08 address vegetation that interferes with the safe use of streets and sidewalks. Existing vegetation on the project site is maintained in compliance with the provisions of VMC 12.08, and the vegetation associated with elements of this concept development plan will continue to be maintained to allow the safe use of streets and sidewalks.

6.4 Vancouver Municipal Code Title 14: Water and Sewer

Compliance with water and sewer provisions will be demonstrated at the time of submittal of individual development applications for project elements proposed under this concept development plan. A utility plan included with this plan (Appendix C, Drawings C7-C8) identifies water and sewer connections and routes to individual development sites.

6.4.1 Erosion Control (VMC 14.24)

Best management practices (BMPs) will be employed during construction to manage potential soil erosion consistent with a stormwater pollution prevention plan prepared for the National Pollutant Discharge Elimination System Construction Stormwater General Permit, Washington Administrative Code (WAC) Chapter 463-76, and to comply with the erosion prevention and sediment control plan requirements of VMC 14.24.070. Erosion control BMPs may include but are not limited to turbidity curtains, silt fencing, inlet protection, soil stabilization, construction entrance, and stockpile protection. A conceptual erosion control plan is included on Drawing C-4 (Appendix C).

6.4.2 Stormwater Control (VMC 14.25)

There are no existing stormwater treatment facilities on the site. Stormwater is collected via existing catch basins or sheet flows directly into the Columbia River. The existing catch basins on the site route stormwater to either the Columbia Street outfall (15-inch-diameter corrugated metal pipe), or the Esther Street outfall (18-inch-diameter corrugated metal pipe); both discharge into the Columbia River.

The project will slightly decrease the amount of impervious surfaces on the site and will treat PGS per VMC requirements. The majority of the site will consist of non PGS (primarily roofs) at completion. No flow control is required because of the immediate proximity to the Columbia River. Storm mains and laterals will be sized to convey the 10-year storm event. Downstream storm mains that this project will contribute to will be analyzed to ensure they have adequate capacity during the engineering review of the project at detailed site plan review.

6.4.3 Water Resources Protection (VMC 14.26)

The provisions of VMC 14.26 include protections for groundwater resources in the City. As identified in VMC 14.26.115.B(1), the entire area within the boundaries of the City is designated a critical aquifer recharge area (CARA). VMC 14.26.115.B(2) includes additional provisions that regulate the uses allowed in special protection areas—including any property within 1,900 feet of any municipal supply well. The site is not within a special protection area as regulated under VMC 14.26.115.B(2). Therefore, the development restrictions of VMC 14.26.135 do not apply to the proposed project, and the site is not subject to any higher-level review under VMC 14.26.

In addition to the use limitations identified in VMC 14.26.115.B(1), VMC 14.26 includes provisions required of all proposed development to ensure that all new developments minimize potential risks to water resources through the application of BMPs. These BMPs are identified in VMC 14.26.120. The proposed project will be constructed and operated to comply with these BMPs.

6.5 Vancouver Municipal Code Title 16: Fire

The provisions of Title 16 establish minimum criteria, in compliance with the International Fire Code, to protect life safety and property from the hazards of fire, explosion, or dangerous conditions. The development included in this application will comply with the provisions of VMC Title 16, including VMC 16.04.150 Fire Apparatus Access, VMC 16.04.160 Water Supply and Fire Hydrants, and VMC 16.04.170-210 Fire Protection Systems. Additional details will be provided in conjunction with individual site development applications.

The fire department has established an interpretation of the fire code for the minimum emergency provisions for developments.[10] Per these requirements, the plan reflects fire apparatus access consistent with these provisions. Access will be provided along future North Access Way, future Access Way 5, Columbia Way, Columbia Street, the Columbia Renaissance Trail south of Block B, and Daniels Way between Block B and D (Figure 7. Proposed Emergency Access). This will allow a minimum of two separate emergency apparatus roads for each block with a minimum unobstructed width of 26 feet. Fire hydrants shall be spaced a maximum of 400 feet between hydrants (350 feet from the most remote exterior first floor wall) measured along the fire apparatus access roads and building frontages. Fire access, hydrants, and signage shall be designed in accordance with the City's Development Standards for Fire and International Fire Code.

6.6 Vancouver Municipal Code Title 17: Building and Construction

The provisions of VMC Title 17 regulate the construction of buildings and structures in compliance with the technical code requirements. As noted in the pre-application

[10] http://www.cityofvancouver.us/fire/page/development-standards-fire-department-emergency-access

conference notes (beginning on line 2385), a building code review is not performed at the concept-development plan level. Building permit applications, including required fees and review materials, will be submitted prior to building construction for all buildings and structures which require compliance with the International Building Code.

6.7 Vancouver Municipal Code Title 20: Land Use and Development (Zoning)

6.7.1 Development Agreements (VMC 20.250)

6.7.1.1 Development Agreements Authorized (VMC 20.250.010)

Response: The Port anticipates entering into a development agreement with the City for the project. The development agreement will be completed as a separate process and will follow the requirements of the VMC.

6.7.2 Planned Development (VMC 20.260)

All development initiated within the Columbia West Renaissance District is required to obtain master plan approval according to the procedures established in the Columbia River Shoreline Enhancement Plan District. Those procedures indicate that the planned development procedures of VMC 20.260 apply and this section addresses compliance with the applicable provisions.

6.7.2.1 Applicability (VMC 20.260.020)

B. Permitted uses. The following uses shall be allowed in various base zoning districts:

3. Commercial Zones.

a. In all commercial zones, a planned development may contain all of the uses permitted by right in the underlying zone.

Response: The project includes only uses permitted by right in the CX zone (see section 6.7.4.1 below).

6.7.2.2 Approval Criteria (VMC 20.260.050)

A. Concept development plan approval criteria. To receive approval for a planned development, the Applicant shall demonstrate compliance with all of the following criteria:

1. Content. The concept plan contains all of the components required in Section 20.260.070. Compliance with all applicable standards. The proposed development and uses comply with all applicable standards of the Title, except where adjustments are being approved as part of the concept plan application, pursuant to Section 20.260.030 (D)(2).

Response: This application submittal package has been prepared to ensure that the required components outlined in VMC 20.260.070 are included. See responses in Section 6.7.2.4 for details about how the proposed application submittal meets the submission requirements. This narrative documents compliance with applicable

provisions of Title 20. The project does not require any adjustments of development standards.

2. *Architectural and site design. The proposed development demonstrates the use of innovative, aesthetic, energy-efficient and environmentally-friendly architectural and site design.*

Response: The plan has incorporated innovative, aesthetic, energy-efficient, and environmentally friendly site design throughout the various elements of the project consistent with this standard. The site design reflects an extension of the downtown street grid located north of the BNSF rail berm, as well as the street grid approved in the adjacent Waterfront Development. The streets will provide access to the development as well to the pier and proposed trail extension allowing full public access to the shoreline. This design promotes pedestrian and bicycle access to the proposed uses and through the site. The buildings step down from north to south and include corridors to the Columbia River preserving both visual and physical access to the shoreline. The design recognizes and preserves historical elements of the Terminal 1 building, while restoring portions of the shoreline and reducing environmental impacts. The Design Standards (Appendix D) provide a framework for development of the site in an aesthetically pleasing and environmentally and energy-efficient manner.

3. *Transportation system capacity. There is either sufficient capacity in the transportation system to safely support the development proposed in all future phases or there will be adequate capacity by the time each phase of development is completed.*

Response: Appendix H consists of a transportation compliance letter from Kittelson & Associates, Inc., which describes the anticipated transportation impacts of the full-buildout of the elements of the concept development plan. As summarized in the response to VMC Section 11.70, no transportation improvements are necessary to ensure sufficient capacity of the existing transportation system. The buildout of the project will not lower affected intersections below the City's adopted LOS; therefore, there is sufficient capacity in the transportation system to accommodate the proposed project.

4. *Availability of public services. There is either sufficient capacity within public services such as water supply, police and fire services, and sanitary waste and storm water disposal, to adequately serve the development proposed in all future phases, or there will be adequate capacity available by the time each phase of development is completed.*

Response: Existing water and sewer connections and capacities within the development area can be found in the preliminary engineering plans included as Appendix C. As shown by these plans, development proposed under this concept development plan can be serviced adequately with water and sanitary sewer

connections. During the pre-application conference, the City did not indicate any limitations on water or sewer capacity availability to serve the project.

The VCCV Final Supplemental Environmental Impact Statement (FSEIS) analyzed the impacts on police, fire services, schools, and health care. The following mitigation measures are identified in the VCCV FSEIS to offset buildout planned by the VCCV subarea plan

Fire – The VCCV FSEIS anticipated an increase residential units by approximately 4,551, increase the number of residents in the plan area by approximately 7,281, and increase the number of employees by 9,305. The increases in residents and employees resulting from the project are within the scope of the increases identified by the VCCV FSEIS. Consistent with the mitigation proposed in Chapter 12 of the planned action ordinance mitigation document, the impacts of the proposed project will be mitigated as follows:

- When the population increases by 29,153 and 1,218 businesses are added, the Fire Marshal's Office will need an additional Deputy Fire Marshal to maintain current service levels.
- One firefighter would be required for every 1,311-person population increase.

These mitigation measures are the responsibility of the City and not of an individual development.

Police – Because the number of new residents anticipated in the proposed project site falls within the scope identified in the VCCV FSEIS, the impacts to police services of the proposed project are within the scope of impacts addressed in the VCCV FSEIS. Consistent with the mitigation proposed in Chapter 12 of the planned action ordinance mitigation document, the impacts of the proposed project will be mitigated as follows:

- To improve site security and prevent crime in the area, building designs will include adequate lighting and other safety features.
- The City anticipates hiring 1.3 officers and 0.4 civilian employees per 1,000 new residents within the district, as identified in the VCCV FSEIS.

Schools – The VCCV FSEIS estimates that approximately 14.5 percent of multifamily residential (MFR) households will contain an elementary school student, 5.9 percent of MFR households will have a middle-school student, and 6.6 percent of MFR households will have a high school student. As such, it is anticipated that at full buildout (if the project constructs 355 residential units), approximately 51 elementary school students, 21 middle-school students, and 24 high school students will reside in the proposed project. In total, 4,530 new residential units are addressed in the school impact analysis of the proposed alternative in the VCCV FSEIS. The proposed project is anticipated to include up to 355 multifamily residential units. As noted in section 6.1 above, the project, in combination with

other approved or constructed projects, will exceed the anticipated residential units in the VCCV by 105 units (or an additional 15 high school, 6 middle school and 7 elementary school students). The VCCV FSEIS indicated that at the time the anticipated increase in students could be accommodated by Discovery Middle School, but both Hough Elementary and Hudson's Bay High School were over capacity. Mitigation measures included modification of attendance boundaries, use of existing classrooms, or adding additional classrooms. Because of the small number, additional students resulting from the increased unit count the project would not change the mitigation identified in the VCCV FSEIS. In addition, school impacts fees will be generated from the residential units at the rate established by the district and the City that is reflective of the costs to provide school facilities.

5. *Protection of designated resources. City-designated resources such as historic landmarks, significant trees and sensitive natural resources are protected in compliance with the standards in this and other Titles of the VMC.*

Response: No historic landmarks are known to exist on the site of the proposed project (Appendix F). Tree preservation and planting are addressed in section 6.3.

The Columbia River provides habitat for a variety of threatened and endangered fish species and is a designated critical area. The project design will ensure no net loss of resources on the site, as shown in the Shoreline compliance section, and compliance with critical area regulations, as shown in the critical areas report (Appendix G).

6. *Compatibility with adjacent uses. The concept plan contains design, landscaping, parking/traffic management and multi-modal transportation elements that limit conflicts between the planned development and adjacent uses. If zoning districts are shifted per Section 20.260.020(C) VMC, there shall be a demonstration that the reconfiguration of uses is compatible with surrounding uses by means of appropriate setbacks, design features or other techniques.*

Response: The following information identifies the adjacent land uses and how the project will be compatible with these uses. The project does not require modification of zoning district locations, and all of the plan's proposed uses will be permitted uses under the CX zoning designation.

The site is bordered to the south by the Columbia River and the state of Oregon. The Columbia River is an important natural resource providing habitat for numerous species and also plays an important function for navigation and recreation. The plan includes open space and circulation routes to allow public access to the Columbia River and maintains the pier for vessel mooring. These improvements will occur in or adjacent to the river. Additionally, the plan includes habitat restoration on the bank of the Columbia River, at the far western and eastern edges of the project site. These uses will not impact the habitat, navigation, or recreation functions as there

will be no net loss of habitat (see Appendix G). The project is located outside the Columbia River navigation channel.[11]

The site is bordered by Columbia Street and the existing I-5 bridge to the east. Land uses between Columbia Street and I-5 consist of open space and an asphalt parking lot. There are no land use conflicts with the planned uses.

Other uses to the east of the project site include the City's Columbia River Waterfront Renaissance Trail, which provides public access along the Columbia River and extends approximately 3.5 miles to the east. An extension of this trail through the project site is planned. The extension takes the trail west through the project site and connects with another portion of the trail that is currently being constructed by the City as part of its Waterfront Park project. East of the plan area is the existing I-5 bridge and an extension of Columbia Way, which provides access to park, trail, restaurant, residential, and commercial uses bordering the Columbia River.

The site is bordered to the north by the BNSF Railroad. Beyond the railroad rights-of-way is the core of downtown Vancouver and a mix of commercial, residential, and industrial uses. Immediately north of the berm are the City Hall, Esther Short Park, vacant properties planned for future development, and the Hilton hotel and convention center. The proposed plan uses are consistent with the existing downtown uses. Additionally, the proposed plan will establish a new east-west running road (North Access Way), which will tie into Esther Street and provide a direct connection to downtown Vancouver and Esther Short Park.

Blocks 1 and 2 of the Waterfront project are located directly west of the project. This project has an approved master plan that permits a mix of residential and commercial development. The project is consistent with the adjacent project as the proposed development is of the same size, scale, and similar uses. Additionally, the City is currently constructing an approximately 7-acre waterfront park including an extension of the Columbia River Waterfront Renaissance Trail, and a new pier on the Columbia River frontage of this property. The project will construct the trail through the project site consistent with park that is under construction.

7. *Mitigation of off-site impacts. All potential off-site impacts including litter, noise, shading, glare and traffic, will be identified and mitigated to the extent practicable.*

Response: The proposed land uses have been included in the VCCV and impacts and mitigation have been identified in the FSEIS completed for the VCCV subarea plan.

[11] See NOAA Chart 18526 available at: http://www.charts.noaa.gov/OnLineViewer/18526.shtml

No long-term impacts from noise are anticipated, as noise generated from the proposed project will be typical of noise generated in the existing urban area, primarily ambient traffic noise. Short-term noise impacts could potentially result from construction on the site. However, the proposed project will comply with VMC 20.935 Off-site Impacts, to ensure that construction noise levels do not exceed city requirements by limiting the hours of construction.

Outdoor lighting fixtures will be designed to direct light downward, with full cut-off fixtures, which will limit glare. Final selection of fixture types that may be used in the plan area have not been made but will be consistent with the project specific design standards.

The proposed project will not require improvements to transportation systems to ensure that adequate capacity is maintained on the surrounding road network (see section 6.2.1 for a discussion of transportation concurrency).

B. Adjustment approval criteria. Adjustments to numerical development standards may be processed as part of the request for concept if the Applicant can demonstrate compliance with all of the following approval criteria:

1. *The adjustment(s) is warranted given site conditions and/or characteristics of the design.*
2. *The benefits accruing from the implementation of the adjustment outweigh any potential adverse impacts.*
3. *Any impacts resulting from the adjustment are mitigated to the extent practical.*

Response: The proposed plan does not include a request for adjustments to numerical development standards of the project site's base zone (CX). Compliance with the project's base zone standards is outlined in sections 6.7.4.1 and 6.7.4.2.

The project is consistent with the majority of the established design and development standards as shown in this narrative. The one exception to this are provisions related to the existing rooftop sign[12] on the Terminal 1 building.

The Terminal 1 building includes an existing rooftop sign that is specifically prohibited by VMC 20.960.030. Making any modifications to the sign is prohibited per VMC Section 20.960.250. The sign currently advertises the former business that used to occupy the site and modifications are necessary to avoid confusion and reflect the Port vision for the site. While rooftop signs are specifically prohibited this sign was installed prior to the adoption of the prohibition of this sign type. The sign is also an iconic image that represents one of the first views seen by travelers

[12] Per VMC Section 20.150.040E a rooftop sign is a "sign erected upon the roof of a building, the entire face of which is situated above the roof line of the building to which it is attached, and which is wholly or partially supported by said building."

entering Washington from Oregon and the last views for travelers leaving Washington. The Port requests a modification to the adopted development standards to allow for the change in lettering and existing logo to allow the sign to remain in place. The specific modifications are not known but any change will not increase the sign size or dimensions. The following specific condition is suggested:

The project may modify the existing rooftop sign, irrespective of the specific prohibition of rooftop signs in VMC Chapter 20.960 Signs, to change the existing logo and type and address any structural items that are necessary for safety and the structural integrity of the sign and to maintain compliance with the adopted building code. Prior to undertaking any modification, the applicant will obtain a sign permit per the provisions of VMC Chapter 20.960.

This modification is consistent with the provisions for a modification as the iconic and unique nature of the sign warrants a modification to retain this landmark and there are no anticipated negative impacts as the modification will no increase the sign size.

6.7.2.3 Development Standards (VMC 20.260.060)

B. Applicability of base zone development standards. The provisions of the base zone are applicable as follows. When the zoning districts within the planned development have been shifted as permitted in Section 20.260.020 (C) VMC, the applicable development standards for the underlying zones shall shift accordingly.

1. Lot dimensional standards: The minimum lot depth and lot width standards shall not apply.

2. Lot coverage: The site coverage provisions of the base zone shall apply.

3. Setbacks

a. Front and rear yard setbacks for structures at the perimeter of the project shall be the same as required by the base zone except when an adjustment is approved, per Section 20.260.030(D).

b. The side yard setback provisions shall not apply except that all detached structures shall meet the City's adopted building code requirements for type of construction.

c. Front yard and rear yard setback requirements in the base zone setback shall not apply to structures on the interior of the project except that any garage facing a street shall be set back a minimum of 18 feet from the front or side street property line.

d. All other provisions of the base zone shall apply except as modified pursuant to this Chapter, except for maximum height for which a variance shall be sought, as governed by Chapter 20.290 VMC.

Response: The project does not require an adjustment to the base zone, or the base zone development standards. Section 6.7.4.2 discusses the proposal's compliance with CX zone development standards.

6.7.2.4 Concept Development Plan Submission Requirements (VMC 20.260.070)

Table 11 indicates compliance with the submittal requirements of VMC 20.260.070. This narrative, along with referenced materials and plans, demonstrate compliance with the provisions of this section.

Table 11. Master Plan Submittal Requirements

Requirement	Reference
Existing Conditions	
Vicinity map that identifies surrounding uses within 400 feet of the site boundary.	Figure 3
Zoning map that identifies base and overlay zoning designations for the site and surrounding properties uses within 400 feet of the site boundary.	GIS Developers Packet
Site Description	
Topography and natural resources including 100-year flood plain; drainage patterns and courses; wetlands, rivers, springs, and other waterbodies; significant stands of trees and individual trees with a caliper greater than 6 inches; significant fish and wildlife habitat; and natural hazards, such as steep slopes greater than 15%, and unstable, impermeable, or weak soils. Exhibit must include a site plan with no greater than 5-foot contours for slopes of 0 to 10% and no greater than 2 feet for slopes greater than 10%.	Appendix C, Drawing C-1
Open space inventory, including all natural and landscaped areas.	Appendix C, Drawing C-1
Inventory of cultural, historic, and/or archaeological resources on the site, if any.	Appendix F
Existing buildings, if any, including use, location, size, and date of construction.	Appendix C, Drawing C-1
Existing on-site pedestrian, bicycle and vehicular circulation system, if any.	Appendix C, Drawing C-1
Inventory of existing vehicular and bicycle parking spaces and location of surface and structured parking facilities, if any.	Appendix C, Drawing C-1
Location and size of all public and private utilities on the site, including water, sanitary sewer, stormwater retention/treatment facilities, and electrical, telephone, and data transmission lines.	Appendix C, Drawing C-1
Location of all public and private easements.	Appendix C, Drawing C-1
A description of the type, design, and characteristics of surrounding properties.	Narrative Section 4.3
Detailed description of the transportation system within and adjacent to the site, including	
Street classification of all internal and adjacent streets.	Narrative Section 5.2.1
Transit service availability.	Narrative section 5.2.3
Baseline traffic impact study prepared by a licensed engineer to include information as required by the City's Traffic Engineer.	Appendix H
Analysis of existing infrastructure capacity on and in the vicinity of the site.	Narrative section 6.7.2.2

Requirement	Reference
SEPA checklist	Appendix E and Narrative Section 6.7.14
Applicable review fees	To be provided upon application submission.
Summary of all previous known land use cases affecting the Applicant's property and a list of all outstanding conditions of approval that either have not been addressed in the past and/or that remain in force at the time of the application.	Narrative section 4.2
Description of all proposed development within the planned development, presented in narrative, tabular, and graphic formats.	
Underlying zoning district boundaries. If these are shifted around the site as permitted by Section 20.260.020, the existing and proposed configuration of zoning districts shall be illustrated.	Figure 4
Description of the mix of uses, including number of units and/or total gross square feet devoted to each, and approximate location on the site.	Narrative section 5.1
All other site improvements, including the approximate size and location of walls, barriers, and fences; surface and structured parking facilities; bicycle parking facilities; on-site pedestrian, transit, and vehicular circulation; transit stops and pedestrian/transit amenities; and open space and landscaped areas.	Figure 1 and Appendix C, Drawing C-2
The conceptual location of new and/or expanded existing public and private infrastructure, including water, sanitary sewer, stormwater management facilities; and electrical, telephone, and data transmission lines. This includes wireless telecommunications facilities.	Appendix C, Drawings C-6, C-7 and C-8
Phasing plan for implementation of the proposed development.	Figures 10 through 20
Summary of development intensity at full buildout including average FAR and lot coverage.	Narrative Section 5.1
Summary of transportation facilities including:	
Traffic impact study prepared by a licensed engineer that describes traffic impacts associated with each phase of development and at full buildout of the project, and a plan for accommodating this traffic in compliance with Title 11. The specific content of the traffic impact study shall be determined by the City's Traffic Engineer.	Appendix H
Parking impact study describing the parking demand associated with each phase of the development and at full buildout of the project, and a mitigation plan for accommodating parking demand on the site.	Narrative section 5.5.7
Concurrent or proposed street vacations, with a description of potential parking and traffic/pedestrian impacts, if any, and appropriated measures to mitigate these impacts.	N/A (No street vacation are proposed)
Plan for protecting designated environmental, historic/cultural and open space resources.	Narrative Section 5, Appendix G (for environmental resources).

Requirement	Reference
Design standards that will govern the orientation and design of buildings and other improvements include but are not limited to the following. Applicants for planned developments shall be encouraged to use building techniques and materials that result in projects that architecturally attractive, durable and energy-efficient.	
Architecture, including design standards and building materials board(s), for buildings, fences, walls, and other structures.	See Design Standards, Port of Vancouver USA.
Landscaping, including design standards and standard plant list. Native plant materials are preferred.	
Pedestrian circulation, including development standards, amenities, and materials.	
Bicycle parking facilities, including specifications.	
Signs.	
Lighting	

6.7.2.5 Concurrency (VMC 20.260.100)

A. Applicability. An Applicant for a planned development shall be entitled to reserve capacity in the transportation system for the proposed development's trip generation and shall be deemed to have achieved transportation concurrency, under the concurrency rules and regulations in effect at the time that the concept plan application is vested under 20.260.090 VMC above, if (1) the Applicant obtains a certificate of concurrency for all or any portion of its proposed development under Chapter Title 11 VMC, Transportation Concurrency; or (2) the Applicant and the City enter into a development agreement as regulated by State statute (36.70B.170 et seq. RCW), which by its terms reserves capacity in the transportation system and includes a finding of transportation concurrency. The term for the concurrency determination shall be set as the term in the certificate of concurrency or the development agreement.

Response: A traffic impact analysis and request for concurrency certificate is included as Appendix H and requests that capacity be reserved pursuant to this section. In addition the Port intends to enter into a development agreement with the City (see section 6.7.1) that may include different provisions for reservation of capacity.

6.7.3 Design Review (VMC 20.265)

The proposed project is located within the area that is subject to design review (VMC 20.265.020). The approval of a Concept Plan is not subject to design review. During the permitting process for individual buildings and structures, design review in conformance with the provisions of VMC Chapter 20.265 will occur.

6.7.3.1 Review Criteria (VMC 20.265.040)

A. Design review criteria. The Planning Official, or the City Council if on appeal, shall base all reviews of the design of any proposed construction, remodeling or development according to the following criteria:

1. The requirements, guidelines, and applicable provisions of this Title that are applicable to the zoning district where the property is located and including all

additional zoning regulations which may apply to the use or to its area by provision for overlay district, or made applicable by any conditional use or variance approval;

Response: As noted above, the approval of a concept development plan is not subject to design review. However, this narrative shows that the project will be in compliance with these standards.

2. *The Downtown Design Guidelines Manual kept on file and available for public inspection at the Community Development Department or VMC 20.640 Vancouver Central Park Plan District, as applicable;*

Response: The project is subject to the Downtown Design Guidelines Manual. The manual addresses site design, building form and appearance, weather protection, pedestrian amenities, landscaping, parking and signs both in general and specific to the waterfront area. Detailed site plans will show how the individual developers are consisting with the provision in the manual.

3. *The relationship found to exist between existing structures and open space, and between existing structures and other structures in the vicinity, and the expected effect of the proposed construction upon such relationships;*

Response: The proposed plan will extend the Columbia River Waterfront Renaissance Trail through the project site. This will create a link to the existing Columbia River Waterfront Renaissance Trail to the east and the new portion of the trail and park being constructed by the City to the west. The project proposes a mix of uses that will complement the Vancouver Waterfront development under construction directly to the west. The two developments will use the same street network; complement each other in building, block scale, and use; provide strong public access to the Columbia River waterfront; and direct connections and complementary uses to downtown Vancouver to the north.

4. *The impact of the proposed construction on adjacent uses, including impact of new or revised parking and pedestrian uses; and*

Response: Parking proposed under the plan will not affect adjacent uses at the waterfront, in downtown Vancouver, or commercial, residential, park, and open space uses east of the I-5 bridge. Consistent with the minimum required by code, structured garages are proposed for parking and are included in the overall building designs at Blocks A and C and optional parking at Blocks B and D.

The proposed plan provides public access throughout the site and strengthens pedestrian access to the Columbia River and downtown Vancouver. The plan includes an extension of the Columbia River Waterfront Renaissance Trail to connect with the existing and under construction portions of the trail to the east and west. Additionally, the existing pier on the project site will be improved to accommodate public open space uses on the existing deck. Other proposed pedestrian elements

include sidewalks on all public streets and a dedicated pedestrian street (Daniels Way) that will bisect the project site between Access Way 5 and Columbia Street.

5. *The protection of neighboring uses from identifiable adverse effects of the design of the proposed construction.*

Response: The design of proposed plan is compatible with the primary neighboring uses approved in the Vancouver Waterfront project. The plan design includes a similar mix of residential, commercial, and public uses; continues the proposed block size and scale; and extends street and pedestrian access through the site to make strong connections with the neighboring properties. Buildings will be located to provide corridors allowing for continued views between downtown and the Columbia River area.

6.7.4 Commercial and Mixed Use Districts (VMC 20.430)

6.7.4.1 CX Zone Uses (VMC 20.430.030)

Table 20.430.030-1 establishes a list of permitted (P), limited (L), conditional (C) and prohibited (X) uses for the CX district. The project proposes office, retail, restaurant, hotel, apartments, public open space and recreational activities, the Renaissance Trail, and market as primary uses. Table 12 lists the proposed uses, the equivalent use type indicated in Table 20.430.030-1 from the VMC, and its use type along with any specific limitations.

Table 12. CX Zone Uses Proposed in Project

Proposed Use	Use	Types of Uses in the CX Zone
Apartments*	Multi-Dwelling Units	L[42]
Open Space and recreation	Regional, neighborhood, and community parks	P
Renaissance trail	Trails	P
Hotel	Commercial Lodging	P
Restaurant	Eating/Drinking Establishments	P
Retail	General Retail – Sales-Oriented	P[25]
Retail	General Retail - Personal Services	P
Office	Office - General	P

* May also include live/work units with ground floor units being designed to accommodate accessory retail and office uses.

[25] Pawnshops allowed in CX and CG Districts only. No more than four (4) pawnshop establishments allowed in the CX District.

[42] Ground floor residential is allowed within the CX zone with the exception of properties fronting Main Street between Sixth Street and Mill Plain.

Response: All proposed uses are permitted in the CX zone pursuant to VMC Table 20.430.030-1 as shown above. Uses proposed during detailed site plan review or tenant improvements will reviewed for conformance with the use provisions of the CX zone.

6.7.4.2 Development Standards (VMC 20.430.040)

A. Compliance Required. All developments must comply with:

1. *All of the applicable development standards contained in the underlying zoning district.*
2. *All other applicable standards and requirements contained in this title.*

Response: This narrative and the materials associated with it demonstrate the consistency of the project with the applicable provisions of the VMC.

B. Development standards. Development standards in are contained in Table 20.430.040-1.

Table 13. CX Zone Development Standards

Standard	Requirement for the CX Zone
Minimum Lot Size	None
Minimum Lot Width	None
Minimum Lot Depth	None
Maximum Lot Coverage	100%
Minimum Setbacks	
Front Yard	None
Rear Yard	None
Rear Through Street	None
Side Yard	0/5'[4]
Street Side Yard	None
Between Buildings on Site	None
Maximum Height	60 to 120 feet, and 80 to 160 feet (per VMC Figure 20.630-4)
Minimum Landscaping Requirement	None

[4] None except when abutting residentially-zoned property, when the minimum setback is 5'

Response: As shown in Table 13, the only limitations imposed by the District relate to height and side yard setbacks adjacent to residential zones. Compliance with the maximum height limitations in the CX zone is explained below. The project is not adjacent to any residential districts and no minimum setback is required.

C. On-site pedestrian access and circulation. On-site pedestrian access and circulation requirements for all commercial and mixed use zones are outlined in 20.945.040(H) VMC.

Response: See Section 6.7.17 of this narrative.

6.7.5 Noise Impact Overlay District (VMC 20.520)

6.7.5.1 Establishment of Boundaries (VMC 20.520.020)

A. Boundaries of Noise District. The boundaries of the Noise Impact Overlay District are as set forth in Figure 20.520-1. Such boundaries delineate that part of the City which is most affected by noise from Portland International Airport, Burlington Northern Railroad, I-5 Freeway and Pearson Airpark, or by the combined effect thereof. Such boundaries are based upon the 1988 65 Ldn Noise Contour shown on the 1983 PIA Noise Abatement Plan and are consistent with the noise impact studies of the Washington State

Department of Transportation for the I-5 Corridor. Large-scale maps showing the boundaries of the district shall be maintained in the office of the City's Community and Economic Development Department. For lots or parcels located only partially within the district, this Chapter shall apply if all or part of the exact building site is within the district.

Response: According to VMC Figure 20.520-1, the project site is located within the City's Noise Impact Overlay District, and will be required to comply with applicable provisions from VMC Chapter 20.520.

6.7.5.2 Applicability (VMC 20.520.030)

A. General. All new residential uses within the Noise Impact Overlay District, are subject to the provisions and the regulations of this Chapter.

Response: VMC 20.520.030 specifies that only residential uses are subject to the provisions of the overlay district. Residential units are anticipated to be constructed during buildout of the project and will comply with the provisions of this chapter.

A noise impact reduction plan will be submitted for residential elements within the project that will be consistent with the approval process outlined and prior to issuance of building or development permits.

6.7.6 Airport Height Overlay District (VMC 20.570)

6.7.6.1 Establishment of Boundaries (VMC 20.570.020)

The provisions of the Airport Height Overlay District shall apply to lands identified and illustrated in Figure 20.570-2.

Response: The project is located west of Pearson Field Airport within the approach surface area of the Airport Height Overlay District. The following standards apply to the proposed project.

6.7.6.2 Applicability (VMC 20.570.030)

Pearson Airpark Approaches:

1. *No use shall be located within an approach surface, transitional surface, horizontal surface or conical surface as defined by Figure 20.570-2 in such a manner to create interference with navigable airspace, navigational signals or radio communications between the airport and aircraft or to make it difficult for pilots to distinguish between airport lights and other lights. Uses shall not result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, take-off or maneuvering of aircraft intending to use the airport.*
2. *Specific Requirements*
    a. *Structure height limitations. No structure, including any roof-top appurtenance, shall be erected, altered, or maintained and no tree shall be allowed to grow on land which lies directly under any approach surface, transitional surface, horizontal surface or conical surface as defined in Chapter 20.150 VMC*

Definitions to a height in excess of the applicable height limit established for such surface or that are allowed in accordance with the adopted CFR Federal Aviation Administration Regulations Part 77.

b. Surface height limitations. Development shall be designed so as not to penetrate or interfere in any way with the airport's surfaces as defined in Chapter 20.150.040B consistent with Federal Aviation Administration Regulations Part 77. Penetration of any airport surface as defined in Part 77 may only be allowed if explicitly authorized by the FAA.

c. Lighting. New development that creates glare or lighting that interferes with lights necessary for aircraft landings is prohibited.

d. Appropriate notice. Applicants with property within this overlay district shall provide written notice to, and requests for written comments from the State Aeronautics Division, Federal Aviation Administration and the Airport operator. Documentation of notice and written comments received by the Applicant shall be provided to the city at the pre-application conference. Where no pre-application conference is required, documentation of notice and written comments received by the Applicant shall be provided with the application packet. Where the Applicant has provided written notice and request for comments and the agency or airport operator has failed to respond within 45 days from the date the written request was mailed, the Applicant may submit the pre-application without the required comments. Applicants should be aware of federal notification and permitting requirements when construction is proposed on or near airports. Applicants should be aware that FAA height restrictions include construction equipment, such as cranes. Federal Aviation Administration Regulations, Part 77 – Objects Affecting Navigable Airspace, outline the specific criteria for FAA notification. The FAA Form 7460-1 is used for Federal Aviation Administration notification.

Response: The Port has submitted Form 7460-1, Notice of Proposed Construction of Alteration, to the FAA for the high points of each of the proposed buildings. The FAA will review the forms and supporting information and determine if the project is consistent with established FAA requirement and if the building(s) will not present a hazard to air navigation. An analysis of the maximum theoretical building heights for each building was completed by the Port and all of the currently proposed building heights are below the maximum theoretical height that can be determined by the FAA to not present a hazard to air navigation. The Port will provide the City with copies of the final determination prior to final approval of the project. Copies of form 7460-1 submitted for the project are included in Appendix K.

6.7.7 Columbia River Shoreline Enhancement District (VMC 20.620)

6.7.7.1 Administration (VMC 20.620.030)

A. A master plan required. An Applicant who proposes any development within the Columbia River Shoreline Enhancement Plan District shall submit a master development plan per the requirements of Chapter 20.260 VMC, Planned Developments or 20.268

VMC, Public Facilities Master Plans, as appropriate for the proposed use(s). For the purposes of this chapter, compliance with Chapter 20.268 VMC, Public Facilities Master Plans is required, not voluntary where appropriate for the proposed use(s).

Response: The project is located within the Columbia River Shoreline Enhancement Plan District and is subject to a master development plan approval process per VMC Chapter 20.260. This narrative and accompanying plan documents comprise the master plan submittal required under this code section.

B. Additional Approval Criteria.

1. *The proposed development has been considered as a whole and conforms to the Comprehensive Plan and applicable zoning regulations.*
2. *Changes to the Comprehensive Plan and underlying zoning district have been integrated into the master plan.*
3. *Phased development has been properly coordinated.*
4. *The master plan process has been coordinated with the requirements of the State Shoreline Management Act and the city's shoreline program, and insofar as applicable with the city's adopted policy for a waterfront trail.*

Response: Compliance with these criteria is addressed throughout this narrative. In addition, the project does not propose changes to the Comprehensive Plan or zoning district.

6.7.8 Downtown District (VMC 20.630)

The project site is zoned CX (City Center) (zoning Map Section: D-4) and is located within the City Center Waterfront District (see Figure 20-630.7) VMC 20.630.080(B) and is subject to the applicable provision of this chapter. The Downtown Plan District addresses concerns unique to the downtown area. Pursuant to VMC 20.610.030 the plan district regulations control when there are conflicts between base zone and plan district provisions.

6.7.8.1 Maximum Building Heights (VMC 20.630.050)

B. Establishment of boundaries. The boundaries of the area within which these regulations apply are illustrated in Figure 20.630.030-4.

Response: According to VMC Figure 20.630-4, the entire project site will be subject to the maximum building height provisions of VMC Chapter 20.630. Figure 5 identifies the height limits in relation to the project site per the VMC and Figure 6 shows the building envelopes based on the VMC provisions.

C. In areas noted by a superscript 1 in VMC Figure 20.630.4, a maximum building height range is shown within brackets. The low number of the range identifies the maximum building height (inclusive of any roof-top appurtenance) that may be achieved outright. The high number of the range identifies the conditionally allowed maximum building height limit (inclusive of any roof-top appurtenance).

The following conditions apply with an increase in building height above the low number of any given range:

1. *Up to 50% increase in building height (inclusive of any roof-top appurtenance), is allowed outright, provided such increase in height complies with FAA regulation, Part 77, as certified by the FAA, through issuance of a determination of no hazard to air navigation, and will not affect the safe and efficient use of navigable airspace.*
2. *Over 50% and up to the high number of a given range, increase in building height (inclusive of any roof-top appurtenance), may be allowed by the Planning Official through the site plan review process upon making the following findings:*
    a. *Such increase in height complies with FAA regulation, Part 77, as certified by the FAA, through issuance of a determination of no hazard to air navigation and will not affect the safe and efficient use of navigable airspace; and*
    b. *The gross floor area of the building at each floor over 50% above the low number of any given range and up to the high number of a given range shall not exceed 12,000 square feet.*

Response: Table 14 shows the proposed building heights for all blocks as well as building heights allowed by code.

Table 14. Permissible Building Heights (in feet)

Block	Proposed Building Height[1]	Maximum Height Allowed Outright	Maximum Height After Meeting Condition 1[2]	Maximum Height After Meeting Condition 2[3]
A	78	60	90	120
B	78	60	90	120
C	120	80	120	160
D	96	80	120	160

1. Per VMC 20.170.050 height is measured from average grade to the highest point of the structure.
2. Condition 1: Per VMC 20.630.050(C)(1) buildings up to 50% taller than the maximum height allowed outright must obtain a determination of no-hazard to air navigation from the FAA.
3. Condition 2: Per VMC 20.630.050(C)(2) buildings over 50% taller than the maximum height allowed outright and up to the maximum height must obtain a determination of no-hazard to air navigation from the FAA and limit square footage of floors in this area to 12,000 square feet.

As shown, Blocks A, B and C propose building heights that will require compliance with Condition 1 and Block D proposes building heights that will require compliance with Conditions 1 and 2. The Port is in the process of obtaining a determination of no hazard to air navigation from the FAA (see Appendix K) for each structure, as required by both Conditions 1 and 2. In addition, the plan limits each floor above 120 feet for Building C to no more than 12,000 square feet, as required by Condition 2.b.

6.7.8.2 City Center Waterfront (VMC 20.630.080)

C. Administration. Compliance with the provisions of this Section shall be determined through the procedures of Section 20.620.030A and B, Columbia River Shoreline Enhancement Plan District, Administration.

Response: As noted in the responses to the provisions of the Columbia River Shoreline Enhancement Plan District, VMC 20.630.080 requires compliance with the administrative procedures of VMC 20.620.030(A) and (B), which require the submittal of a master plan per the requirements of VMC Chapter 20.260, Planned Developments. Consistent with this requirement, the Port has submitted a master plan with this application package that addresses the submittal requirements of concept development plans per Chapter 20.260 of the VMC.

D. Design and Development Standards

1. Street Grid

The street system shall be based on a grid pattern and pedestrian system similar to the existing City Center grid of 200 foot blocks. Based on site and environmental constraints the planning official may approve a limited number of smaller or larger blocks. Where blocks are 300 feet or longer on a face, midblock pedestrian connections shall be provided.

Response: The project will generally be divided into four blocks, with streets and pedestrian ways separating the blocks from each other, creating a street grid consistent with that of the rest of the city center (Appendix C, Drawing C-2). Because the site is not rectangular, the blocks are not square and the dimensions are irregular and sometimes exceed 200 feet. With the exception of Block B, no block length exceeds 300 feet. Block B is located on the Columbia River and its east-west dimension are approximately 350 feet. A pedestrian alley is proposed to provide a mid-block pedestrian crossing consistent with this standard, effectively reducing block length to less than 300 feet. The proposed street system (see Figure 8) will follow the grid pattern typical of downtown Vancouver. The existing Columbia Street will be the eastern boundary of the project site. A new road (North Access Way) will be the northern boundary. Another new road (Access Way 5) will be the western boundary. While the southern boundary will not feature a road, the Renaissance Trail will allow for non-motorized access along the riverfront. Daniels Way will provide a new north-south road through the site.

2. Traffic Calming

Traffic calming elements shall be incorporated in the master plan. Elements such as and not limited to maximize on-street parking, narrow streets, ten to twelve foot sidewalks, and visible attractive crosswalks at intersections.

Response: On-street parking is currently provided on Columbia Way and will be provided on Access Way 5. Parking will not be provided on North Access Way consistent with the street section approved for the adjacent Vancouver Waterfront development. Parking will not be provided on Columbia Street as it is currently developed at its full cross section by the City or Daniels Way, which is proposed as a dedicated pedestrian street. Lane width will be provided at the minimum required by City code. Distinctive pavers will be provided at the Daniels Way and Columbia

Way intersection to define the crossing as a pedestrian area. A traffic table may also be installed at that intersection to help regulate vehicle speed.

3. *Sidewalk*

    a. *Width - Twelve to Fifteen-foot-wide sidewalks shall be provided on Primary corridors. Ten to twelve-foot-wide sidewalks shall be provided on Secondary corridors. Street classifications to be determined in master plan process.*

    b. *Accents - Provide decorative pavement accents in sidewalks and at intersection crossings and on streets that provide connections to the trail network.*

Response: A new vehicle-oriented corridor (North Access Way), and a new secondary corridor (Access Way 5) will be constructed. North Access Way will have an 8-foot-wide sidewalk on the south side of the road consistent with the cross section approved for the adjacent Vancouver Waterfront development. Access Way 5 will have 12-foot-wide sidewalks with sidewalk materials and coloring that contrast with the road. A mix of standard paving with color or tile accents and (possibly) pavers will be used throughout the site to create an inviting atmosphere to help distinguish public and private areas.

The site also includes a newly constructed road (Columbia Way) which bisects the project. Columbia Way features 12-foot-wide sidewalks and wide intersection crossings with pavement distinguishable from the vehicle corridor.

4. *Street Lights*

    The City's Street Light Policy shall apply. It identifies the Sheppard's Crook light fixtures on the waterfront trail and the Double-Acorn light fixture on the streets.

Response: The City constructed Columbia Way with a specific street light that differs from the standard Double-Acorn fixture. This fixture will be used for new street lighting for consistency within the area. Path lighting will be coordinated with the City and will be standard Sheppard's Crook or other lighting as approved during the detail plan process, such as the "Canto" fixture used for the adjacent waterfront park currently under construction.

5. *Parking*

    Within the Columbia West Renaissance District, new surface parking lots are prohibited except for surface parking lot(s) needed during phased construction and where an approved phasing plan states timelines for completion of each phase and removal of such lot(s).

Response: All permanent parking within the project will be structured or on-street. As the project develops, interim surface parking will be needed to meet the parking needs of the project until all structured parking is provided. The site is currently developed with surface parking lots that will be maintained to meet this need. In addition, the current surface parking lot on Block B that serves the existing

restaurant and meeting rooms will be reconfigured and expanded to include the former hotel footprint. All surface parking lots will be replaced with buildings or other site improvements as the project develops. Per the provision above, the proposed interim parking is permitted if a part of phased construction (see section 5.3 for details about project phasing).

Structural parking is prohibited between the river and buildings located nearest to the shoreline and at the interface of buildings and the river shoreline.

Response: Structured parking is planned for Blocks A and C and is optional on Block B and Block D. If structured parking is provided on Blocks B and D located along the river it will either be underground or setback from the shoreline with active building uses developed between the structured parking and the shoreline.

Require parking driveway access from secondary streets and require on-street parking on all streets unless otherwise approved by the Transportation Manager.

Response: Access to structured parking on Blocks A and C will be from North Access Way, while access to Block D will be from Access Way 5. All access points to these blocks are from secondary streets (Figure 8). If parking is provided on Block B, it will be accessed from Columbia Way. Access from Columbia Way would not normally be permitted per this section. However, it is the only street that can provide access to the development proposed at Block B because Daniels Way is a pedestrian-only street and Columbia Street is a higher classification street with site distance and intersection spacing requirements that would make a driveway connection infeasible.

On-street parking is currently provided on Columbia Way and will be provided on Access Way 5. Parking will not be provided on North Access Way consistent with the street section approved for the adjacent Vancouver Waterfront development. Parking will not be provided on Columbia Street as it is currently developed at its full cross section by the City or on Daniels Way, which is proposed as a dedicated pedestrian street.

Develop orient and screen structural parking to:

a. complement adjacent buildings;
b. integrate structural parking with the building's overall design;
c. reduce automobile/pedestrian conflicts; and
d. support a comfortable pedestrian environment.

Response: The plan does not include stand-alone parking structures. Structured parking will be integrated into the planned buildings. Structured parking will be below or above grade. If constructed above grade buildings will incorporate the features required by this section and will be documented at detailed site plan review. Structured parking along North Access Way will not be screened by active uses at the street level because this street is not a primary pedestrian route, does not contain

pedestrian destinations, and is adjacent to the rail berm where no pedestrian access is needed.

However, there is a surface parking lot proposed for visitors with disabilities and for loading/unloading of goods for the Terminal 1 building. This lot is necessary to provide safe and proximate access to the Terminal 1 building after Block B is developed and the existing surface parking is removed. This lot will be located adjacent to the Columbia River Waterfront Renaissance Trail extension at the eastern portion of the project site. This area will not be developed or will be removed if structured parking is provided on Block B.

6. *Link to City Center*

   The principles of the Downtown Plan District sub-sections 20.630.020, Building Lines; 20.630.030, Rain Protection; 20.630.040, Blank Walls; 20.630.050 C, Maximum Building Heights; and Parking Control, 20.630.060 shall apply to the Columbia West Renaissance District waterfront area zoned City Center (CX). The details of how and where to apply the above mentioned sub-sections of the Downtown Plan District (20.630) shall be provided in the master plan (20.620.030) and approved by the City.

Response:
Building Lines (VMC 20.630.020) – requires buildings to be located at the right-of-way. Buildings along all street frontages within the project will comply with this standard with the exception of the east-facing frontage of Block B. Because Columbia Street turns east along the project frontage and in anticipation of the future construction of the CRC, the building on Block B will be setback from Columbia Street. The area between the sidewalk and the building will be devoted to pedestrian and open-space activities. In other areas, building lines may not be located directly at the right-of-way line and, in these instances, the additional setback from the right-of-way line will be devoted to enhanced pedestrian facilities.

Rain Protection (VMC 20.630.030) – requires that new construction include rain protection features per VMC 20.630.030(D)(1). Rain protection features will be included on Columbia Way, Access Way 5 and Daniels Way. The design standards (Appendix D) contains details for the provision of rain protection throughout the development.

Blank Walls (VMC 20.630.040) – requires that 75 percent of the width of any new or reconstructed first-story building wall facing a street be devoted to interest-creating features, pedestrian entrances, transparent show or display windows, or windows affording views into retail, office, or lobby space. This standard will apply to buildings along all streets within the project area with the exception of North Access Way to be located between the BNSF and Port rail rights-of-way and the proposed lots. This road will primarily serve to provide vehicle access to parking garages and vehicular service entrances.

Parking Control (VMC 20.630.060) – establishes limits on surface parking. Consistent with 20.630.080(D)(5), the project does not propose any permanent surface parking lots with the exception of the service parking for the Terminal 1 building noted above. In addition, structured parking at the ground level will be set back from Columbia Way and Columbia Street and will include active uses, such as retail, lobbies or other uses consistent with VMC 20.630.060(C)(2).

7. *Pathways, Open Spaces and Connections*

   People shall be able to interact with the river in appropriate locations, whether by touching, viewing, or enjoying the riverbank in other ways. Visual access to the water shall be provided. Physical access shall be provided where determined appropriate and consistent with the requirements of the Critical Areas Ordinance (VMC 20.740) and Shoreline Master Plan.

Response: The proposed plan emphasizes physical and visual access to the Columbia River as shown on Figure 1 and Figure 9. Visual access will be maintained by extending the Columbia River Waterfront Renaissance Trail through the entire project site along the Columbia River, orienting pedestrian ways (Daniels Way and Pedestrian Alley) to face the water, and devoting the entire length of shoreline to park and open space. The critical areas report (Appendix G) demonstrates consistency with the provisions of 20.740, and an analysis of consistency with the SMP is included in this narrative (see Section 7 below).

Locate open spaces strategically to serve proposed uses, pedestrian linkages and nearby districts and to enhance transition from the waterfront urban environment to the river shoreline environment. Provide pedestrian connections and specific design elements to connect the varied open spaces into a cohesive open space system.

Response: As shown on Figure 9, the proposed plan would create a distinct separation between the upland urban waterfront environment and the river shoreline environment by using strategically placed open spaces and hardscapes. Higher intensity urban uses are located at the blocks upland of the river. The uses nearest or over the river transition to pedestrian uses that emphasize the shoreline environment, both visually and physically.

Open space and hardscaped pedestrian ways are proposed along and over the river to create nodes of pedestrian activity. These activity areas connect to the upland urban environment, and nearby districts via pedestrian ways. For example, Daniels Way bisects the proposed development area by providing a wide pedestrian path that will connect to the Columbia River Waterfront Renaissance Trail and the proposed open space along the river. Additionally, the Columbia River Waterfront Renaissance Trail will be extended through the project site, establishing a pedestrian connection to other districts and the proposed open space along and over the Columbia River. The proposed pedestrian linkages will connect the proposed parks

with uses on the site and make connections to existing parks, such as Esther Short and Vancouver Waterfront Park, and the trail.

> *Provide public open spaces that are diverse in character, and placement. Both green and hardscape shall be provided. Hardscape open spaces designed for intense urban uses and consistent with the Critical Areas Ordinance (VMC 20.740) and Shoreline Master Plan may be appropriate in some areas of the City Center's waterfront.*

Response: The plan includes a large public open space on top of the existing Terminal 1 pier structure, which will feature a variety of public amenities. The plan includes an extension of the Columbia River Waterfront Renaissance Trail and development of different open space/recreational uses on the pier, and maintenance of the existing float for small boat moorage. The use areas on the pier provide greenscape to the overall open space concept included in the plan. The Columbia River Waterfront Renaissance Trail extension, pedestrian pathways between greenscape areas, and the dock for small boat moorage will be maintained and provide hardscape features, which diversify the planned pedestrian environment.

Compliance with the City's shoreline master plan is discussed in Section 7 below. Compliance with the City's critical areas ordinance is included in Appendix G.

> *Extend the Waterfront Renaissance Trail from east to west keeping it as close to the river as possible consistent with the requirements of the Critical Areas Ordinance (VMC 20.740) and Shoreline Master Plan.*

Response: The proposed plan includes the extension of the Columbia River Waterfront Renaissance Trail, which currently ends to the east of the project site at Columbia Street. The proposed plan would extend the trail west through the entire project site, to the terminus of Access Way 5. The trail will be adjacent to the Columbia River, paved, and a minimum of 12 feet wide.

> *Incorporate information about the Columbia River's natural resources and cultural history into the design of provided riverfront features such as public art, and interpretive signs.*

Response: The plan incorporates opportunities for the installation of public art and interpretive signs that convey information about the cultural history of the Columbia River and the river's natural resources. Final locations and nature of public art will be determined by the Port and will be included at detailed site plan approval for the phase in which it is included.

> *Provide primary pedestrian connections between the existing Esther Short Park and new waterfront development. Pedestrian connections may include, but not limited to, features or amenities such as special sidewalk design, landscaping, art work, street furniture, views etc. See Landscape Plans below.*

Response: The site is separated from Esther Short Park by the BNSF railway berm; however, Esther Street and Columbia Street provide direct access from the edge of the park to the project. Columbia Way, North Access Way, and the Columbia River Waterfront Renaissance Trail will all provide direct connects to these streets and provide a direct connection to Esther Short Park.

8. *Landscape Plans*

   Employ design concepts that unify the new waterfront development with the City Center, Esther Short Park, the Columbia River, river pathways and open spaces, and surrounding activities to the east and west, by specific plant selection, furniture, lighting, art, and hardscape materials etc. Integrate landscape elements to enhance transitions with pedestrian access ways from the waterfront urban development to the river shoreline.

   Arrange plant communities to reinforce diverse open spaces, provide connectivity, aesthetics, ecological functions, and variety and interest through the seasons.

   Select appropriate species of native and native-like plants in the waterfront district area based on the soil, light, moisture conditions, context and adjacent uses. Planting schemes shall consider water conservation goals refer to VMC Section 20.925.100.

   Specify appropriate species of native plants in the riparian management area and riparian buffer of the shoreline based on the soil, light, moisture conditions, context and adjacent uses and consistent with the Critical Areas Ordinance and Shoreline Master Plan.

   The selection of tree species and the layout of trees on different streets are related to both the operation and desired character of a particular street. Species selection and tree spacing shall be coordinated with the City's Parks and Forestry Divisions to ensure appropriate relationship to the Columbia River shoreline and Waterfront Renaissance Trail, connectivity to the City Center, and desired character of specific streets. For street tree selection, refer to VMC 20.925.060.

Response: The master plan provides landscape treatments that vary according to the intent of the parks and open space areas. A formal landscape plan has not been developed for the parks and open space areas in the project, but will be provided prior to construction. However, landscape provisions have been created and are included in the project's design standards (see Appendix D).

9. *Building Design*

   While creating an urban façade to the property line, development in the Columbia West Renaissance District should not present a wall between the downtown and the river, nor should it represent themed building types or styles. To avoid monolithic building mass, vary the footprint and façade plane of buildings that face the Columbia River to create a diversity of building forms and urban spaces adjacent to the shoreline. This may be accomplished by:

a. configuring the building's mass to be perpendicular to the river;
b. articulating the façade plane to step down to the shoreline;
c. articulating building facades that face the Columbia River with human scale elements;
d. breaking up the building's mass to develop a variety of volumes, developing a varied set of horizontal plane and vertical façade shifts; or
e. using divisions inherent to the building type to break up potentially monolithic building forms.

Response: The proposed concept development plan generally includes establishing four blocks; each block will feature its own building style and use. The design standards (Appendix D) require that buildings demonstrate compliance with the above standard.

Mixed-use developments shall be designed to provide increased opportunities for informal and planned activities beyond the typical 9 a.m. to 5 p.m. work hours.

Response: Each of the four blocks included in the concept development plan will feature a mixed-use building. All of the blocks will contain ground-floor retail (which will include eating and drinking establishments), with residential units at Blocks B and C, and a planned public marketplace where the existing Terminal 1 building is located. This plan will provide uses that will accommodate activities beyond the typical 9 a.m. to 5 p.m. workday and provide the proposed project with potential users. In addition, Blocks B and D border an area planned for public open space to the south. This space will include public open space uses and the marketplace, which can be used during and after the end of the typical 5 p.m. workday.

Non-residential ground floor building levels shall include elements of pedestrian interest appropriate to the use of the ground floor, such as, but not limited to, public art, display windows, arcades, courtyards, front porches and stoops, special landscaping and architectural features.

Response: Ground floor retail is proposed at every block. This retail space will provide pedestrian interest through display windows, openings, and other architectural elements typical of urban commercial zones.

Residential ground floor building levels shall include architectural elements that provide a transitional space between the public and private realm such as, but not limited to, indoor or outdoor foyers, courtyards, front porches, stoops and special landscaping areas.

Response: The proposed concept development plan limits ground floor residential uses. However, pedestrian-scaled lighting, street amenities, signs, and building design will be incorporated into the concept development plan (see the design standards included as Appendix D).

The design of building lights, signs, and awnings, shall be determined through the master plan process. Signage shall be appropriate for a district that is intended primarily for residential use, and should not be visible from outside the district.

Response: The design standards (Appendix D) address signage, lights, and pedestrian-scaled elements for buildings.

10. *View Protection*

    Within the Columbia West Renaissance District, buildings shall be arranged and designed to maximize views and preserve views of the shoreline.

Response: Buildings and structures included within the concept development plan have been designed to maximize and preserve the views of the Columbia River. The tallest structures are proposed in the northern region of the project site and get progressively shorter as the development extends south, near the Columbia River, which allows tenants in the upland structures to retain a visual connection with the shoreline. Uses nearest to the shoreline include public open space and pedestrian amenities, such as the pier, the Columbia River Waterfront Renaissance Trail extension, and a dock for small boat moorage. These uses were sited closest to the river, as they are the most view-dependent of the proposed uses under the concept development plan.

11. *Sustainable Site and Development Design*

    As much as practicable incorporate sustainable design concepts as integral components of urban site and development designs. Examples include but are not limited to:

    a. *integrating ecological landscape elements in site designs;*
    b. *developing special landscape environments;*
    c. *creating interior spaces within buildings that relate to or take advantage of exterior environments; and*
    d. *incorporating sustainable building practices or techniques into development designs.*

    As much as practicable integrate innovative stormwater management systems with the overall site and development designs. Examples include but are not limited to:

    a. *developing multifunctional stormwater management systems;*
    b. *artistically emphasizing the stormwater function of typical building elements;*
    c. *considering the potential aesthetic functions of stormwater management systems;*
    d. *integrating recreational rooftop facilities;*
    e. *creating comprehensive systems that advertise and attractively display the building's stormwater; and*
    f. *incorporating eco-roofs.*

Enhance the river bank with native vegetation and bio-engineered and/or bio-technical engineered solutions consistent with the Critical Areas Ordinance (VMC 20.740) and Shoreline Master Plan.

Use low impact development methods as much as practicable.

Response: Appendix D contains a number of requirements to address sustainable design.

E. Modification. Modifications to design and development standards may be processed as part of the request for concept plan approval if the Applicant can demonstrate compliance with the following approval criteria:

1. *A master plan that complies with Section 20.268.070 Master Plan Components is submitted.*
2. *The modification(s) is warranted given site conditions and/or characteristics of the design.*
3. *The benefits accruing from the implementation of the modification meet or exceed the current design and development standards in Section D above.*
4. *Any impacts resulting from the modification are mitigated to the extent practical.*

Response: The Applicant is not requesting any modifications to design or development standards at this time.

6.7.9 Archaeological Resource Protection (VMC 20.710)

The provisions of VMC 20.710 encourage the identification and preservation of cultural, archaeological, and historic resources consistent with the Growth Management Act as well as the Vancouver comprehensive plan. According to Clark County GIS maps and the pre-application conference notes (line 949), the project is within an area of high probability for the discovery of archaeological resources; therefore, a predetermination will be required.

Archaeological Investigations Northwest, Inc. (AINW) produced a predetermination report ("City of Vancouver Archaeological Predetermination Report No. 3590," November 2016; see Appendix F). After evaluating the project site for cultural and historic resources, the report concludes that "project-specific archaeological monitoring plan(s) should be developed when the nature and extent of specific ground-disturbing activities have been identified for the master plan or subsequent designs. The monitoring plan(s) will address when and where archaeological monitoring should occur as well as where monitoring is not needed during construction."

6.7.10 Critical Areas Protection (VMC 20.740)

The critical areas report completed for the project is included as Appendix G; it documents compliance with the provisions of VMC 20.740.

6.7.11 Shoreline Management Area (VMC 20.760)

The project is located along the Columbia River and is subject to the jurisdiction of the City's SMP. The site is designated as Aquatic and Urban high intensity. It is anticipated that an SSDP and SCUP will be required for project elements located within the City's shoreline jurisdiction. See Section 7 for a discussion of compliance with SMP provisions.

6.7.12 Tree Conservation (VMC 20.770)

The project will require tree removal and, according to VMC 20.770.020(B) and Table 20.770-1, a Level V tree plan is required. This section discusses compliance with the applicable provisions.

6.7.12.1 Level 5 Tree Plan

5. *A level V tree plan is required for proposed residential subdivisions, commercial, industrial, multi-family (more than four units), parks, conditional use sites in which existing trees are proposed for removal, could be damaged by construction activities, and/or could become hazardous. If the activity includes tree retention and necessary protection adjacent to the development activity, the plan must be developed with the assistance of a qualified professional. The plan shall include the following information:*

    a. *Site plan. Drawn to scale on the site plan shall be a map delineating vegetation types. Each type shall include the following information:*

        1. *Average number of trees and basal area per acre, by species and 2" diameter class for significantly wooded areas, which all or a portion of the stand is to be retained. For non-forested areas with individual trees, provide an inventory including size (dbh), species and condition of each tree and a general description of the vegetation present.*

        2. *Narrative description of the potential for tree preservation for each vegetation type, and for individual trees that are or will be standalone. This report shall include soils, wind throw potential, insect and disease problems, and approximate distance to existing and proposed targets.*

        3. *Description of any off-site tree or trees which could be adversely affected by the proposed activity, and the proposed mitigation for such impact.*

    b. *Tree protection plan: Drawn to scale on the grading and erosion control plans the tree protection plan shall be made for trees to be preserved. It shall include the following information:*

        1. *Surveyed locations, conducted by a surveyor licensed by the State of Washington, of perimeters of groves of trees or tree tracts and individual trees to be preserved outside of groves or tree tracts, adjacent to the proposed limits of construction. General locations of trees proposed for removal. The critical root zones of trees to be preserved shall be shown on the plan.*

        2. *Limits of construction and existing and proposed grade changes on site.*

3. *Narrative description, graphic detail of tree protection, and tree maintenance measures required for the preservation of existing trees to be preserved.*

4. *Timeline for clearing, grading and installation of tree protection measures.*

c. *Tree planting plan: The planting plan shall include the following information:*

1. *Location, size, species and numbers of trees to be planted.*

2. *Narrative description and detail showing any site preparation, installation and maintenance measures, necessary for the long-term survival and health of the trees.*

3. *Timeline for site preparation, installation and maintenance of trees.*

4. *Cost estimate for the purchase, installation and 3-years maintenance of trees.*

d. *Tree density. The following information shall be included on the site plan: Area of site for tree density, tree density calculation for the existing trees proposed for preservation, and tree density calculation for trees proposed for planting.*

6.7.12.2 Tree Inventory

BergerABAM scientists inventoried the trees at the project site on 16 September 2016 using a commercially available diameter at breast height (DBH) measuring tape. All trees within the project site 6 inches or greater DBH were measured to the nearest 0.5-inch DBH, and their locations were surveyed (see Appendix C, Drawing C-1).

In all, 67 trees 6-inches DBH and greater were inventoried. These are mostly a variety of ornamental trees that were planted and maintained as part of the existing Terminal 1 development. Tree species present include bigleaf maple (*Acer macrophyllum*), true cedar (*Cedrus sp.)*, ornamental plum/cherry (*Prunus spp.*), black walnut (*Juglans nigra)*, American linden (*Tilia americana*), and Douglas fir *(Pseudotsuga menziesii).* The largest tree on site is a 58.6-inch DBH black walnut. There are also approximately 50 street trees between 1 and 3.5-inch DBH that were planted as part of the recent construction of Columbia Way. These trees consist mainly of ornamental maples *(Acer sp.)* and gingkos (*Gingko biloba).*

The 67 trees represent a total of 208.5 tree units. Table 15 contains the data collected during the tree inventory, including the size and species of each numbered tree and the number of tree units each tree represents.

Table 15. Tree Inventory

Tree ID No.	Species	Diameter	Tree Units
109	Juniper (*Juniperus* sp.)	6.4	1.5
25	Unknown (ornamental species)	6.8	1.5
108	Juniper (*Juniperus* sp.)	7.4	1.5
62	Gingko biloba (*Gingko biloba*)	7.9	1.5
70	Mountain ash (*Sorbus* sp.)	8	1.5
63	Black walnut (*Juglans nigra*)	8.1	1.5
28	Ornamental apple/plum (*Prunus* sp.)	8.3	1.5

Tree ID No.	Species	Diameter	Tree Units
81	Unknown (ornamental species)	8.3	1.5
68	Black walnut (*Juglans nigra*)	8.5	1.5
107	Unknown (ornamental species)	8.5	1.5
104	Unknown (ornamental species)	9.7	1.5
66	Black walnut (*Juglans nigra*)	10	1.5
110	Juniper (*Juniperus* sp.)	10	1.5
58	Ornamental apple/plum (*Prunus* sp.)	10.3	1.5
65	Black walnut (*Juglans nigra*)	11	1.5
80	Unknown (ornamental species)	11.2	1.5
20	Ornamental apple/plum (*Prunus* sp.)	11.8	1.5
2	Lodgepole pine (*Pinus contorta*)	12	1.5
3	Lodgepole pine (*Pinus contorta*)	12	1.5
7	Ornamental apple/plum (*Prunus* sp.)	12	1.5
9	Ornamental apple/plum (*Prunus* sp.)	12	1.5
56	Ornamental apple/plum (*Prunus* sp.)	12.1	2
61	Ornamental apple/plum (*Prunus* sp.)	12.1	2
16	Ornamental apple/plum (*Prunus* sp.)	12.3	2
21	Ornamental apple/plum (*Prunus* sp.)	12.3	2
60	Ornamental apple/plum (*Prunus* sp.)	12.3	2
78	Unknown (ornamental species)	12.3	2
55	Ornamental apple/plum (*Prunus* sp.)	12.4	2
59	Ornamental apple/plum (*Prunus* sp.)	12.5	2
11	Unknown (ornamental species)	12.8	2
57	Ornamental apple/plum (*Prunus* sp.)	12.8	2
64	Black walnut (*Juglans nigra*)	12.8	2
15	Unknown (ornamental species)	12.9	2
105	Unknown (ornamental species)	13	2
14	Ornamental apple/plum (*Prunus* sp.)	13.4	2
8	Ornamental apple/plum (*Prunus* sp.)	13.5	2
10	Ornamental apple/plum (*Prunus* sp.)	13.5	2
77	Unknown (ornamental species)	13.5	2
79	Unknown (ornamental species)	13.5	2
12	Unknown (ornamental species)	13.6	2
26	Unknown (ornamental species)	13.7	2
6	Unknown (ornamental species)	14	2
106	Unknown (ornamental species)	14	2
18	Douglas-fir (*Pseudotsuga menziesii*)	14.3	3
122	Lodgepole pine (*Pinus contorta*)	14.5	3
22	Unknown (ornamental species)	15	3
83	Maple sp. (*Acer* sp.)	15.3	3
27	Unknown (ornamental species)	16	3
82	Maple sp. (*Acer* sp.)	16.1	4
24	Unknown (ornamental species)	16.2	4
134	True cedar (*Cedrus* sp)	16.3	4
117	True cedar (*Cedrus* sp)	17	4
17	Douglas-fir (*Pseudotsuga menziesii*)	17.4	4

Tree ID No.	Species	Diameter	Tree Units
115	True cedar (*Cedrus* sp)	17.6	4
19	Douglas-fir (*Pseudotsuga menziesii*)	18	4
111	True cedar (*Cedrus* sp)	18.4	5
120	Bigleaf maple (*Acer macrophyllum*)	20	5
114	True cedar (*Cedrus* sp)	20.4	6
118	True cedar (*Cedrus* sp)	21.3	6
113	True cedar (*Cedrus* sp)	21.4	6
1	True cedar (*Cedrus* sp)	22	6
116	True cedar (*Cedrus* sp)	23	7
133	True cedar (*Cedrus* sp)	23	7
112	True cedar (*Cedrus* sp)	24	7
119	Lodgepole pine (*Pinus contorta*)	24	7
0	True cedar (*Cedrus* sp)	26	8
23	Black walnut (*Juglans nigra*)	58.6	20
Total Tree Units			208.5

6.7.12.3 Tree Preservation

VMC 20.770.050 requires a narrative description of the potential for tree preservation within each vegetation type.

For construction, the plan will likely require the removal of all 67 trees (208.5 tree units) that were inventoried at the project site. There are no trees meeting the diameter specification of the ordinance that can be preserved or protected. However, as detailed plans are developed for each block, a review will be completed to determine if trees warrant preservation and can be incorporated into development. In addition, a total of approximately 51 recently planted street trees ranging from 1.0 to 3.5-inch DBH will be preserved at the site.

6.7.13 Tree Protection

As noted above, there are no trees planned for protection except street trees planted in Columbia Way. However, as detailed plans are developed for each block, a review will be completed to determine if trees warrant preservation and can be incorporated into the development. The following tree protection measures will be implemented to prevent impacts to these trees.

- During construction, no person will be allowed to conduct any activity within the critical root zone of any tree designated to remain; such activities include, but are not limited to, parking equipment, placing solvents, storing building material and soil deposits, dumping concrete washout, or locating burn holes.
- During construction, no person will be permitted to attach any object to any tree designated for protection.
- Prior to any development, land clearing, filling, or any land alteration that could impact trees, readily visible protective tree fencing will be erected along the outer edge of the proposed limits of construction to protect all trees or groups of trees that are identified for protection.

- The protective tree fencing will be maintained throughout development, land clearing, filling, and land alteration activities in the vicinity of the protected trees.
- Excavating or compacting earth within the extent of the erected protective barriers will not be allowed.
- The grade will not be elevated or reduced within the critical root zone of any tree identified for preservation.
- Impervious surface will not be installed within the critical root zone of any tree identified for preservation.
- Trees and other vegetation to be preserved will be protected from erosion and sedimentation. Clearing operations will be conducted to expose the smallest practicable area of soil to erosion for the least possible time.
- Tree protection measures will be included in contractor construction specifications and requirements.

6.7.13.1 Tree Planting and Tree Density

VMC 20.770.080A establishes a minimum tree density of 30 tree units per acre of site disturbance. However, per VMC 20.770.080A, because the property is located within the City Center District, this minimum tree density does not apply. For this reason, no formal planting plan is provided to document compliance with VMC 20.770.

Though not required by code to meet the minimum tree density, the project will include landscaping and trees. Details will be provided in the landscaping plans submitted for detailed plan approval of each block.

6.7.14 State Environmental Policy Act Regulations (VMC 20.790)

The project site is located in the Vancouver City Center Subarea and the City established a planned action for the subarea by Ordinance No. M-3833. Per VMC 20.790.530(B), a SEPA checklist was prepared for compliance with the planned action ordinance (see Appendix E for the SEPA checklist).

As established under VMC 20.790.530(D), applicants that seek project qualification under planned action need to demonstrate compliance with the planned action requirements. The Port is seeking a planned action designation for the concept development plan. A demonstration of compliance with the planned designation criteria of VMC 20.790.530(D) is included below:

1. *The proposed project is located within the geographic area of an identified planned action subarea and the proposed project's impacts are within the thresholds identified within the applicable planned action ordinance, subarea plan and EIS;*

Response: According to the VCCV FSEIS, which analyzed the impacts associated with the adoption of the VCCV subarea plan, the project site is located within the VCCV subarea. See Figure 1-1 of the VCCV FSEIS for a vicinity map depicting the subject area analyzed by the VCCV FSEIS and regulated by the VCCV subarea plan.

The SEPA checklist included with this narrative as Appendix E analyzes the project impacts and compares them to the impacts identified in the planned action ordinance, subarea plan, and the VCCV FSEIS. Compliance with the VCCV subarea plan, planned action ordinance, and VCCV FSEIS thresholds is discussed below.

2. *The zoning designation upon the property upon which the project is proposed is consistent with those designations analyzed in the subarea plan and EIS adopted for the planned action subarea;*

Response: The plan area is designated as a City Center (CX) zone. The uses allowed in the CX zone were analyzed in the VCCV subarea plan and VCCV FSEIS. The plan does not propose any uses not addressed in the VCCV subarea plan, VCCV FSEIS or the CX zone. Therefore, the zoning of the subject property is consistent with the designations analyzed in the subarea plan and VCCV FSEIS.

3. *The use(s) and intensity of use(s) proposed are among or consistent with the uses and intensity of uses identified in the planned action ordinance, subarea plan and EIS, adopted for the planned action subarea;*

Response: Table 10 above shows the available capacity under the VCCV subarea plan as provided by the City at the time of the pre-application, and the proposed usage of the available capacity by the project. The table shows the total allowed intensity of proposed land uses under the VCCV, and intensity proposed under the plan and indicates the project is consistent with the use and intensity allowed with the exception of residential units. Section 6.1, above, contains an analysis of using capacity from the office category for the additional residential units consistent with the provisions of City Ordinance M-3833.

4. *The proposed project's environmental impacts, both project specific and cumulative, have been adequately addressed and analyzed in the subarea plan and EIS for the planned action subarea;*

Response: The SEPA checklist provides a detailed assessment of its specific and cumulative environmental impacts. These impacts are consistent with the impacts and thresholds established in the VCCV FSEIS and subsequent planned action ordinance.

5. *The proposed project implements the goals and policies of the applicable subarea plan and is consistent with the City's Comprehensive Plan;*

Response: As the project implements the goals and policies adopted by the VCCV subarea plan (reflected by the development regulations established to implement the plan and shown in this narrative) and as the City's comprehensive plan adopts the VCCV subarea plan goals and policies, the project is consistent with this requirement.

6. *The proposed project's significant environmental impacts will be adequately mitigated or avoided through application of the mitigation measures and other conditions required by the planned action ordinance, subarea plan or EIS for the planned action subarea;*

Response: The project's significant environmental impacts will be mitigated or avoided through the application of the VCCV mitigation measures or regulations. Please see the project's SEPA checklist (Appendix E) for a detailed account of anticipated project impacts and proposed mitigation, regulatory compliance, or avoidance measures.

7. *The proposed project is in compliance with all applicable local, state, and federal regulations and development standards;*

Response: This narrative, and the accompanying permit application package include all necessary information for a demonstration of compliance with all applicable city regulations and development standards. The project will obtain all applicable permits from city, state and federal agencies. Issuance of these permits will require compliance with the applicable standards of those regulations.

8. *The proposed project is within the Vancouver Urban Growth Boundary;*

Response: Figure 16 of the Clark County *20-Year Comprehensive Growth Management Plan 2015-2035* established the Urban Growth Area for Vancouver and includes the project site.

9. *The proposed project meets the requirements for designation as a planned action set forth in Section 43.21C.031 RCW, Section 197-11-164 WAC, and Section 20.790.530 VMC; and*

Response: RCW 43.21C.031 requires the preparation of an environmental impact statement (EIS) for certain projects. The City completed a supplemental EIS for the VCCV consistent with this requirement. WAC 197-11-164 defines planned actions and the criteria for establishment. These criteria are reflected in this section of the VMC. Finally, this section of the narrative addresses the requirements of VMC 20.790.530

10. *The proposed project meets any other criteria for designation as a planned action project set forth in the applicable planned action ordinance.*

Response: Ordinance M-3833 established the planned action for the VCCV. Section 3 of the ordinance includes the criteria for determining projects as a planned action. All elements required by Section 3 are contained in VMC 20.790.530 and discussed previously in this narrative.

6.7.15 Impact Fees (VMC 20.915)

All future development within this concept development plan will be subject to the impact fees determined in VMC 20.915 where applicable. Further, the Port may seek to obtain impact fee credits for eligible improvements, dedications, or other eligible actions consistent with VMC 20.915.090(A) or as outlined in the development agreement for the project.

6.7.16 Landscaping (VMC 20.925)

There are no established minimum landscaping standards in the CX zone per VMC 20.430.040 and no landscape buffers are required per VMC Table 20.925.030-1; however, the plan includes landscaping (see Figure 1). Detailed landscape plans will be submitted for each block at the time of detailed site plan approval and will show compliance with the applicable provisions of VMC Chapter 20.925.

6.7.17 Parking and Loading (VMC 20.945)

6.7.17.1 General Provisions (VMC 20.945.030)

C. Parking in mixed-use projects.

1. *Mixed-use projects shall include either uses that are contained in a building (vertical mixed-use) or in a group of single-purpose buildings that share a single parking facility (horizontal mixed-use).*
2. *The required minimum vehicle parking shall be determined using the following formula.*
    a. *Primary use, i.e., that with the largest parking demand within the development, at 100% of the minimum vehicle parking required for that use in Section 20.945.070 VMC;*
    b. *Secondary use, i.e., that with the second largest parking demand within the development, at 90% of the vehicle parking required for that use in Section 20.945.070 VMC;*
    c. *Subsequent use or uses, at 80% of the vehicle parking required for that use(s) in Section 20.945.070 VMC.*

Response: Parking for the project at completion will be provided either on the street or in structured parking that will be developed in phases as building construction occurs (see Figures 16-20). Existing surface parking lots with minor modification and expansion will serve the project as it develops. A small surface parking lot is proposed for visitors with disabilities and for loading/unloading of goods for the Terminal 1 building (Figure 1). This lot is necessary to provide safe and proximate access to the Terminal 1 building after Block B is developed and the existing surface parking is removed. This lot will be located adjacent to the Columbia River Waterfront Renaissance Trail extension at the eastern portion of the project site. This parking area will not be developed if structured parking is provided on Block B, which will serve the Terminal 1 building. Table 16 shows the pertinent parking requirements in the CX zone by land use (VMC Table 20.945.070-1), whereas Table

17 indicates the proposed development unit quantities and the required parking associated with the activity.

Table 16. CX Zone Parking Requirements

Land Use	Parking Requirement
Residential	1 Space/Dwelling Unit
Transient Lodging	1 Space/Living Unit
All Other Uses	1 Space/1,000 SF of Floor Area

Table 17. Proposed Development Units and Parking

Land Use	Parking Requirements	Proposed Number/Area	Spaces Required
Residential	1 Space/Dwelling Unit	355 Units	355
Transient Lodging	1 Space/Living Unit	160 Units	160
All Other Uses	1 Space/1,000 SF of Floor Area	293,900SF	294
Total			**809**

The plan will provide at least 809 off-street parking spaces based on the full buildout of the conceptual parking plan (Figure 20). Parking will be provided in phases as buildings and street infrastructure are developed. Actual parking numbers will vary depending on the final building size and design for each individual block and detailed parking calculations will be provided at the time of detailed site plan review of that particular phase. A total of 238 surface parking spaces are currently available on site which exceeds the parking demand of the existing buildings.

During the initial phase, new interim surface parking will be provided on Block B in the former footprint of the north and west wings of the hotel. Approximately 149 interim surface parking spaces will be provided with the existing and new interim parking on Block B. This interim surface lot will be developed to meet City design standards. The interim surface lot will be replaced with buildings as Block B develop.

Block D contains 27 existing parking spaces that will be replaced with buildings as the block develops.

As each phase of the project is developed, provision of adequate parking will be demonstrated during detailed site plan review. Parking needs will be met for each phase by a combination of structured parking proposed within that phase and existing surface parking.

For example, if Block D develops to the maximum room count and square footage, the required parking per the CX zone is 187 spaces. The current plan for Block D proposes up to 85 parking stalls, leaving 102 spaces that must be accommodated by surface lots. Blocks A and C contain 149 parking spaces, adequately meeting the minimum requirements of the phase.

6.7.17.2 General Design Standards for Surface Parking Areas (VMC 20.945.040)

VMC Section 20.945.040 contains the requirements for the design of surface parking areas. At completion the project will not contain surface parking with the exception of the ADA parking with a loading zone. Compliance with standards for surface parking lots will be determined during the site plan review stage for the phase that includes this new surface parking area. In addition, the interim surface parking planned on Block B will also meet the design standards.

6.7.18 Signs (VMC 20.960)

Signage is not included in the proposed plan. Signs will be designed as each building develops and tenants are determined. All signs will comply with applicable City permitting and the project specific design standards and obtain approval prior to installation.

6.7.19 Solid Waste Disposal and Recycling (VMC 20.970)

The proposed plan will comply with all applicable solid waste disposal and recycling provisions. Locations and specific screening details in conformance with the standards contained in VMC 20.970.040 will be provided with future site development applications.

7.0 CITY OF VANCOUVER SHORELINE MASTER PROGRAM

The SMP divides the shoreline jurisdiction affecting the project site into two major environments: aquatic and upland. The upland environment in the project area is designated high intensity and generally extends 200 feet landward of the OHWM as defined by the Washington State Department of Ecology (Ecology), and the area waterward of the OHWM is designated aquatic.

Work is proposed both within the aquatic shoreline and within 200 feet of the OHWM of the Columbia River in upland areas. Therefore, the proposed project falls within the jurisdiction of the City's SMP and is subject to the policies and regulations applicable to development in the high intensity and aquatic environment.

The proposed project will construct a mixed-use waterfront development featuring hospitality, office, retail, and residential uses, as well as pedestrian circulation facilities in the high intensity environment and modifications to an existing overwater use (pier) and structure (Terminal 1 building) in the aquatic environment.

The uses proposed within the high intensity environment are classified as water-enjoyment uses because the proposed uses provide for recreation or aesthetic access to the shoreline. The exception is the office use on Blocks B and D, which is considered a non-water-oriented commercial use. The project does not propose changing existing uses in the aquatic designation. Please refer to the definitions below from the City's SMP for classification of the use.

Water-dependent Use or Activity - a use or a portion of a use which requires direct contact with the water and cannot exist at a non-water location due to the intrinsic nature of its operations.

Water-enjoyment Use or Activity – a recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the use; or a use that provides for recreational use or aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and that through location, design, and operation ensures the public's ability to enjoy the physical and aesthetic qualities of the shoreline. In order to qualify as a water-enjoyment use, the use must be open to the general public and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that fosters shoreline enjoyment.

Water-related Use or Activity – a use or portion of use that is not intrinsically dependent on a waterfront location but whose economic viability is dependent upon a waterfront location because:

a. *of a functional requirement for a waterfront location such as the arrival or shipment of materials by water or the need for large quantities of water or,*
b. *the use provides a necessary service supportive of the water-dependent uses and the proximity of the use to its customers make its services less expensive and/or more convenient.*

Water-oriented Use or Activity - a use that is water-dependent, water-related, or water-enjoyment, or a combination of such uses.

According to Table 6-1 Shoreline Use, Modification and Development Standards, the water-dependent uses proposed within the aquatic designation (alterations to existing water-dependent uses [Terminal 1 pier structure and dock for small boat moorage]) are permitted outright. Alterations to existing conforming structures within the aquatic designation are permitted, and will require an SSDP unless the work qualifies for an exemption.

Uses within the high intensity designation will require either an SSDP or a SCUP. Block B will contain the following uses in the high intensity shoreline designation: water-oriented commercial uses (SSDP); non-water-oriented commercial use (SCUP); and multifamily residential (SSDP). Water-oriented uses at Block D comprise commercial uses excluding office (SSDP) and commercial use including office (SCUP). Other uses proposed within the high intensity environment include shoreline restoration (SSDP), the extension of the Columbia River Waterfront Renaissance Trail (permitted)), and secondary access roads (Access Way 5 and Daniels Way) perpendicular to the OHWM (SSDP).

Table 18. Shoreline Uses and Designations

Shoreline Use (per Table 6-1)	Proposed Uses	Aquatic	Urban High Intensity
Recreational Use - water-dependent/water-enjoyment	• Modifications to an existing pier • Waterfront Trail extension	Permitted	Permitted
Commercial Use - water-enjoyment	• Retail • Hospitality	Non-conforming use/ Conforming structure*	Permitted
Commercial use – non-water-enjoyment	• Office	N/A	Conditional
Parking	• Accessory (optional) underground parking • Accessory ADA parking	N/A	Permitted
Residential	• Multi-family residential	N/A	Permitted
Transportation Uses (secondary road perpendicular to OHWM)	• Secondary road (Access Way 5)	N/A	Permitted
Signs	• Informational/wayfinding	Permitted	Permitted
Shoreline Restoration	• Shoreline restoration	Permitted	Permitted

* The Terminal 1 building is located in the aquatic designation. Per Table 6-1 of the SMP, only water-dependent commercial uses are allowed in the aquatic zone. Per SMP Section 2.5.1, existing uses legally established prior to adoption of the SMP are allowed to continue as nonconforming uses. In addition, SMP Section 2.5.3(3) specifies that existing structures between Wintler Park and the rail bridge are considered conforming.

7.1.1 Applicability

1. *This Program shall apply to all of the shorelands and waters within the City limits that fall under the jurisdiction of RCW 90.58 as follows:*

    a. *On the Columbia River from the eastern boundary of Wintler Park downstream to the eastern boundary of Parcel #153105000 (also referred to as "Port Parcel 3") shorelands shall include those lands extending two hundred (200) feet in all directions as measured on a horizontal plane from the ordinary high water mark (OHWM); floodways and contiguous floodplain areas landward two hundred (200) feet from such floodways; and all wetlands and river deltas associated with the streams, lakes and tidal waters that are subject to the provisions of this Program, as may be amended; the same to be designated as to location by Ecology, as defined by RCW 90.58.*

Response: A portion of the project will occur within 200 feet of the OHWM of the Columbia River in upland areas and below the OHWM in the aquatic shoreline designation. Therefore, the proposed project falls within the jurisdiction of the City SMP and is subject to the policies and regulations applicable to development in the high intensity and aquatic environment.

7.1.2 Shoreline Substantial Development Permit (SSDP) Required

Consistent with Section 2.2 on p. 2-3 of the SMP, "Substantial development as defined by this program and RCW 90.58.030 shall not be undertaken by any person

on the shorelines of the state without first obtaining a substantial development permit from the Shoreline Administrator."

The Shoreline Administrator may grant a substantial development permit only when the development proposed is consistent with the policies and procedures of RCW 90.58, the provisions of WAC 173-27, and this Program.

Response: Per RCW 90.58.340, the local jurisdiction is responsible for developing policies related to the use of its shorelines. These policies and the local SMP are required to implement the program contents identified in RCW 90.58.100. As such, the applicable policies and procedures per WAC 173-27-150 above are those of the City's SMP. The responses to the City's SMP policies and procedures provided in this narrative demonstrate consistency with the policies and procedures of the SMA.

Similarly, the provisions of WAC 173-27 generally reflect administrative provisions for the local municipality to adopt with its SMP. Thus, the applicable regulations are found in the City's SMP and addressed in the applicable sections of this narrative. WAC 173-27-150 identifies the review criteria for SSDPs. They are as follows.

WAC 173-27-150 Review criteria for substantial development permits.

(1) A substantial development permit shall be granted only when the development proposed is consistent with:

(a) The policies and procedures of the act;
(b) The provisions of this regulation; and
(c) The applicable master program adopted or approved for the area. Provided, that where no master program has been approved for an area, the development shall be reviewed for consistency with the provisions of chapter 173-26 WAC, and to the extent feasible, any draft or approved master program which can be reasonably ascertained as representing the policy of the local government.
(d) Local government may attach conditions to the approval of permits as necessary to assure consistency of the project with the act and the local master program.

The City has adopted a SMP with reflects the policies and procedures of the SMA, and the applicable policies and procedures of WAC 173-27. As such, the responses to the City's SMP policies and regulations provided in this narrative demonstrate the consistency of the project with the policies and procedures of the SMA. These policies and the local SMP are required to implement the program contents identified in RCW 90.58.100.

The project includes the following project elements, which will require an SSDP: restructuring of the existing pier's concrete amphitheater into terraces; rehabilitating the existing small boat moorage connected to the pier; the extension of the Columbia River Waterfront Renaissance Trail (for segments located at least 20 feet landward of the OHWM); construction of the pedestrian overlook feature at the terminus of

Access-Way 5; accessory ADA surface parking and optional accessory structured parking; access roads perpendicular to the shoreline; habitat restoration; upland ground improvements; and water-oriented commercial and residential uses constructed in mixed-use buildings upland of the OHWM.

Each of these activities is permitted in its respective shoreline designation, and will exceed the monetary threshold for substantial development. Compliance with SMP policies and regulations is demonstrated below.

7.1.3 Nonconforming Structures

3. *Notwithstanding the foregoing, on the Columbia River shoreline from the eastern boundary of Wintler Park downstream to the railroad bridge, structures existing or for which shoreline substantial development permits or shoreline conditional use permits were formally approved and construction was not yet begun or completed as of the effective date of this Program are considered conforming.*

Response: As stated above, structures which predate the adoption of the City's SMP (2012) are considered conforming structures. In this case, the existing Terminal 1 building located on the existing pier structure is considered conforming per the provision above; however, the existing use of the structure is still considered nonconforming. The project will not change the use of the Terminal 1 building from a commercial use. In the pre-application report, City staff determined that structures that are legally established may be maintained but not replaced with a new structure or moved to a new location.

Development *- a use consisting of the construction or exterior alteration of structures; dredging; drilling; dumping; filling; removal of any sand, gravel, or minerals; bulkheading; driving of piling; placing of obstructions; or any project of a permanent or temporary nature which interferes with the normal public use of the surface of the waters overlying lands subject to this Program at any state of water level.*

The term "Development" includes "exterior alteration" of structures. City planning staff determined in the pre-application notes that the footprint of the Terminal 1 building can be reduced and windows, siding, roof, etc., can be replaced without constituting an "exterior alteration." Because the structure itself is conforming by virtue of SMP 2.5.3.3 and the existing nonconforming commercial use of the building will be maintained, the Terminal 1 building may be reduced in size and the roof, siding, windows, and similar elements may be replaced without constituting development under the SMP because no exterior alteration will occur.

7.1.4 Shoreline Conditional Use Permit (SCUP)

According to Table 6-1 of the SMP, non-water-oriented commercial uses require a conditional use permit in the urban high intensity designation. The concept development plan includes office space in the buildings proposed for Blocks B and D. Office uses are considered non-water-oriented and require a SCUP for their construction within the urban high intensity shoreline designation. Consistent with

Section 2.7 on p. 2-12 of the SMP, "the City Hearing Examiner shall be the final approval authority for the City. However, shoreline conditional uses must have approval from Ecology." In addition, on p. 2-13, the section states, "Conditional use permits shall be authorized only when they are consistent with the following criteria."

a. *The proposed use is consistent with the policies of RCW 90.58.020, WAC 173-27-160 and all provisions of this Program;*

Response: The City's SMP reflects the polices of the RCW and the specific SCUP criteria contained in the WAC. Therefore, the responses to the City's SMP policies and procedures provided in this narrative demonstrate consistency with the policies and procedures of the SMA and the WAC.

b. *The use will not interfere with normal public use of public shorelines;*

Response: The proposed office use will be incorporated into two upland mixed-use buildings. These buildings will be constructed landward of the existing public access (pier, trail, and dock for small boat moorage) and public access to the Columbia River will be maintained. Additionally, the project proposes to create more public access opportunities and enhance the existing access on the site by improving the existing public open space with updated pedestrian amenities, rehabilitating an existing dock used for small boat moorage, and extending the Columbia River Waterfront Renaissance Trail. All of these activities will occur waterward of the proposed mixed-use buildings. Therefore, the inclusion of office space within two mixed-use buildings landward of existing and proposed public access will not interfere with the public use of the shoreline.

c. *The proposed use of the site and design of the project is compatible with other authorized uses within the area and with uses planned for the area under the Comprehensive Plan and this Program;*

Response: The proposed non-water-oriented use (office) is allowed by and planned for in the VCCV subarea plan and CX zone. Non-water-oriented uses (in this case, office) are permitted conditionally by the City; therefore, the proposed office use is consistent with the SMP. The project is also compatible with adjacent land uses. Structures that are adjacent to the site will be constructed directly west of the planned office space. The Vancouver Waterfront development to the west will feature up to 1,119,000 square feet of office space, which is much greater in scale than the office space included in this proposal; therefore, the proposed office use is compatible with planned uses in the area.

d. *The proposed use will cause no significant adverse effects to the shoreline designation in which it is to be located; and*

Response: The proposed non-water-oriented use (office) will be part of two larger mixed-use buildings, which will feature permitted, and preferred, uses on the

ground floor. As demonstrated below, the project has been designed to achieve no net loss in shoreline or critical areas functions and values; therefore, it will have no significant adverse effects to the urban high intensity shoreline designation.

e. The public interest will suffer no substantial detrimental effect; and

Response: The proposed non-water-oriented use (office) is a part of the overall plan which will extend the Columbia River Waterfront Renaissance Trail westward through the site, restore the shoreline, rehabilitate a dock used for small boat moorage, and increase overwater public open space. The public amenities and shoreline access provided by the overall project will exceed any impact that the proposed mixed-use development (containing a non-water-oriented use) would have on the public interest.

f. Consideration has been given to cumulative impact of additional requests for like actions in the area.

Response: The property to the west of the project site is permitted for a mixed-use waterfront development similar to the proposed project, although larger in scale. The Vancouver Waterfront development will also contain office uses once constructed. Cumulatively, the permitting of the office space included in the Port's proposal, and the already permitted office space to the west, will not have an adverse impact on shoreline functions and values or on public access to the shoreline as the entirety of the shoreline downstream of the existing I-5 bridge to the existing cement plant will be devoted to public uses and allow public access. There are no other opportunities in the area to devote to more office uses. As stated previously, the project has been designed to achieve no net loss of shoreline functions and values. Additionally, public access and public amenities along or over the shoreline will be increased following the buildout of the Ports plan.

7.1.5 SMP General Shoreline Use and Development Regulations

7.1.5.1 Shorelines of Statewide Significance

These responses illustrate how the project complies with the applicable regulations for shorelines of statewide significance as described in Section 3.2 of the SMP. The Columbia River is identified as a shoreline of statewide significance and, as such, the project will comply with the regulations of this section.

1. *Preference shall be given to the uses that are consistent with the statewide interest in such shorelines. These are uses that: a. Recognize and protect the statewide interest over local interest; b. Preserve the natural character of the shoreline; c. Result in long term over short term benefit; d. Protect the resources and ecological function of the shoreline; e. Increase public access to publicly-owned areas of the shorelines; f. Increase recreational opportunities for the public in the shoreline; and g. Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.*

Response: The proposed project is consistent with these regulations because:

- It is consistent with the SMA goal of providing opportunities for the public to enjoy the physical and aesthetic qualities of the state's shorelines while supporting economic development in a sustainable manner.
- Most of the project area is currently covered by buildings, concrete or asphalt paving. Benefits to the shoreline will result from removing existing structures and invasive species. Additionally, restorative plantings with native vegetation will occur on the Columbia River shoreline along the east and west boundaries of the project. Therefore, the proposed project will improve the natural character of the shoreline through restoration efforts.
- The project activities will result in a long-term benefit to the City and the region as the project will provide new access to the waterfront in the downtown area. Additionally, the project will also provide an important extension for the Columbia River Waterfront Renaissance Trail. The mixed-use plan proposed by the Port also will yield economic benefits in local jobs and taxes.
- The proposed plan is anticipated to improve the resources and ecological function of the shoreline in the project area by removing structures and non-native vegetation from the project site, creating a more natural shoreline environment.
- The plan significantly improves access for public use of the shoreline at the site. The extension of the Columbia River Waterfront Renaissance Trail, alterations to the existing pier structure to accommodate public uses, and maintaining the existing dock used for small boat moorage will both maintain and provide new and improved public access and recreation opportunities on the Columbia River shoreline.

2. *The Uses that are not consistent with these policies should not be permitted on Shorelines of State Wide Significance (SSWS).*

Response: The proposed project is consistent with these policies and this narrative addresses all applicable policies and regulations.

3. *Those limited shorelines containing unique, scarce and/or sensitive resources should be protected.*

Response: Because of the history of development on the site, the limited amount of vegetation and the surrounding urban activity, the project area provides low quality habitat with little functional value for native flora and fauna (see Appendix G). There are no unique or scarce resources on the site that require protection.

4. *Implementation of restoration projects on shorelines of statewide significance should take precedence over implementation of restoration projects on other shorelines of the state.*

Response: The project is not a restoration project and this regulation therefore is not applicable. However, the project includes restoration elements and the Columbia River is a shoreline of statewide significance.

5. *Development should be focused in already developed shoreline areas to reduce adverse environmental impacts and to preserve undeveloped shoreline areas. In general, SSWS should be preserved for future generations by 1) restricting or prohibiting development that would irretrievably damage shoreline resources, and 2) evaluating the short-term economic gain or convenience of developments relative to the long-term and potentially costly impairments to the natural shoreline.*

Response: The project will be located on a shoreline developed and historically used for commercial purposes. Additionally, removal of structures and restorative plantings with native vegetation will occur on the Columbia River shoreline along the east and west boundaries of the project. Therefore, the proposed project will improve the natural character of the shoreline through restoration efforts. Because the proposed development will improve the conditions of the shoreline at the site, the project will not lead to any long-term or costly impairment to the natural shoreline.

7.1.5.2 General Shoreline Use and Development Regulations

The following responses illustrate how the project complies with the general shoreline use and development regulations described in Section 5.1 of the SMP as they apply to the Waterfront Development.

1. *Shoreline uses and developments that are water-dependent shall be given priority.*

Response: The proposed project includes features that meet the definitions of both water-oriented and water-dependent facilities and, consequently, is given priority for locating within shoreline jurisdiction. In order to continue the linkage provided by the Columbia River Waterfront Renaissance Trail, the open space and trail must be built at this site. With the exception of the office use proposed within a mixed-use building, all project elements in the High-Intensity environmental are either water-enjoyment or water-oriented.

2. *The Applicant shall demonstrate all reasonable efforts have been taken to avoid and where unavoidable, minimize and mitigate impacts such that no net loss of critical area and shoreline ecological function is achieved. Mitigation shall occur in the following order of priority:*

    a. *Avoiding the impact altogether by not taking a certain action or parts of an action. This may necessitate a redesign of the proposal.*

    b. *Minimizing unavoidable impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative*

steps to avoid or reduce impacts. The Applicant shall seek to minimize fragmentation of the resource to the greatest extent possible.

c. *Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*
d. *Reducing or eliminating the impact over time by preservation and maintenance operations;*
e. *Compensating for the impact by replacing, enhancing, or providing substitute resources or environments. The compensatory mitigation shall be designed to achieve the functions as soon as practicable.*
f. *Monitoring the impact and the compensation projects and taking appropriate corrective measures.*

Response: Compliance with these requirements is addressed in the critical areas report (Appendix G).

3. *In addition to compensatory mitigation, unavoidable adverse impacts may be addressed through voluntary restoration efforts.*

Response: The project has been designed to result in no net loss of habitat functions. Compensatory mitigation is not required to achieve no net loss of shoreline functions. However, the project proposes to remove existing structures along the shoreline and restore areas up and downstream of the existing pier.

4. *Shoreline uses and developments shall not cause impacts that require remedial action or loss of shoreline ecological functions on other properties.*

Response: It is not anticipated that the project will cause impacts that require remedial action or will result in the loss of shoreline ecological functions on other properties because the existing bank and shoreline conditions will be maintained.

5. *Shoreline uses and developments shall be located and designed in a manner such that shoreline stabilization is not necessary at the time of development and will not be necessary in the future for the subject property or other nearby shoreline properties unless it can be demonstrated that stabilization is the only alternative that allows a reasonable and appropriate water-dependent use to become established or expand or protects public safety and existing primary structures.*

Response: No shoreline stabilization measures are included with this project.

6. *Land shall not be cleared, graded, filled, excavated or otherwise altered prior to issuance of the necessary permits and approvals including a statement of exemption for a proposed shoreline use or development to determine if environmental impacts have been avoided, minimized and mitigated to result in no net loss of ecological functions.*

Response: No project activities will occur until permits have been issued for the work.

7. *Non-water-oriented uses shall not adversely impact or displace water-oriented shoreline uses.*

Response: The project does include a non-water-oriented use (office); however, this use will be included in a larger mixed-use building that will contain other water-oriented uses and it will not replace an existing use. Therefore, the project will not adversely impact or displace other water-oriented uses.

8. *Single family residential uses shall be allowed on all shorelands not subject to a preference for commercial or industrial water-dependent uses, and shall be located, designed and used in accordance with applicable policies and regulations of this Program. However, single family residences are prohibited in the Natural shoreline designation, and new floating homes are prohibited in the Aquatic shoreline designation.*

Response: The project does not include the development of single-family residential uses.

9. *On navigable waters or their beds, all uses and developments should be located and designed to:*
    a. *Minimize interference with surface navigation;*
    b. *Consider impacts to public views; and*
    c. *Allow for the safe, unobstructed passage of fish and wildlife, particularly species dependent on migration.*

Response: The project does not propose to establish a new use that would be located on a navigable water or its bed. Alterations are proposed to the decking of the existing pier to improve the public experience. The pier is located outside the navigation channel and will not be expanded with this project. Therefore, the project will not interfere with river navigation. Public views will be improved as a result of the project by providing continual access along the shoreline and perpendicular connections to the shoreline.

10. *Hazardous materials shall be disposed of and other steps be taken to protect the ecological integrity of the shoreline area in accordance with the other policies and regulations of this Program as amended and all other applicable federal, state, and local statutes, codes, and ordinances.*

Response: A soil and groundwater investigation report completed for the project area indicated that there are contaminated soils and limited groundwater contamination on the project site. Contaminated soil removal/remediation will occur as appropriate with the development of individual blocks and supporting infrastructure. All removed soils will be appropriately disposed of in an approved location based on the specific type and level of contamination present.

11. *In-water work shall be scheduled to protect biological productivity (including but not limited to fish runs, spawning, and benthic productivity). In-water work shall not occur*

in areas used for commercial fishing during a fishing season unless specifically addressed and mitigated for in the permit.

Response: In-water work will occur during the approved in-water work window established by the USACE and the Washington Department of Fish and Wildlife (WDFW). Removal of structures on the shoreline and restoration activities may occur outside the work window to coincide with low water levels and reduce the amount of in-water work required.

Commercial fishing on the Lower Columbia River is limited and the timing varies by year according to anticipated fish run sizes. According to WDFW information, the only commercial fishery that could coincide with the current work window is the Columbia River late fall fishery, which extends into October but varies by year. The site is not used for commercial fishing. Construction activities would be located close to the bank of the river on the existing structures. Fishing activities on the river are not anticipated to be affected.

12. *The effect of proposed in-stream structures on bank margin habitat, channel migration, and floodplain processes should be evaluated during permit review.*

Response: The project will not impact bank margin habitat as the project does not include new uses in these areas. The Columbia River does not have a channel migration zones as the channel is maintained in the current location by the USACE. A no net rise analysis has been completed for the project (see Appendix G) that shows the project will have no impact on flood elevations.

14. *Developments permitted in the Aquatic Shoreline Designation along the Columbia River shall be sited waterward of -15 feet CRD unless shallow water habitat will be created as mitigation.*

Response: Project activities, including shoreline restoration, pier rehabilitation, and alterations to the existing surface of the pier and integrated amphitheater, are proposed to occur in the aquatic shoreline designation of the Columbia River and will occur in shallow water areas from 0 to -15 feet Columbia River Datum (CRD). However, no additional overwater coverage or impacts to aquatic habitat will occur within these shallow water areas.

7.1.5.3 Archaeological, Cultural and Historic Resources

This section explains how the project complies with the applicable archaeological, cultural, and historic resources regulations described in Section 5.2 of the SMP.

1. *All shoreline uses and development shall comply with the applicable requirements of VMC 20.710, Archaeological Resource Protection.*

Response: The proposed project will be conducted in accordance with RCW Chapter 27.53 (Archaeological Sites and Resources), RCW 27.44.020 (Indian Graves and Records), Washington State Department of Archaeology and Historic Preservation (DAHP) regulations, and all applicable requirements of VMC 20.710 (Archaeological

Resource Protection), including the submission of an archaeological predetermination report (see next section).

2. *When a shoreline use or development is in an area known or likely to contain archaeological artifacts and data, the Applicant shall provide for a site inspection and evaluation by a professional archaeologist prior to issuance of any shoreline permit or approval including a statement of exemption. Work may not begin until the inspection and evaluation have been completed and the City has issued its permit or approval.*

Response: Archaeological Investigations Northwest, Inc. (AINW) completed an archaeological predetermination for the project site in accordance with VMC 20.710 (Archeological Resources Protection). The report concluded that "no evidence of a pre-contact or historic-period archaeological site was observed during the pedestrian survey or during monitoring of geotechnical bore holes within the project area." However, AINW recommended that:

> *A project-specific archaeological monitoring plan(s) should be developed when the nature and extent of specific ground-disturbing activities have been identified for the master plan or subsequent designs. The monitoring plan(s) will address when and where archaeological monitoring should occur as well as where monitoring is not needed during construction.*

3. *If any item of possible archaeological interest (including human skeletal remains) is discovered on site, all work shall immediately stop, and the City, State Department of Archaeology and Historic Preservation (DAHP), and affected Native American Tribes shall be notified of the discovery. A stop-work order will be issued. The shoreline permit will be temporarily suspended. All applicable state and federal permits shall be secured prior to commencement of the activities they regulate and as a condition for resumption of development activities. Development activities may resume only upon receipt of City approval.*

Response: While it is unlikely that artifacts would be found in fill material on upland areas of the site or within shallow water areas, given the high-energy river currents in the area and the reworked nature of the sediments, if unanticipated archaeological or historical resources are encountered, all ground-disturbing activity near the find will be halted and the DAHP will be promptly notified to ensure compliance with relevant state and federal laws and regulations. A project specific inadvertent discovery plan will be developed and followed during ground disturbing activities.

4. *If the discovery includes human skeletal remains, the find must be secured and protected from further disturbance; the Clark County Medical Examiner and local law enforcement shall be notified in the most expeditious manner possible. The County Medical Examiner will assume jurisdiction over the site and the human skeletal remains, and will make a determination of whether they are crime-related. If they are not, DAHP will take jurisdiction over the remains and report them to the appropriate parties. The State*

Physical Anthropologist will make a determination of whether the remains are Native American and report that finding to the affected parties. DAHP will handle all consultation with the affected parties as to the preservation, excavation, and disposition of the remains.

Response: Should evidence of burials be encountered, all ground-disturbing activity in the vicinity will be halted immediately, and DAHP, the Clark County Sheriff's Office, and the appropriate tribes will be notified.

7.1.5.4 Critical Areas Protection

This section addresses the regulations in Section 5.3, Critical Areas Protection of the SMP.

1. *In addition to the provisions of this section, critical areas (fish and wildlife habitat conservation areas, frequently flooded areas, geologic hazard areas, and wetlands) located within shoreline jurisdiction and their buffers are regulated and protected by Chapter 5A, VMC 20.740, Critical Areas Protection as modified for consistency with the Act and this Program. All shoreline development shall comply with VMC 14.26, Water Resources Protection.*

Response: Section 4.4.1 of this narrative addresses critical areas located outside of shoreline jurisdiction (geologic hazards), and section 6.4.3 addresses provisions from VMC 14.26 (water resources protection). A critical areas report is included as Appendix G that documents compliance with applicable City standards.

2. *Unless otherwise stated, no development shall be constructed, located, extended, modified, converted, or altered or land divided without full compliance with this Program whether or not a shoreline permit or written statement of exemption is required.*

Response: The project requires a shoreline permit for various elements. No development will occur until a shoreline permit has been issued by the City for the project.

3. *Any allowed use, development, or activity affecting a critical area proposed on a parcel located in the shoreline jurisdiction, whether or not exempt from obtaining a shoreline substantial development permit, shoreline conditional use, or shoreline variance, shall be regulated under the provisions of this Program.*

Response: The project will comply with all applicable VMC regulations and the regulations of the SMP. As noted above a shoreline permit is required for various elements. No development will occur until a shoreline permit has been issued by the City for the project.

4. *Shoreline uses and developments and their associated structures and equipment shall be located, designed and operated using best management practices to protect critical areas.*

Response: The proposed project will be completed using BMPs to protect critical areas. Details are contained within Appendix G.

5. *The Applicant shall demonstrate all reasonable efforts have been taken to avoid and where unavoidable, minimize and mitigate impacts such that no net loss of critical area and shoreline ecological function is achieved. Mitigation shall occur in the following order of priority:*
   a. *Avoiding the impact altogether by not taking a certain action or parts of an action. This may necessitate a redesign of the proposal.*
   b. *Minimizing unavoidable impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts. The Applicant shall seek to minimize fragmentation of the resource to the greatest extent possible.*
   c. *Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*
   d. *Reducing or eliminating the impact over time by preservation and maintenance operations;*

Response: As stated above, the project will improve the natural condition of the shoreline and increase habitat values by enhancing and expanding riparian habitat. Details are included in the critical areas report (Appendix G) which documents the project's avoidance and restoration measures. The project will avoid impacts to critical areas and shoreline resources to ensure no net loss of functions.

6. *In addition to compensatory mitigation, unavoidable adverse impacts may be addressed through restoration efforts.*

Response: The project has been designed to achieve no net loss without the need for compensatory mitigation; however, the project does include voluntary restoration efforts on shorelines up and downstream of the existing pier.

7.1.5.5 Public Access

Section 5.4 of the SMP addresses public access. The project will provide improved public access and recreational opportunities on the site, and will comply with the public access regulations as described in this section of the SMP.

Public access to the Columbia River as part of the plan includes trails/pathways, public open space/park, and maintenance of the existing floating dock for small boat moorage. Future wayfinding signs and appropriate design will be used to clearly mark public access ways. No future actions are anticipated that would affect the public access provided at the site.

7.1.5.6 Restoration

Section 5.5 of the SMP addresses restoration of shoreline ecological functions. While the project is not strictly a shoreline restoration project, the design includes shoreline restoration activities that will exceed the no net loss requirement of shoreline ecological functions on the site (see Appendix G).

7.1.5.7 Site Planning and Development - General

This section explains how the project complies with the applicable site planning and development regulations as described in Section 5.6.1 of the SMP.

1. *Land disturbing activities such as grading and cut/fill shall be conducted in such a way as to minimize impacts to soils and native vegetation and shall comply with VMC 14.24, Erosion Prevention & Sediment Control and VMC 14.25, Stormwater Control.*

Response: BMPs will be used during ground disturbing activities on the site in accordance with the erosion control plan for the project to ensure compliance with City and state regulations. A preliminary erosion control plan is included in Appendix C.

2. *Development shall be designed and land disturbing activities conducted to avoid impacts to healthy trees such that they are likely to become hazard trees.*

Response: As stated above, the project site contains a number of trees, and all of them will likely need to be removed to accommodate the proposed development and the project will not create hazard trees because no trees will remain on-site.

3. *Impervious surfaces shall be minimized to the extent feasible so as not to jeopardize public safety. Impervious surfacing for parking lot/space areas, trails, and pathways shall be minimized through the use of alternative surfaces where feasible.*

Response: Most of the project site currently consists of impervious surfaces such as buildings, concrete, gravel, and landscaping. The proposed project will keep the amount of impervious surfaces on the site generally consistent with what they currently are, resulting in approximately the same amount of impervious surfaces. For fish and wildlife benefits, approximately 15,000 square feet of restoration will be provided up and downstream of the existing dock.

4. *When feasible, existing transportation corridors shall be utilized. Ingress/egress points shall be designed to minimize potential conflicts with and impacts upon vehicular and pedestrian traffic. Pedestrians shall be provided with safe and convenient circulation facilities.*

Response: Portions of the project site within shoreline jurisdiction currently do not contain any existing transportation corridors. The proposed open space/park will be accessed by pedestrian connections (Columbia River Waterfront Renaissance Trail, Daniels Way and the pedestrian alley east of Daniels Way) and by the street system which will be constructed as part of the plan. ADA parking has been proposed within shoreline jurisdiction as an accessory use to the existing Terminal 1 building, which is consistent with public access provisions included in the SMP and addressed above. Pedestrian facilities will include pathways, lighting, and signage to allow the safe and convenient movement of pedestrians throughout the proposed development. The Waterfront Renaissance Trail will connect to the existing trail to

the east and proposed trail being constructed by the City in the adjacent waterfront park.

5. *Vehicle and pedestrian circulation systems shall be designed to minimize clearing, grading, alteration of topography and natural features, and designed to accommodate wildlife movement.*

Response: The project site is located in a highly urbanized area and does not provide habitat for wildlife except for small terrestrial and avian species (see Appendix G). Therefore, any site activity is not going to impact wildlife movement as these species are typical to the urban environment. The Columbia River does provide habitat for migratory and resident fish. Modifications to the dock will likely reduce the number of piles, reducing impacts to wildlife movement.

Minimal grading will be required for the buildout of Access Way 5, Daniels Way, Pedestrian Alley, and the extension of the Columbia River Waterfront Renaissance Trail. These circulation facilities (with the exception of the Columbia River Waterfront Renaissance Trail) have been designed perpendicular to the Columbia River to minimize the amount of grading proposed within shoreline jurisdiction.

6. *Parking, storage, and non-water dependent accessory and appurtenant structures and areas shall be located landward from the OHWM and landward of the water-oriented portions of the principal use.*

Response: All non-water-dependent accessory structures or uses will be located landward from the OHWM of the Columbia River. The project also includes a surface parking lot for ADA use and loading/unloading as an accessory use to the Terminal 1 building. This parking lot will be located landward of the primary use, and will be set back approximately 50 feet from the OHWM of the Columbia River.

7. *Trails and uses near the shoreline shall be landscaped or screened to provide visual and noise buffering between adjacent dissimilar uses or scenic areas, without blocking visual access to the water.*

Response: The continuation of the Columbia River Waterfront Renaissance Trail and the various open space/park elements are designed to enhance visual access to the water; they provide a strong visual connection to the river and offer panoramic views to visitors. There are no adjacent dissimilar uses or scenic areas that require specific buffering. Property to the north and east are devoted to transportation uses while property to the west is approved for mixed use development of similar scale.

8. *Elevated walkways shall be utilized, as appropriate, to cross sensitive areas such as wetlands.*

Response: There are no sensitive areas that require elevated walkways on the site.

9. *Fencing, walls, hedges, and similar features shall be designed in a manner that does not significantly interfere with wildlife movement.*

Response: No fences, walls, hedges or similar features are included that will interfere with wildlife movement as there is no significant wildlife use of the project site.

10. *Exterior lighting shall be designed, shielded and operated to:*
    a. *Avoid illuminating nearby properties or public areas;*
    b. *Prevent glare on adjacent properties, public areas or roadways;*
    c. *Prevent land and water traffic hazards; and*
    d. *Reduce night sky effects to avoid impacts to fish and wildlife.*

Response: The project specific design standards contain standards for lighting consistent with this policy. Development in the shoreline will be subject to detailed site plan review where specific lighting plans will be provided for approval.

11. *Utilities shall be located within roadway and driveway corridors and rights-of-way wherever feasible.*

Response: All utilities within shoreline jurisdiction will be placed within road rights-of-way, except for the relocation of the existing transformer serving the re-use of the Terminal 1 building, where separate meter service is required for power, and direct utility connections to buildings at Block B and Block D. These facilities will be underground.

7.1.5.8 Clearing, Grading, Fill and Excavation

The following section explains how the project complies with the applicable clearing, grading, fill, and excavation regulations as described in Section 5.6.2 of the SMP.

1. *Land disturbing activities such as clearing grading, fill and excavation shall be conducted in such a way as to minimize impacts to soils and native vegetation and shall comply with VMC 14.24, Erosion Prevention & Sediment Control; 14.25, Stormwater Control; and VMC Chapter 17.12, International Building Code.*

Response: The site is entirely composed of fill and does not contain any native vegetation and thus there is no need for minimization measures per this policy. Grading not associated with a building foundation or street will obtain grading permits as required by the VMC.

2. *Clearing, grading, fill, and excavation activities shall be scheduled to minimize adverse impacts, including but not limited to, damage to water quality and aquatic life.*

Response: As stated above, clearing, grading, fill, and excavation activities are designed to minimize erosion and sedimentation. Implementation of appropriate BMPs will minimize adverse impacts to water quality and aquatic life. No grading, excavation or fill are anticipated below the OHWM.

3. *Clearing and grading shall not result in changes to surface water drainage patterns that adversely impact adjacent properties.*

Response: There are no natural surface water drainage patterns on the site or on adjacent properties. Stormwater generated on the site will be collected, treated as required and disposed of through existing outfalls to Columbia River resulting in no impacts to adjacent properties.

4. *Developments shall comply with the VMC 14.24, Erosion Prevention & Sediment Control during construction and shall ensure preservation of native vegetation for bank stability. Disturbed areas shall be stabilized immediately and revegetated with native vegetation.*

Response: The project will be constructed using appropriate BMPs to manage potential erosion and sediment control consistent with permits issued for the project and the requirements of VMC Chapter 14.

5. *Habitat that cannot be replaced or restored within twenty (20) years shall be preserved. Peat bogs and stands of mature trees are examples of such habitat*.

Response: The project does not contain habitat meeting this definition.

6. *Fills shall be permitted only in conjunction with a permitted use, and shall be of the minimum size necessary to support that use. Speculative fills are prohibited.*

Response: The plan does not anticipate the placement of fill[13] material on the portions of the site within shoreline jurisdiction. Excavations and the placement of backfill, such as the placement of backfill for utility lines or base material for foundations and other features will occur within the shoreline but are not considered fill as they are not intended to raise the elevation over significant areas or create dry land from aquatic areas.

7. *Any fill activity shall comply with the fill provisions of VMC Chapter 17.12. Fill shall consist only of clean materials.*

Response: As stated above, the project will not require the placement of fill material. However, any earth or aggregate material used for the project will be clean and free of materials and meet the Port's standards screening standards.

7.1.5.9 Building Design

The following section explains how the project complies with the applicable building design regulations as described in Section 5.6.3 of the SMP.

[13] Per the SMP fill is defines as the "the addition of soil, sand, rock, gravel, sediment, earth retaining structure, or other material to an area waterward of the OHWM, in wetlands, or on shorelands in a manner that raises the elevation or creates dry land"

1. *Non-single family structures shall incorporate architectural features that provide compatibility with adjacent properties, enhance views of the landscape from the water, and reduce scale to the extent possible.*

Response: The project includes specific urban design standards consistent with the VMC Section 20.630.080 City Center Waterfront, Section D. Design and Development Standards, Items 1 - 11. In addition, the project has proposed design standards intended to guide the overall development and ensure compatibility with the waterfront environment and adjacent properties.

2. *Building surfaces on or adjacent to the water shall employ materials that minimize reflected light*.

Response: The design standards proposed for the project include requirements for building materials that will prevent significant reflected light.

3. *Façade treatments, mechanical equipment and windows in structures taller than two (2) stories, shall be designed and arranged to prevent bird collisions using the best available technology. Single-family residential structures are exempt from this provision*

Response: The project will adopt specific urban design standards consistent with the VMC Section 20.630.080 City Center Waterfront, Section D. Design and Development Standards, Items 1 - 11. In addition, the Port may establish internal design requirements for bird friendly design.

4. *Interior and exterior structure lighting shall be designed, shielded, and operated to:*
   a. *Avoid illuminating nearby properties or public areas;*
   b. *Prevent glare on adjacent properties, public areas or roadways;*
   c. *Prevent land and water traffic hazards; and*
   d. *Reduce night sky effects to avoid impacts to fish and wildlife.*

Response: Proposed buildings will comply with this standard. Determination of compliance will be made at the detailed site plan review state.

5. *Accessory uses, including parking, shall be located as far landward as possible while still serving their intended purposes.*

Response: All accessory uses, including parking, have been proposed as far from the OHWM as feasible. An optional structured parking garage has been proposed at Block B which will accommodate residential and commercial uses. The parking garage is proposed on the north end of the building, the point furthest from the Columbia River. In addition, the ADA parking proposed as an accessory use to the Terminal 1 building has been located approximately 50 feet upland from the Columbia River's OHWM.

7.1.5.10 Vegetation Conservation

The following section explains how the project complies with the applicable vegetation conservation regulations as described in Section 5.7 of the SMP.

1. *Existing native vegetation within shoreline jurisdiction shall be retained and allowed to grow naturally in the riparian area.*

Response: Vegetation on the site is limited to a narrow strip along the bank of the Columbia River and in existing upland planter strips and parking lot landscaping. The vegetation consists of primarily non-native vegetation planted as landscaping and invasive species along the shoreline. Limited or no aquatic vegetation is present below the OHWM. To accommodate construction along the shoreline, a group of trees near the existing ramp to the amphitheater will be removed, along with nonnative vegetation. The riparian area of the exposed bank will be planted with native vegetation which will increase the number and extent of native plant communities on site.

2. *Removal of native vegetation outside the riparian area shall be avoided. Where removal of native vegetation cannot be avoided, it shall be minimized and mitigated to result in no net loss of shoreline ecological functions. Lost functions may be replaced by enhancing other functions provided that no net loss in overall functions is demonstrated and habitat connectivity is maintained. Mitigation shall be provided consistent with an approved mitigation plan. See Chapter 5A, 20.740.030(B)(1)(f) on maintaining fire-defensible space.*

Response: As noted previously, there is no native vegetation on site.

3. *If non-native vegetation is removed, it shall be replaced with native vegetation within the shoreline jurisdiction.*

Response: In areas where non-native vegetation will be removed along the shoreline, native vegetation will be planted to replace it.

4. *Development shall be located to avoid clearing and grading impacts to more mature or multi-storied plant communities and to retain habitat connectivity.*

Response: The project site does not contain mature vegetation or multi-storied plant communities within the shoreline. See Appendix G for details.

5. *Vegetation (such as a mature stand of trees) that cannot be replaced or restored within twenty (20) years shall be preserved.*

Response: There are no mature tree stands within the shoreline area. There are some mature trees within landscape strips in front of and adjacent to the existing Terminal 1 building. These are landscape trees which can be replaced by future plantings.

6. *Maintaining vegetated riparian areas to protect shoreline stability and shoreline ecological functions takes precedence over vegetation clearing to preserve or create views.*

Response: No vegetation will be cleared to preserve or create views.

7.1.5.11 Views and Aesthetics

The following section explains how the project complies with the applicable visual access regulations described in Section 5.8.1 of the SMP.

1. *Visual access shall be maintained, enhanced, and preserved as appropriate on shoreline street-ends, public utility rights-of-way above and below the ordinary high water mark, and other view corridors.*

Response: There are no existing street ends or utility rights-of-way that provide access to the shoreline either visually or directly within the project site. The Port currently allows public access to the amphitheater and dock. The project is designed to enhance and preserve visual access to the shoreline from various points within the upland and overwater portion of the proposed project. Pedestrian ways (Daniels Way and Pedestrian Alley) also lie perpendicular to the shoreline and provide visual and physical access to the shoreline. Access Way 5 will also provide similar access. Moreover, all vehicle or pedestrian access ways tie into the proposed Columbia River Waterfront Renaissance Trail extension which will parallel the Columbia River and provide many visual access points. The project will also feature overwater open space/parks which will provide significant visual access to the shoreline.

2. *Development on or over the water shall be constructed to avoid interference with views from surrounding properties to the adjoining shoreline and adjoining waters to the extent practical.*

Response: No new habitable structures over the water are included in the project. The decking and concrete amphitheater of the existing pier structure will be modified to enhance public access and will generally remain at its current level resulting in no change to the current views. The proposed modifications to the existing Terminal 1 building will not alter the height of the existing structure.

3. *No permit shall be issued pursuant to this chapter for any new or expanded building or structure of more than thirty-five (35) feet above average grade level on shorelines of the state that will obstruct the view of a substantial number of residences on areas adjoining such shorelines unless overriding considerations of the public interest will be served. The Shoreline Administrator may require a view analysis including view corridors, view profiles, and vertical profiles from various locations to determine if shoreline views will be obstructed.*

Response: The proposed project seeks to construct buildings at Block B and Block D which will exceed the 35-foot maximum height limitation as explained above. However, no existing residential uses adjoin the project site or shoreline. Therefore, the proposed development will not block views of existing residential development adjoining the shorelines.

7.1.5.12 Water Quality and Quantity

The following section explains how the project complies with the applicable water quality and quantity regulations as described in Section 5.9 of the SMP.

1. *The location, design, construction, and management of all shoreline uses and activities shall protect the quality and quantity of surface and ground water adjacent to the site.*

Response: The proposed project is located within a previously developed industrial/commercial site and is adjacent to an approved mixed-use development to the west. During construction, the project could affect water quality by increasing turbidity and suspended sediment concentrations and, if present, sediment-associated contaminants. However, no significant impacts are anticipated and the project will implement BMPs to protect the quality of surface water at and adjacent to the site.

2. *All shoreline development shall comply with the applicable requirements of the VMC Chapter 14.24, Erosion Prevention & Sedimentation Control; 14.25, Stormwater Control; and 14.26, Water Resources Protection.*

Response: The project will be constructed using appropriate BMPs to manage potential erosion or turbidity concerns consistent with permits issued for the project and the requirements of VMC Chapter 14. A preliminary erosion control plan is included in Appendix C which includes appropriate BMPs.

3. *Best management practices (BMPs) for control of erosion and sedimentation shall be implemented for all shoreline development.*

Response: As stated previously, the project will employ appropriate BMPs during construction to manage and control erosion and sedimentation on the project site. Proposed BMPs include but are not limited to construction entrances and wheel wash, soils stabilization (covering or seeding), inlet protection, silt fences and sediment ponds.

4. *Potentially harmful materials, including but not limited to oil, chemicals, tires, or hazardous materials, shall not be allowed to enter any body of water or wetland, or to be discharged onto the land except in accordance with VMC 14.26. Potentially harmful materials shall be maintained in safe and leak-proof containers.*

Response: Once constructed, operation of the proposed project will not directly include the use of harmful materials. The presence of harmful materials associated with the normal use and operation of uses proposed within the shoreline is possible if an incident or spill occurred. However, these materials could only enter adjacent waterbodies in the form of stormwater runoff. Since stormwater runoff will be collected from the site, and treated, prior to being discharged into the Columbia River the risk of these materials entering the Columbia River is minimal.

5. *Herbicides, fungicides, fertilizers, and pesticides shall not be applied within twenty-five (25) feet of a waterbody, except by a qualified professional in accordance with state and federal laws. Further, pesticides subject to the final ruling in Washington Toxics Coalition, et al., v. EPA shall not be applied within sixty (60) feet for ground applications*

or within three hundred (300) feet for aerial applications of the subject water bodies and shall be applied by a qualified professional in accordance with state and federal law.

Response: Fertilizers and pesticides may be required for the open spaces/parks and landscaping proposed within shoreline jurisdiction. A qualified professional will be required for the application of any of these substances, and will act in accordance with City standards, manufacturer requirements and federal and state laws.

6. *Any structure or feature in the Aquatic shoreline designation shall be constructed and/or maintained with materials that will not adversely affect water quality or aquatic plants or animals. Materials used for decking or other structural components shall be approved by applicable state agencies for contact with water to avoid discharge of pollutants.*

Response: Alterations to the existing pier structure will include but are not limited to the installation of new steel piles and concrete decking. These materials will not affect water quality or aquatic plants and animals adversely.

7. *Conveyance of any substance not composed entirely of surface and stormwater directly to water resources shall be in accordance with VMC 14.26.*

Response: The proposed project will not directly convey any substances not entirely composed of surface and stormwater into water resources. The stormwater system will be constructed consistent with the provisions of VMC 14.26.

7.1.5.13 SMP Chapter 5A Critical Areas Regulations

Compliance with the provisions of this section are addressed in Appendix G. As shown in this appendix the project is consistent with all applicable critical area requirements within the shoreline area.

7.1.6 Specific Shoreline Use Regulations

The following responses illustrate how the project complies with the applicable specific shoreline use regulations as described in Chapter 6 of the SMP.

7.1.6.1 Shoreline Use, Modification and Development Standards

Table 6-1 in the SMP identifies development standards for uses in the shoreline. Shoreline uses included in the proposed project are discussed in sections 7.1.6.2 and 7.1.6.4.

7.1.6.2 Commercial Uses

The following section explains how the project complies with the applicable commercial use regulations as described in Section 6.3.4 of the SMP.

1. *Water-oriented commercial uses are preferred over nonwater-oriented commercial uses.*

Response: On Blocks B and D, which are within shoreline jurisdiction, the plan includes construction of two upland mixed-use buildings which will feature commercial uses, including hospitality, retail, and office. Within these buildings, the retail and hospitality uses are considered water-oriented commercial uses. These

uses are economically connected with the shoreline and shoreline amenities provided by the project, making them "water-enjoyment." However, the project also includes the construction of office space within these buildings, which is a non-water-oriented commercial use. Per provision 6.3.4(4) of the SMP, non-water-oriented uses are allowed if they are part of a mixed-use development, provided that the non-water- oriented use does not utilize more than 85 percent of a building's frontage space. The project will be designed to meet this standard as further explained below.

2. *An Applicant for a new commercial use or development shall demonstrate that the use or development will not cause a net loss of ecological function or adversely impact other shoreline resources or uses.*

Response: As explained throughout this shoreline narrative and in Appendix G, the project will exhibit no net loss of shoreline or critical area functions due to the developed nature of the site. The project will also undertake restoration of shoreline areas both up and downstream of the existing dock.

3. *Loading, service areas, and other accessory uses shall be located landward of a commercial structure or underground whenever possible, but shall in no case be water-ward of the structure. Loading and service areas shall be screened from view with native plants.*

Response: The project will require a loading and service area for the proposed hospitality use at Block D. This loading and service area will be located landward of the "commercial use" (north side of the building). Block B may also include underground parking and loading which will be consistent with this provision. Finally, a proposed ADA parking/loading area will be located north of and adjacent to the eastern portion of the Columbia River Waterfront Renaissance Trail extension. This parking/loading area is necessary to serve the needs of the Terminal 1 building when Block B is developed. Without this area, parking and loading would be located a significant distance from the building and create a hardship for disabled visitors and those servicing the building and its uses. If underground parking is provided in Block B, this element will not be constructed.

4. *Where allowed, non-water-oriented commercial uses may be permitted only as part of a mixed-use development that:*
    a. *Has a formally-approved master plan that complies with this Program, including having demonstrated consistency with the policies of Section 3.2 if its proposed location is on a shoreline of statewide significance;*
    b. *Includes water-oriented uses; and*
    c. *Provides a significant public benefit such as public access and/or ecological restoration.*

Response: Blocks B and D of the proposed project will contain an office use which is not considered water-oriented; however, per the provision above the office use is consistent with the criteria listed above for approval since a master plan is being

submitted and the proposed uses are part of a mixed use development. Other uses on Blocks B and D will contain residential, retail, and hospitality uses which are water-enjoyment uses. In addition, the plan includes significant public access amenities along or over the Columbia River, as well as shoreline restoration on the east and west ends of the proposed development area.

5. *Non-water-oriented commercial uses meeting the conditions of Section 6.3.4(4) and located in a High Intensity shoreline designation on the Columbia River between the eastern boundary of Wintler Park and the railroad bridge (Columbia River Shoreline Enhancement Plan District) may occupy:*

    a. *Up to 85% of the total frontage length of all parcels in the master-planned development (regardless of ownership); or*
    b. *Up to 85% of the project area within shoreline jurisdiction of all parcels in the development (regardless of ownership).*

Response: The project site includes approximately 1,000 feet for frontage along the Columbia River. Office uses in the shoreline environment would be limited to portions of Block B and Block D. These blocks occupy approximately 530 feet of the frontage. If the entirety of these blocks were devoted to office they would comply with the provisions. Irrespective of this, the area between the OHWM and the buildings on Block B and D is devoted to public access (Renaissance Trail) and open spaces exceeding the standard of this policy.

7. *When a new, mixed-use commercial development meets all applicable provisions of Section 6.3.4, Section 5.8.1, and this Program and:*

    a. *Is located in a High Intensity shoreline designation on the Columbia River between the eastern boundary of Wintler Park and the railroad bridge (Columbia River Shoreline Enhancement Plan District);*
    b. *Has a formally-approved master plan that complies with this Program including having demonstrated consistency with the policies of Section 3.2;*
    c. *Includes water-oriented uses;*
    d. *Provides public access to the shoreline; and*
    e. *Restores degraded shorelines,*

    Building heights for commercial development in the High Intensity shoreline designation in Table 6-1 may be increased in accordance with the underlying zoning.

Response: The proposed Waterfront Development complies with the provisions above, as demonstrated in this narrative allowing the project to utilize the heights allowed by the CX zoning district as follows:

- The site is located in the High Intensity shoreline designation per the SMP and is located upstream of the railroad bridge and downstream of Wintler Park.
- This narrative requests formal approval of a master plan. Upon approval this provision will be met.

- As noted in this narrative water-oriented uses (hospitality, residential, recreation) are planned.
- The entirely of the length of the project along the shoreline will be open to public access.
- Exposed shoreline areas up and downstream of the existing dock will be restored.

7.1.6.3 Parking

The following section explains how the project complies with the applicable parking regulations as described in Section 6.3.9 of the SMP.

1. *Parking as a primary use is prohibited in all shoreline areas.*

Response: Parking as a primary use has not been proposed within shoreline jurisdiction. All parking will directly serve a use proposed on the project site.

4. *Where parking is allowed as accessory to a permitted use, it shall be located landward of the primary structure as far as possible or within the primary structure.*

Response: As stated earlier in this narrative, parking supporting uses on Blocks B, D and for the Terminal 1 building is proposed within shoreline jurisdiction. However, this parking will be located within a structure consistent with the provision. Additionally, the proposed ADA parking/loading area accessory to the Terminal 1 building will be located landward of the primary structure it serves.

7.1.6.4 Recreational Uses

The following section explains how the project complies with the applicable recreational use regulations as described in Section 6.3.10 of the SMP.

1. *Recreational developments shall provide facilities for non-motorized access to the shoreline such as pedestrian and bicycle paths.*

Response: The proposed plan will extend the Columbia River Waterfront Renaissance Trail through the site and provide access to shoreline for pedestrians and bicyclists. In addition to the trail, the alterations to the pier deck and the amphitheater integrated in the existing pier structure will include public access providing views of the river and allowing direct access to the river for boats through the existing floating dock. The project also features two pedestrian circulation routes (Daniels Way and Pedestrian Alley) which will be perpendicular to the proposed trail extension. These circulation facilities are primarily for pedestrian use and allow access to the shoreline from the upland areas of the development.

2. *The minimum width of public access easements for trails shall be twenty (20) feet when a trail is not located within a public right-of-way, unless the Shoreline Administrator determines that undue hardship would result, or that it is impractical or environmentally unsound. In such cases, easement width may be reduced only by the minimum extent necessary to meet public access standards.*

Response: As indicated above, the project will provide access to the shoreline through a trail extension across the entirety of the shoreline and additional pedestrian connections. The Port intends to allow public access to these facilities and the open space on the pier. The Port will work with the City to determine what method is most appropriate to allow public access to these facilities based on the Port's nature and state ownership of the site and regardless of method the public access will be a minimum of 20 feet in width.

3. *Recreation areas or facilities on the shoreline shall provide physical or visual public access to the shoreline. Trails or other facilities may traverse the setback to provide public access to the shoreline.*

Response: The proposed alterations to the existing pier's decking and amphitheater will allow continued and expanded public open space on which to provide visual and physical access to the shoreline and the Columbia River. Additionally, the proposed Columbia River Waterfront Renaissance Trail extension will parallel the Columbia River, providing new visual access points and connecting with the entirety of the trail.

4. *Parking areas shall be located upland away from the immediate shoreline, with pedestrian trails or walkways providing access to the water.*

Response: All parking has been proposed as far from the shoreline as feasible and, with the exception of the surface ADA parking/loading area for the Terminal 1 building, is within a structure (unless structured parking is provided on Block B). The placement of ADA parking adjacent to the trail is necessary to provide reasonable access for ADA users and loading/unloading for the primary Terminal 1 structure.

5. *All permanent, substantial, recreational structures and facilities shall be located outside officially mapped floodways. The Shoreline Administrator may grant administrative exceptions for non-intensive minor accessory uses (including but not limited to, picnic tables, playground equipment).*

Response: The existing pier is located in the floodway and maintenance, repair, and reconfiguration will occur in the floodway. By its nature, the pier cannot be located outside of floodway. This provision is not intended to prohibit piers.

6. *Recreational sites with active uses shall be provided with restrooms and hand sanitizing facilities in accordance with public health standards and without adversely altering the natural features attractive for recreational uses.*

Response: The project will not include new recreational sites with active uses. Therefore, this provision does not apply.

7. *Recreational facilities shall include features such as buffer strips, screening, fences, and signs to protect the value and enjoyment of adjacent or nearby private properties and natural areas from trespass, overflow and other possible adverse impacts.*

Response: The project site is not adjacent to private properties or natural areas and therefore no protective measures are proposed. While areas of the riverbank will be restored these are not designated natural areas and the plantings will discourage trespass and impacts.

8. *Where fertilizers and pesticides are used in recreational developments, waters in and adjacent to such developments shall be protected from drainage and surface runoff.*

Response: All fertilizers and pesticides in use will be applied in accordance with their manufacturers' guidelines and in compliance with local and state regulations to ensure no drainage or surface runoff into the Columbia River.

13. *A trail project, any portion of which encroaches closer than 50 feet, shall maintain no net loss, and include shoreline restoration where feasible.*

Response: The project will feature the extension of the Columbia River Waterfront Renaissance Trail which will not be closer than 50 feet to the OHWM of the Columbia River. In addition, the site is already developed with intense urban activities and the trail will be located fully within already developed areas resulting in no net loss. See Appendix G for details.

7.1.6.5 Signs

No signs are specifically proposed with this application other than modification of the existing rooftop mounted sign to change the lettering and logo to reflect the current use and will not change the size, height or other physical dimensions. If other future signs are planned within the shoreline jurisdiction, they will comply with the applicable sign regulations as described in Section 6.3.12 of the SMP and will only be installed after approval of a sign permit from the City of Vancouver.

7.1.6.6 Shoreline Restoration and Enhancement

The following section explains how the project complies with the applicable shoreline restoration and enhancement regulations as described in Section 6.4.4 of the SMP.

1. *Shoreline restoration and enhancement activities designed to restore shoreline ecological functions and processes and/or shoreline features should be targeted toward meeting the needs of sensitive and/or regionally important plant, fish, and wildlife species and shall be given priority. Implementation of restoration projects on shorelines of statewide significance take precedence over implementation of restoration projects on other shorelines of the state.*

Response: The proposed shoreline restoration activities will benefit the shoreline by removing existing structures and invasive species and planting with native species. These activities will improve riparian habitat for fish and wildlife species.

2. *Shoreline restoration, enhancement, and mitigation activities designed to create dynamic and sustainable ecosystems to assist the city in achieving no net loss of shoreline ecological functions are preferred.*

Response: As stated above, the plan will incorporate restoration and enhancement activities that will improve riparian habitat and provide for no net loss of shoreline ecological functions.

3. *Restoration activities shall be carried out in accordance with an approved shoreline restoration plan, and in accordance with the provisions of this Program.*

Response: The project's shoreline restoration activities will be completed in accordance with an approved site and landscape plan and in accordance with this program. A detailed landscape plan will be provided at detailed site plan approval.

8.0 CONCLUSION

As demonstrated in this narrative and the materials that together comprise the submittal packet, the proposed project has been designed to comply with the applicable provisions of the VMC and the SMP. Therefore, the Port of Vancouver USA respectfully requests City approval of this request for a Type IV concept development plan, shoreline substantial development permit, conditional use permit critical areas permit, archaeological predetermination review and tree permit.

Planning Permit Application

LAND USE PRELIMINARY APPLICATION (LUP)

415 W 6th ST ~ Vancouver, WA 98660
PO Box 1995 ~ Vancouver, WA 98668
Phone (360) 487-7800
www.cityofvancouver.us

Type Of Work		
☐ Type I	☐ Type II	☐ Type III
■ Type IV	☐ Tree Removal Only **	

Use Type (Check One Box Only)		
☐ Single Family	■ Commercial	☐ Multi-Family
☐ Industrial	☐ Residential	☐ Duplex
☐ Wireless Communications Facility (new) *please see VMC 20.890*		

Process Type	
■ Standard	☐ Streamline

Project Site Information And Location	
Project site address:	100 Columbia Street, Vancouver WA, 98660
Suite/bldg./apt #:	N/A
Project name:	Terminal 1 Waterfront Development
Tax Assessor Serial Number:	48643000, 48641000, 48644000, 502240000, 502245000, 502246000, 502250000
Nearest intersection if no site address:	

Description Of Project
The Port seeks to submit a concept development plan to the City which will include mixed-use waterfront and upland development. The concept development plan will contain such uses as offices, hotel, marketplace, retail and residential development.

PROPERTY OWNER	
Name	Port of Vancouver
Address:	3103 NW Lower River Road
City/State/Zip:	Vancouver, WA 98660
Phone:	(360) 693-3611
E-mail:	mharding@Portvanusa.com
APPLICANT	
Name	Port of Vancouver
Address:	3103 NW Lower River Road
City/State/Zip:	Vancouver, WA 98660
Phone:	(360) 693-3611
E-mail (required):	mharding@Portvanusa.com
CONTACT or ELECTRONIC PLANS SUBMITTER*	
Name	Ryan Crotty, BergerABAM
Address:	210 East 13th Street, Suite 300
City/State/Zip:	Vancouver WA, 98660-3231
Phone:	(360) 823-6100
E-mail (required):	ryan.crotty@abam.com

Additional Information			
Special Review type: (if applicable)	☐ Tenant Improvement	☐ Other	
	☐ Unoccupied Commercial/Utility Structure		
Plan Approval Type: (if applicable)	■ Conceptual	☐ Detailed	☐ Hybrid
Sewage Disposal:	☐ Septic	■ Public	
Water Source:	☐ Private Well	■ Public	
# of Units:	355		
# of Proposed Lots:	4 (existing parcels)		
# of Acres:	10.37		
Size:	■ Up to 25 acres	☐ Over 25 acres	
Impervious Area sf:	329,909 square feet		
Sq Ft:	**Ground Floor:**	TBD	
	Upper Floor:	TBD	

Notice

I/we understand that per VMC 20.210.090 (Review for Counter Complete Status), if it is determined that the application is not complete, the City shall immediately reject and return the application.
If submitting electronically, I/we understand that if my electronic plan submission is deemed to be incomplete I will receive notification after the prescreening process and review will not begin.
I/we agree that City of Vancouver staff may enter upon the subject property at any reasonable time to consider the merits of the application, to take photographs and to post public notices.

Required Signatures	
Applicant signature: Matt Harding	
Print name: Matt Harding	Date: 12/16/16
Property Owner signature: Matt Harding	
Print name: Matt Harding	Date: 12/16/16

* Please note that the contact listed as "Electronic Plans Submitter" should be the individual responsible for accessing ePlans, (electronic plan review software), and will receive all ePlans correspondence.

APPLICATION SUB TYPES

Please check all applicable boxes and enter information where necessary

- ■ **Archaeological Predetermination** *(fill out supplemental application)*
- ☐ **Binding Site Plan** — ☐ Land Extensive; ☐ Non-Residential; ☐ Commercial Pad; ☐ Unoccupied Com/Utility Structure
- ☐ **Boundary Line Adjustment** — # of lots to be reviewed:
- ☐ **Comprehensive Plan Amendment**
- ☐ **Conditional Use Permit** — Type of Use: ; Civil Review required? ☐ Yes ☐ No
- ☐ **Covenant Release**
- ■ **Critical Areas Permit** *(fill out supplemental application)* — ☐ Minor Exception; ☐ Reasonable Use
  - **Area Types:**
  - ■ Fish & Wildlife; ■ Frequency Flooded
  - ■ Geological Hazard; ☐ Wetlands
- ☐ **Design Review** *(contact case manager for submittal requirements)* — ☐ Vancouver Central Park; ☐ Downtown; ☐ Exterior Modification Only
- ☐ **Development Agreement** *(see VMC 20.250 for requirements)* — ☐ Initial Agreement; ☐ Modification; ☐ Extension
- ☐ **Engineering Variance Request Road Modification** *(see supplemental checklist)* — ☐ Administrative; ☐ Design Major; ☐ Technical / Minor
- ☐ **Historic Preservation **** *(contact case manager for submittal requirements)*
  - **Historic Type:**
  - ☐ Major Modification; ☐ Place Property on Registry; ☐ Special Valuation
  - **Register Type:**
  - ☐ State; ☐ Local; ☐ National
- ☐ **Human Services Siting Request** *(fill out supplemental application)*
- ☐ **Joint Use Parking Agreement** *(see VMC 20.945.030 for requirements)*
- ☐ **Legal Lot Determination** — # of lots to be reviewed:
- ☐ **Master Plan Public Facilities**
- ☐ **Modification**
  - **Modification Type:**
  - ☐ Conditional Use; ☐ Minor; ☐ Major
  - ☐ Mixed Use Master Plan; ☐ Public Facilities Master Plan; ☐ Planned Unit Development
  - ☐ Post Decision Review — Type: ☐ Planning ☐ Planning and Engineering
- ■ **Planned Unit Development / Master Plan** — ☐ Commercial; ■ Mixed; ☐ Residential
- ☐ **Preliminary Land Division** — Plat Alteration? ☐ Yes ☐ No
- ☐ **Preliminary Site Plan Review** — ☐ Commercial Pad; ☐ Land Extensive; ☐ Non-Residential; ☐ Residential; ☐ Unoccupied Comm'l/Utility Structure
- ■ **Shoreline Permit**
  - **Request Type:**
  - ■ Conditional Use; ☐ Variance Request; ■ Substantial Development
  - **Shoreline Designation:**
  - ■ Aquatic; ☐ Natural; ■ High Intensity; ☐ Medium Intensity; ☐ Urban Conservancy
- ☐ **Similar Use Determination **** *(see VMC 20.160.030 for requirements)*
- ☐ **Statement of Exemption ****
  - **Exemption Type:**
  - ☐ Shoreline Permit; ☐ Critical Area Permit
  - **Exemptions Requested: (Critical Areas only)**
  - ☐ Fish & Wildlife; ☐ Wetlands; ☐ Geological Hazard; ☐ Frequently Flooded
- ■ **State Environmental Policy (SEPA)** *(fill out supplemental application)*
  - **Use Type:**
  - ☐ Single Family; ■ Other
  - **SEPA Type:**
  - ☐ Grading; ☐ Non-Projects; ■ Other; ☐ Site Plan Rev (RES); ☐ Land-division or PUD
- ☐ **Temporary Use **** *(see VMC 20.885 for requirements)*
  - **Temporary Use Type:**
  - ☐ Commercial/Industrial; ☐ Unforeseen Emergency; ☐ Seasonal or Special Event; ☐ Model Home; ☐ Temp Sales Office
- ■ **Tree Plan** *(see VMC 20.770.050 for requirements or see submittal requirement document for additional information)* — ☐ Level 1; ☐ Level 2; ☐ Level 3; ☐ Level 4; ■ Level 5; ☐ Level 6; ☐ Level 7
- ☐ **Variance** — Total # of Variance Requests:
- ☐ **Zoning Certification **** *(see FAQ document for additional information)* — Year Built: ; Footprint/Lot Coverage: ; Existing Building Height: ; Existing # Parking Spaces:
- ☐ **Zoning Verification **** *(see FAQ document for additional information)*
- ☐ **Zoning Change**

Change Type	With Comp Plan Change?
☐ Map Change	☐ Yes
☐ Code Change	☐ No
Proposed Zoning:	

****These application sub-types must be submitted as a separate LUP application. They may not be bundled with other sub-types.**

Submittal Requirements Checklist

(Preliminary Land Use – LUP)

The following information (when applicable) is required to be submitted with PRELIMINARY LAND USE applications
*Folded and collated plans drawn to scale, 22" x 34" or 24" x 36" and clearly legible

ALL Land Use Applications require the following:

(see specific Land Use types for additional submittal requirements)

☑	**Any and all fees associated with the application**
	Provide ten (10) folded and collated copies of the following items:
☑	**Completed and signed application** *If someone other than the owner is signing the application, an authority to act letter from the legal owner is required*
☑	**SEPA Checklist** *(if applicable)*
☑	**Archaeological Predetermination and Survey** *(if applicable)*
☑	**Reduced copies of all oversized plans** *(oversized development plans shall be reduced to 8.5" x 11" legible copies)*
☑	**Narrative** addressing approval criteria and technical standards for appropriate land use type(s):
	1. Explain the proposed uses for the site, hours of operation, hours and frequency of deliveries and construction schedule.
☑	***Site Plan including the following:**
	1. Abutting properties within a 100' of the site, zoning boundaries if applicable 2. Location and dimensions of the proposed development including the following: a. Both public and private streets and access easements on and adjoining the site b. Vehicular pedestrian and bicycle parking and circulation areas, including accessible parking stalls and disembarking areas, access route of travel, proposed ramp and signage as required by WAC 51-4 c. Show loading, service areas, solid waste and recycling facilities. d. Recreational or open space features e. Above ground utilities f. Proposed and existing structures to be retained on the site, including signs, fences, etc. and their distance from property lines g. Location and type of existing and proposed outdoor lighting
☑	**Summary Table** including the following:
	1. Parcel zone, total site area and gross floor area by use 2. Itemized number of full size, compact and accessible parking stalls and collective total number 3. Total lot coverage proposed, including residential density calculations
☑	**Engineering Plans** ***(Preliminary Civils**)*** **including the following:** *(if applicable)*
	1. Utility Plan: Show location and size of all existing and proposed water and sewer lines adjacent to site and on-site (on-site may be conceptual), existing fire hydrants within 100' of site, proposed hydrants on-site, manholes, etc. 2. Stormwater and Erosion Control Plans: Projects will be subject to the Stormwater Control and Erosion ordinance if more than 2,500 square feet of impervious surfaces are created, more than 1,000 square feet are added or more than 5,000 square feet of impervious surfaces are replaced. If these thresholds are exceeded, stamped preliminary civil engineering plans will be required. If required, the applicant shall include Stormwater and erosion control plans consistent with the City's General Requirement and Details for the Design and Construction of Surface Water Systems. This information is available online at www.cityofvancouver.us 3. Grading/Erosion Control/Tree Protection Plan *(shown on one sheet)*: Showing existing contours on-site and on adjacent properties within 25 feet of the site, proposed preliminary contours/spot elevations, tree protection measures, erosion control measures. Provide cubic yards of cut and fill 4. Street Design: Showing location/dimensions of existing and proposed accesses, existing and proposed rights-of-way, curb, sidewalk, pavement section, etc. *****Full civil plans are required for Streamline project submittals***
☑	**Traffic Study in compliance with Title 11** *(if applicable)* **- Four (4) copies**
☐	**Road Modification Request** *(if applicant elects to vary from the approved transportation standards)* **-Four (4) copies**
☑	**Hydrology Report – Four (4) copies**
☑	**Geotechnical Soils Report – Four (4) copies**

....continued on following page

TYPE II and above LAND USE APPLICATIONS require the following:

Provide two (2) copies of the following items:

☑ **Quarter Section map and mailing labels**

1. Submit a current Clark County Assessor's quarter section map(s) showing the property(ies) within a radius of 500' of the site, mailing labels with the names and addresses of owners of all properties within that radius certified as accurate and complete by the Clark County Assessor, a title company, or other party approved by the Director, and a computer printout of the names and address. The mailing labels are to be typed onto 8.5" x 11" sheet(s) of address sized adhesive labels

Binding Site Plan *(VMC 20.330)*, Conditional Use Permit *(VMC 20.245)*, Master Plan Public Facilities *(VMC 20.268)*, Mixed Use Master Plan *(VMC 20.430.060)*, Planned Development *(VMC 20.260)*, Preliminary Land Division *(VMC 20.320)* and Site Plan *(VMC 20.270)* applications require the following:

Provide ten (10) folded and collated copies of the following items:

☑ **Narrative (See narrative general requirements under "All Land use Applications"**

☑ ***Existing Conditions Plan including the following:**

1. Show structures, driveways, parking, loading, pedestrian and bicycle amenities, recreational facilities, open space, utilities and vehicular circulation
2. Show locations and size of all public and private utilities, easements and the elevation of the site (contours)
3. Indicate location, name and dimensions of all public and/or private streets adjoining the site

☐ ***Proposed Plat *(required for Preliminary Land Division and Binding Site Plan)* including the following:**

1. Plat name, vicinity map and scale
2. The proposed site and its dimensions and area, orientation relative to north
3. Proposed lot, tracts and easements including dimensions of individual lot areas and total acreage
4. Abutting properties or, if abutting properties extend more than 100' from the site, the portion of abutting properties within 100' of the site, and the approximate location of structures and uses on abutting property or portion of the abutting property.
5. Location and dimensions of proposed development, including the following:
   a. Streets and other right-of-way and public or private access easements on and adjoining the site
   b. Vehicle, pedestrian and bicycle parking and circulation areas, including handicapped parking stalls and disembarking areas, accessible route of travel, proposed ramp and signage as required by WAC 51-40
   c. Loading and service areas
   d. Active or passive recreational or open space features
   e. Above ground utilities
   f. Existing structures to be retained on the site and their distance from property lines
   g. Proposed structures on the site, including signs, fences, etc., and their distance from property lines
   h. The location and type of proposed outdoor lighting and existing lighting to be retained

☑ **Covenants, Restrictions and Easements** (existing or proposed, if applicable)

☑ **Clark County Health Department**

1. Provide the request for Development Review application or letter of exemption submitted to the Clark County Health Department

☑ **Architectural Plans and Elevations including the following:** *(not required for land division applications)*

1. Floor plans showing at least the gross square footage of each structure and outdoor activity proposed on the site, including existing structures and outdoor activity areas to be retained.
2. A description of the proposed and potential uses of each structure proposed and each outdoor activity area
3. Typical elevation drawings of each structure
4. Identify locations of walls, exits and openings
5. Conceptual plans showing at least the gross square footage of each structure proposed to be built or retained on-site
6. Show the dimensions and area of the project site

☑ **Phasing Plan for implementation** *(if applicable)*

....continued on following page

☑	**Other Information**

1. Lighting Plan: Show all existing and proposed lighting on site and within right-of-ways. Include light sources, patterns and candling. Minimum of one (1) foot –candle for parking and ADA areas and .5 candle for other areas required. (This plan will be routed to Clark Public Utilities for comments and compliance standards)
2. Landscape Plan: The proposed landscape plan shall be drawn to the same scale as the site plan and shall include the following:
   a. Location, species and size of existing landscape material, identifying the material to be removed and to be retained
   b. Location, species and size of planning and spacing of proposed plant materials
   c. Proposed landscape area of the site, i.e. in terms of square feet and percentage of the net site area, including street trees
   d. Location, height and material of fences, buffers, berms, walls and other proposed screening
   e. Location and dimensions or area of terraces, decks, shelters, play areas and open spaces
   f. Surface water management features that are integrated with landscape, recreation or open areas
   g. Irrigation plan (submit prior to final approval) – include location of lines, backflow preventers and hose bibs/sprinkler heads
3. Tree Plan: (Type I, II, III, IV, V, VI) with elements as required by the Tree Conservation Ordinance (VMC 20.770), such as the tree density location, size and species of all trees, individual trees that have a diameter of six inches (6") or more measured 4.5 feet above grade. (The plan may show clusters of such trees, rather than individual trees when individual trees are near one another)

HUMAN SERVICES SITING REQUEST
(VMC 20.870)

☐	**Narrative (See narrative general requirements under "All Land Use Applications")**

Additional narrative requirements contained in VMC 20.870

1. **If Co-Location** (Describe how the co-location will address the following issues):
   a. Providing a range of services to the same or similar client population
   b. Reducing accumulative impacts of the services that would occur if they were separately located
   c. Improving coordination of services by addressing gaps in services or by reducing duplication of services
   d. Improving the ability of the client population to access needed services in a more efficient and coordinated way
2. **If New Class 1 Facility:**
   a. Names and addresses of all Class 1 facilities within one mile (5,280') of the perimeter of the proposed site and distance from the proposed site
   b. Names and addresses of all Class 2 and 3 facilities and residential care centers within ½ mile (1,320') of the perimeter of the proposed site and distance from the proposed site
3. **If New Class 2 Facility:**
   a. Names and addresses of all Class 1, 2 and 3 facilities within ½ mile (1,320') of the perimeter of the proposed site and distance from proposed site

☐	**Site plan, drawn to scale and including: (See site plan general requirements under "All land Use Sub-Types")**

Additional site plan requirements specific to Human Services Siting Request applications

1. Outdoor waiting area

LEGAL LOT DETERMINATION
BOUNDARY LINE ADJUSTMENT
(VMC 20.310)

	Provide two (2) folded and collated copies of the following items:
☐	**Sales History** for each parcel through 1969. This is a copy of all deeds or real estate contracts showing previous owners or divisions of the original parcel. These are available from either a title company or the Assessor's Office. *(Boundary Line Adjustment – this does not apply if the request involves lots in a subdivision that have not been altered or further divided)*
☐	**Copies of existing conditions of approval, covenants, restrictions and/or easements**
☐	**Boundary Survey of Existing Lots** *(Boundary Line Adjustment Only)*
☐	**Signature of all property owners authorizing the proposed adjustment of their property lines as certified by a public notary** *(Boundary Line Adjustment Only)*

....continued on following page

MODIFICATION: POST DECISION REVIEW
(VMC 20.210.140)

Provide ten (10) folded and collated copies of the following items:	
☐	**Copies of original approval (plans and decision)**
☐	**Proposed development plan**

SHORELINE
(VMC 20.760)

Provide ten (10) folded and collated copies of the following items:	
☑	**Narrative** addressing requirements contained in City of Vancouver Shoreline Master Program
☑	**Site Plan, drawn to scale and including: (See site plan general requirements under "All Land Use Applications")**

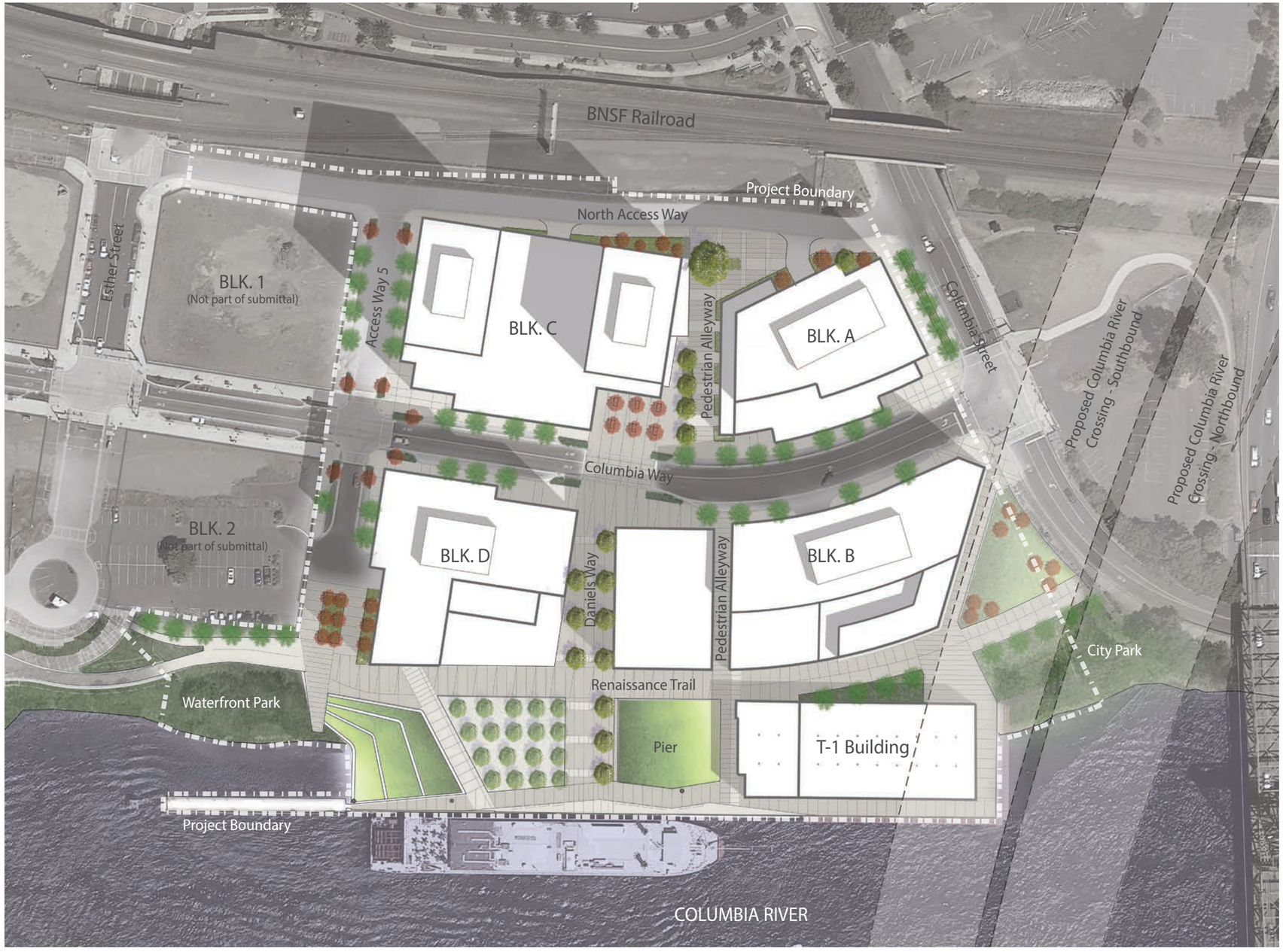
Additional site plan requirements specific to Shoreline applications:

1. Ordinary high water mark and setback line
2. Typical cross section(s) showing:
   a. Existing and proposed ground elevations
   b. Existing and proposed structure(s)
3. If development involves grading, cutting, filling or other alteration of land contours, note proposed land contours using 5-foot intervals in water area and 10-foot intervals on areas landward of ordinary high water mark
   a. Identify source, composition and volume of fill material or of extracted materials identifying proposed disposal areas
4. Show dimensions and locations of existing structures which will be maintained
5. Show location of proposed utilities including sewer, septic tanks, drain fields, water, gas and electricity. Show vegetation that will be preserved. (Refer to submittal requirements for tree Plan Removal Permit – VMC 20.770)

Please Note: If the development proposes septic tanks, applicant shall provide proof of approval from Clark County Health Department

VARIANCE
(VMC 20.290)

Provide ten (10) folded and collated copies of the following items:	
☐	**Narrative** describing the purpose of the variance and the specific code section(s) to be varied. Address the approval criteria contained in VMC 20.290.040.



Port of Vancouver USA nbbj

0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Illustrative Site Plan Figure 1

PROPOSED USES PER BLOCK

Block A - Office Mixed Use
- Ground Floor Retail
- Office
- Pedestrian Mid-block Corridor
- Parking

Block B - Office Mixed Use
- Ground Floor Retail
- Office
- Live/Work Units
- Residential; Efficiency Apartments
- Parking

Block C - Residential Mixed Use
- Ground Floor Retail
- Residential
- Parking

Block D - Hospitality
- Ground Floor Retail
- Hotel
- Restaurant
- Event Space
- Parking

Public Space
- Terminal 1
- Marketplace
- Outdoor Civic Space
- Columbia Renaissance Trail
- Maritime Use Office / Visitor's Center
- Restaurant

Conceptual plan subject to modification.

Port of Vancouver USA nbbj

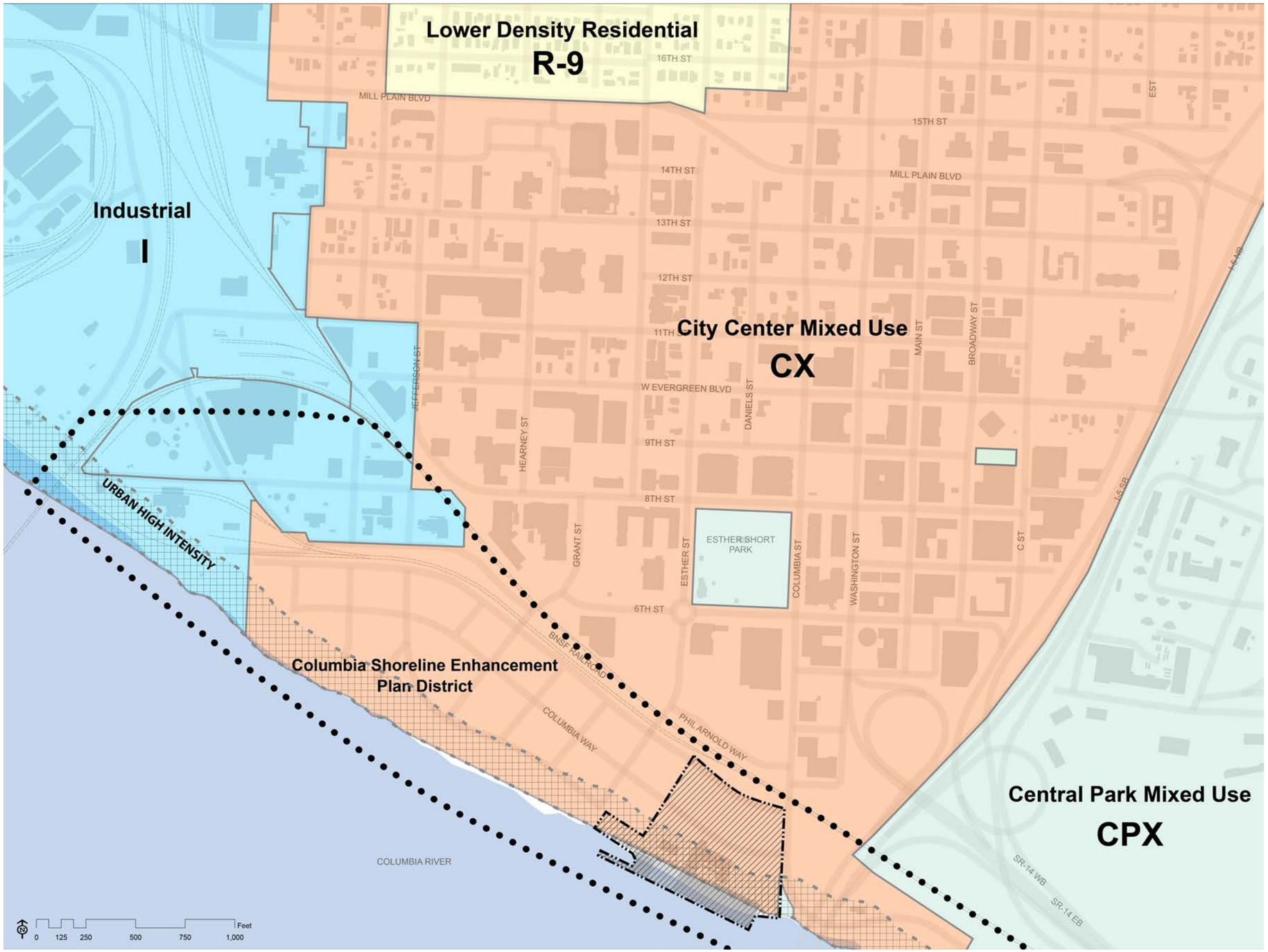
0 50 100 200

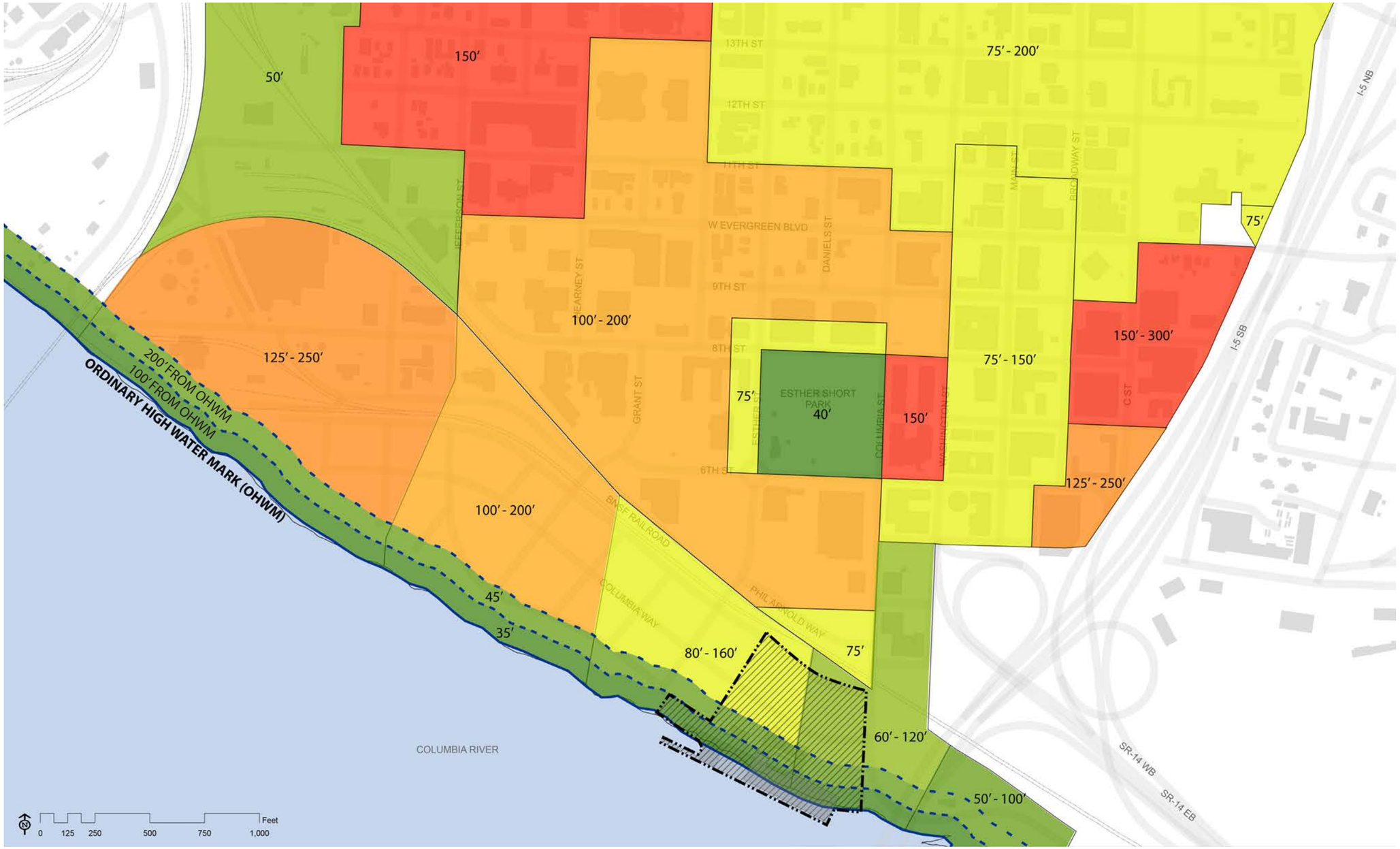
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Block Diagram Figure 2

Port of Vancouver USA nbbj

0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Vicinity Map Figure 3


Lower Density Residential
R-9
Industrial
I
City Center Mixed Use
CX
Columbia Shoreline Enhancement
Plan District
Central Park Mixed Use
CPX
URBAN HIGH INTENSITY
16TH ST
MILL PLAIN BLVD
15TH ST
14TH ST
13TH ST
12TH ST
11TH ST
W EVERGREEN BLVD
9TH ST
8TH ST
6TH ST
JEFFERSON ST
HEARNEY ST
DANIELS ST
MAIN ST
BROADWAY ST
GRANT ST
ESTHER ST
ESTHER SHORT PARK
COLUMBIA ST
WASHINGTON ST
C ST
BNSF RAILROAD
COLUMBIA WAY
PHIL ARNOLD WAY
COLUMBIA RIVER
SR-14 WB
SR-14 EB
Feet
0 125 250 500 750 1,000
0 50 100 200



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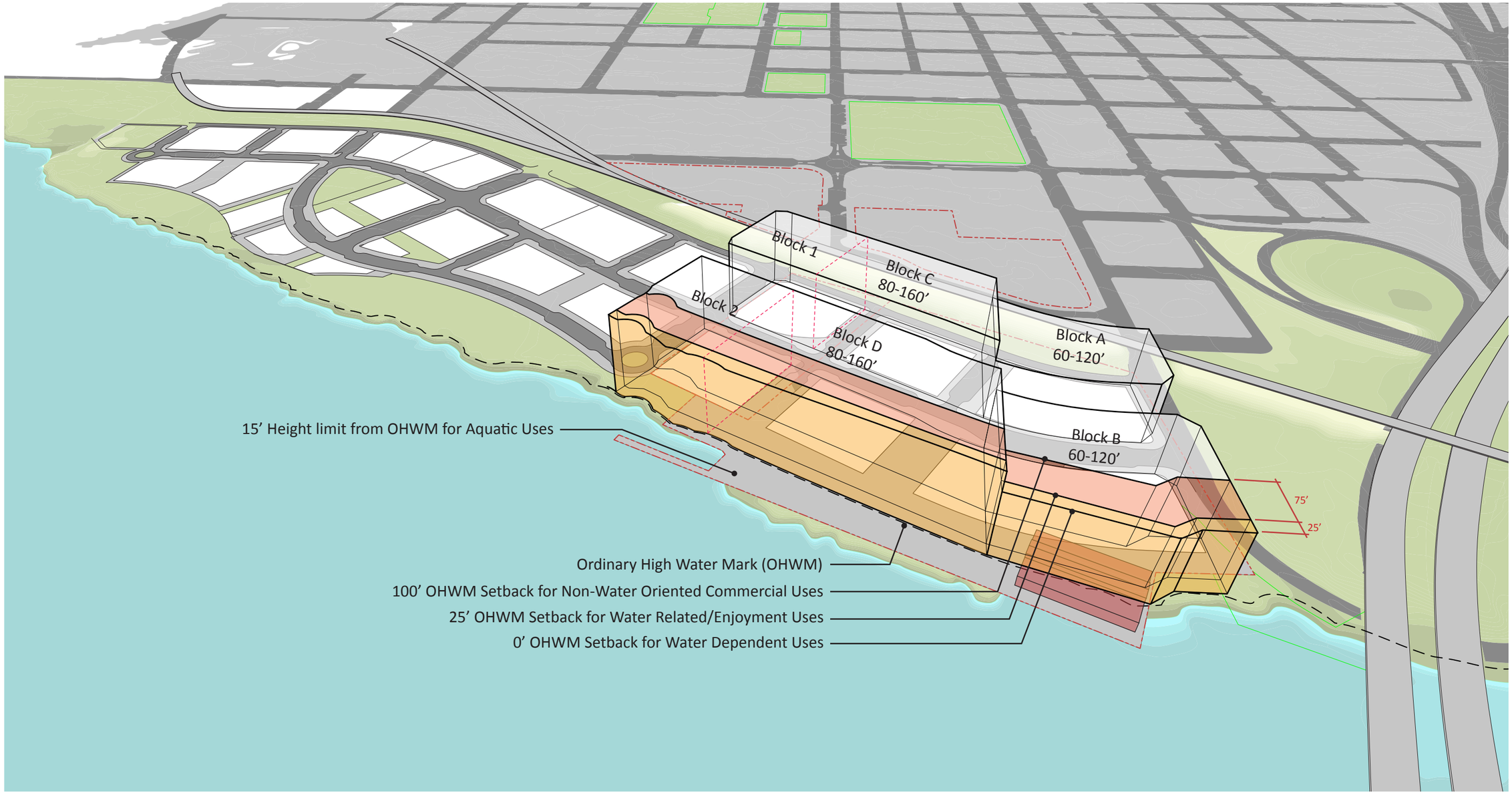
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
City of Vancouver Height Map Figure 5



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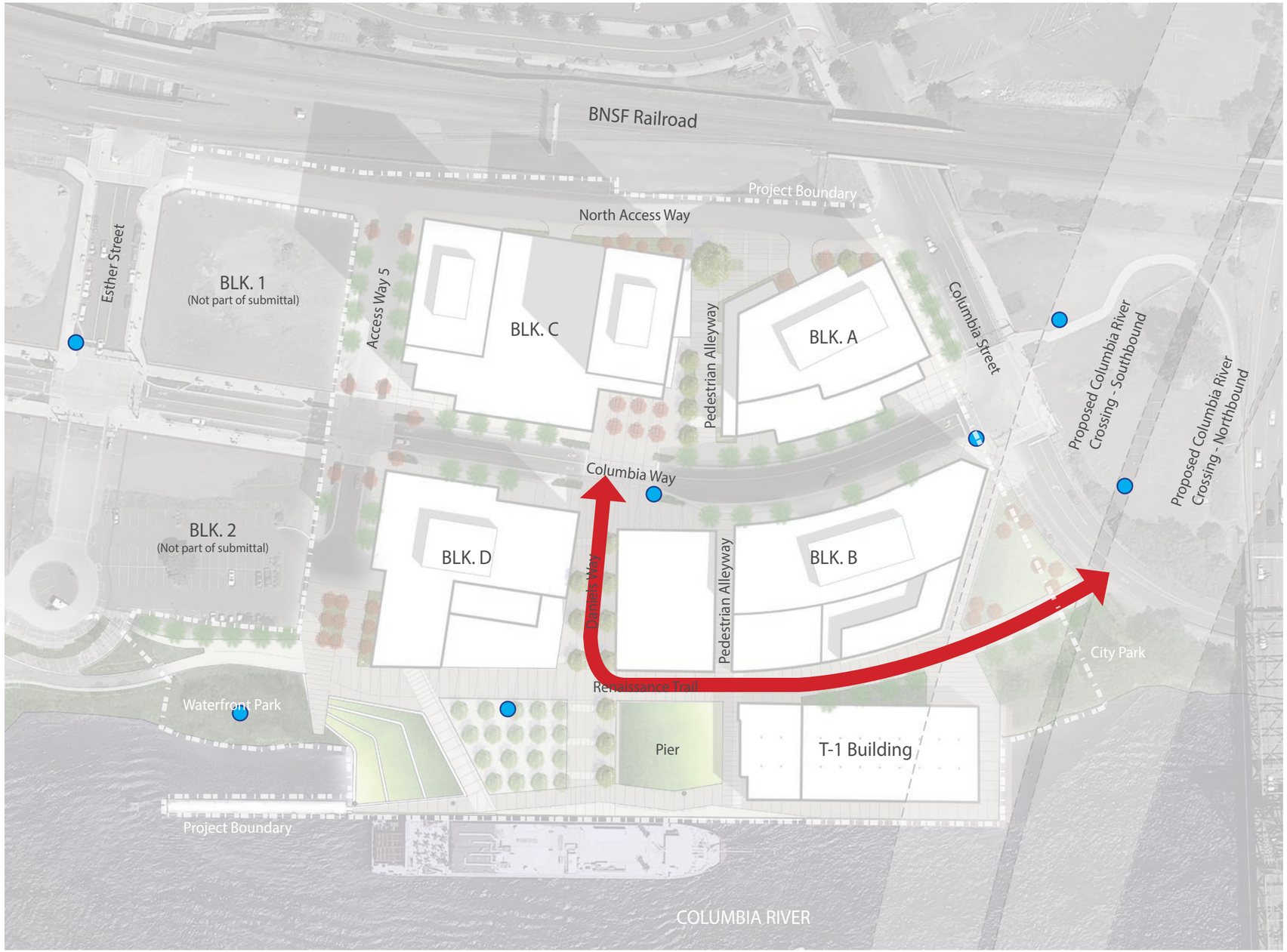
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Building Envelope Diagram Figure 6



Existing Fire Hydrants

Fire Apparatus Access (26’ Min.)

Port of Vancouver USA nbbj

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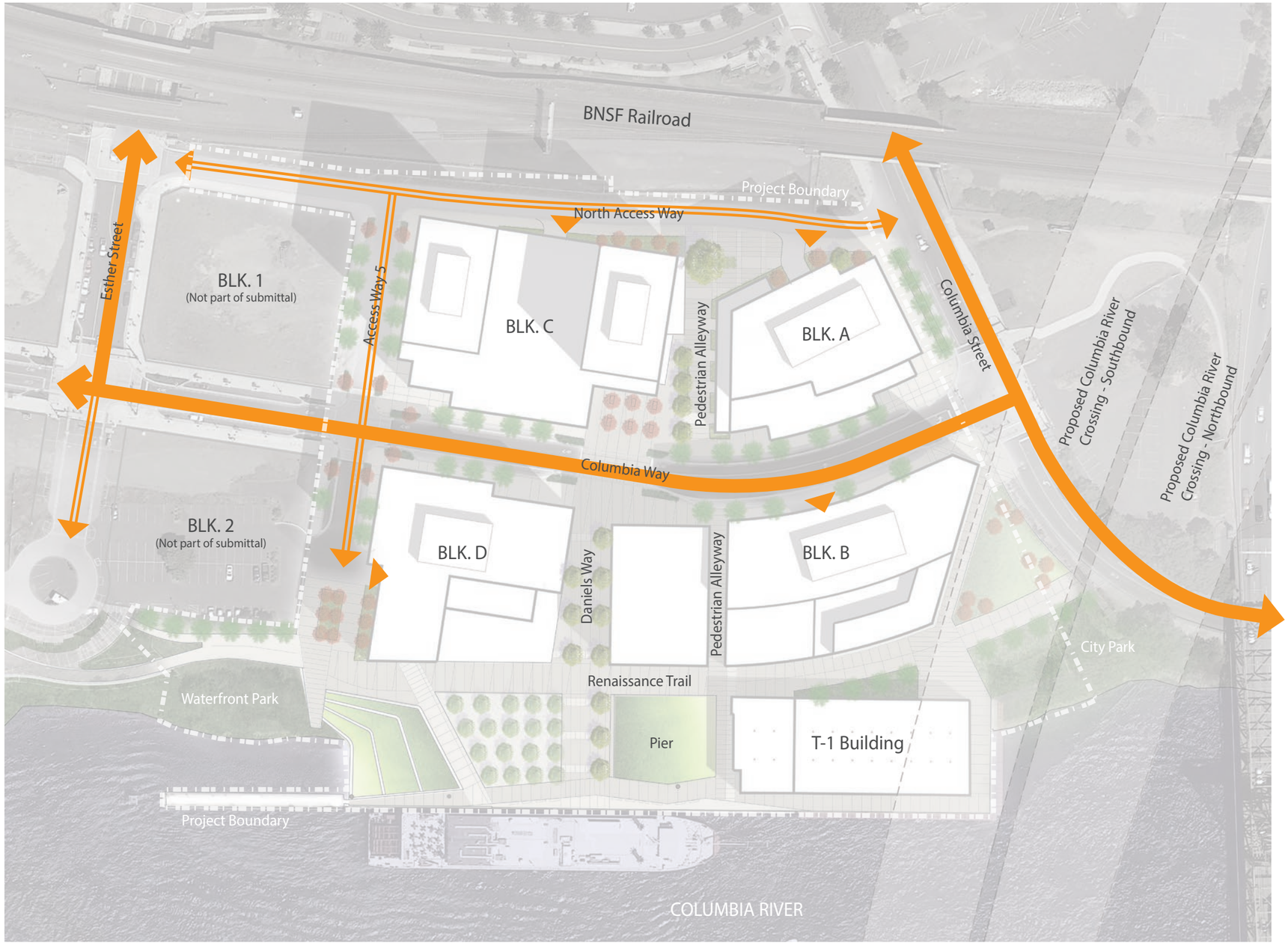
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Proposed Emergency Access Figure 7



Primary Vehicular Circulation

Secondary Vehicular Circulation

Service / Parking Entrance

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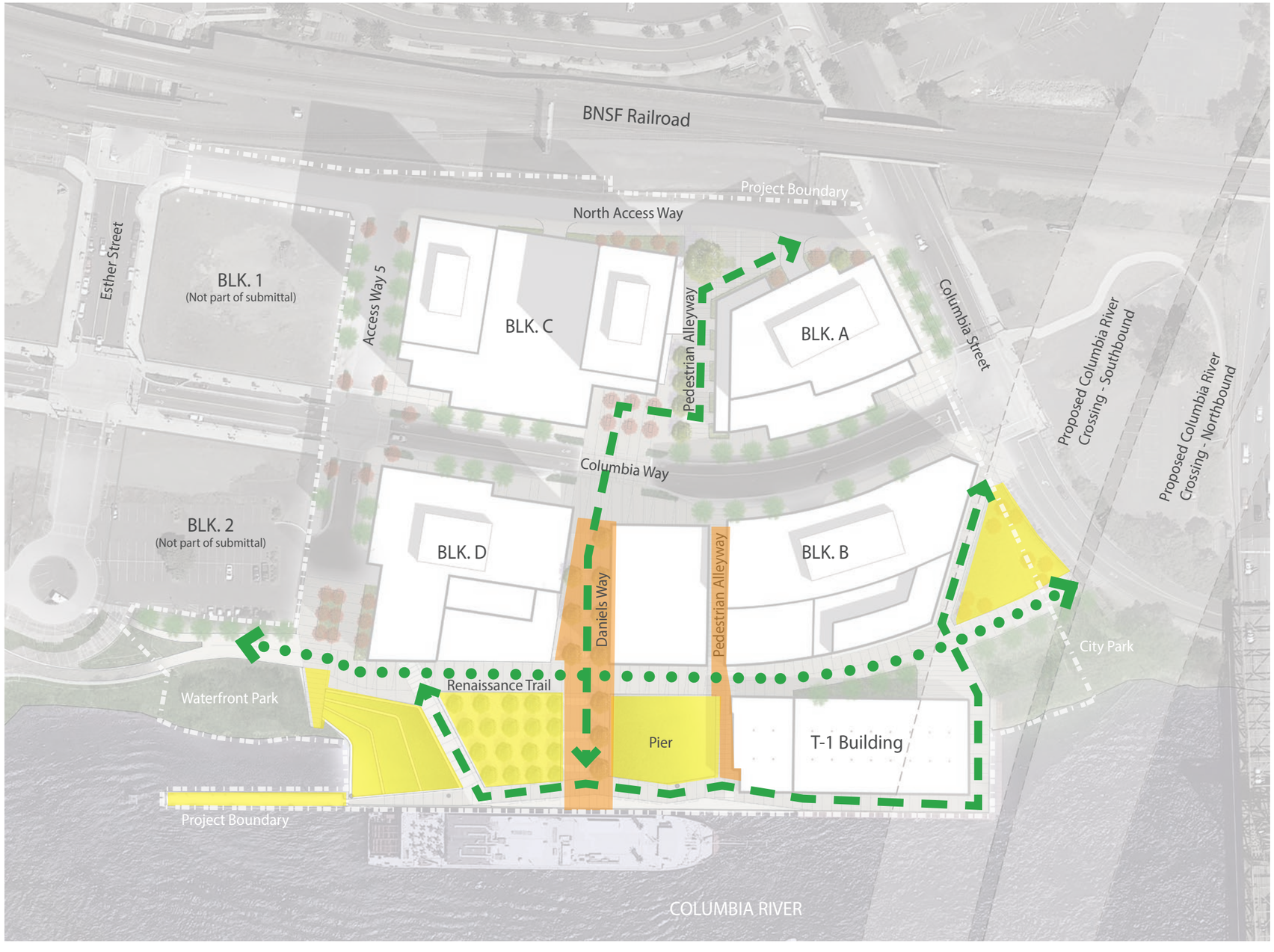
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Street Classification Figure 8



Active Public Space

Passive Public Space

Primary Pedestrian Corridors

Renaissance Trail - Shared Use

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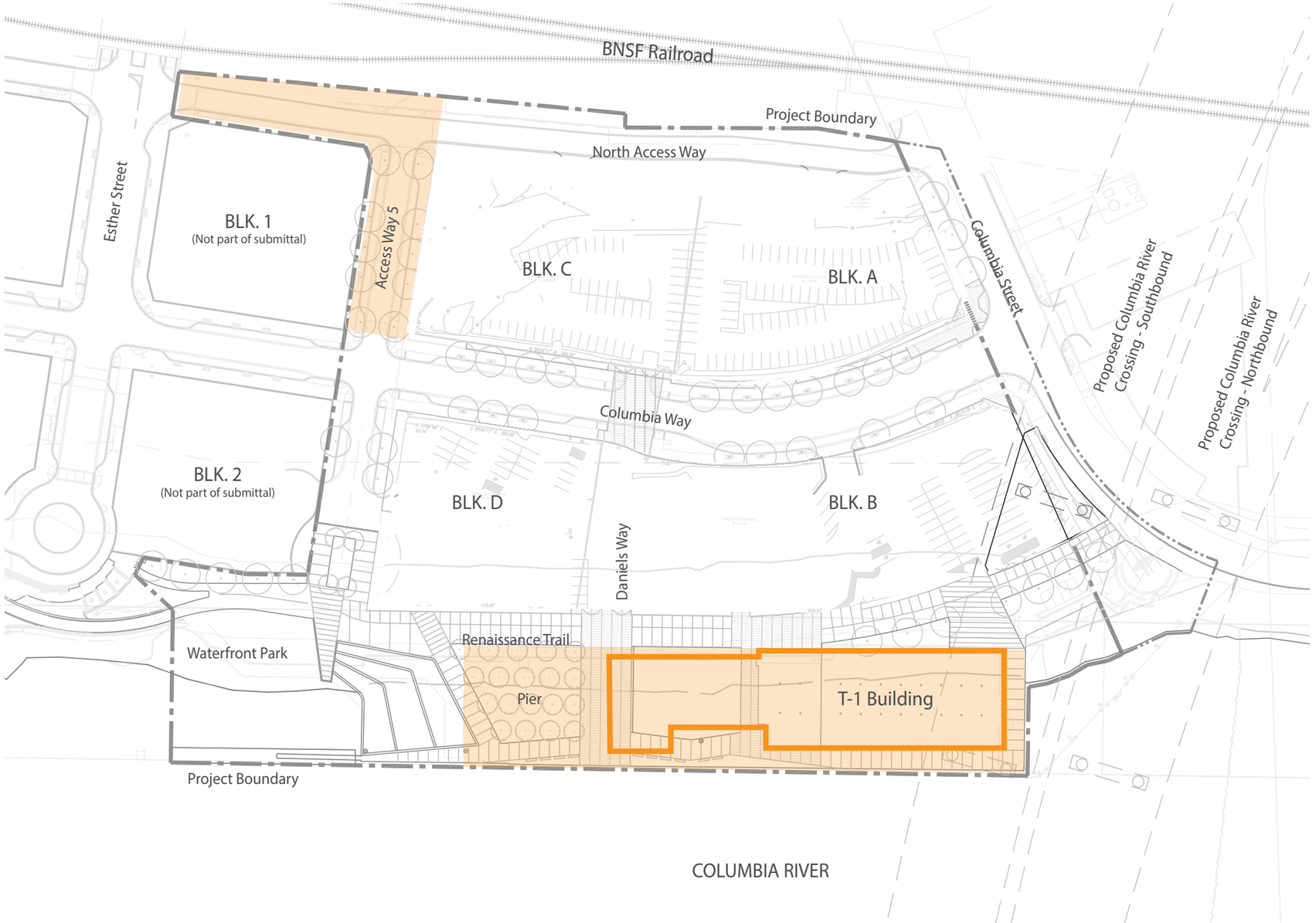
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Public Realm Figure 9

PHASE 1: Interim Terminal 1 Rehabilitation
Interim Pier Finishes
Access Way 5/North Access Way



Conceptual plan subject to modification.

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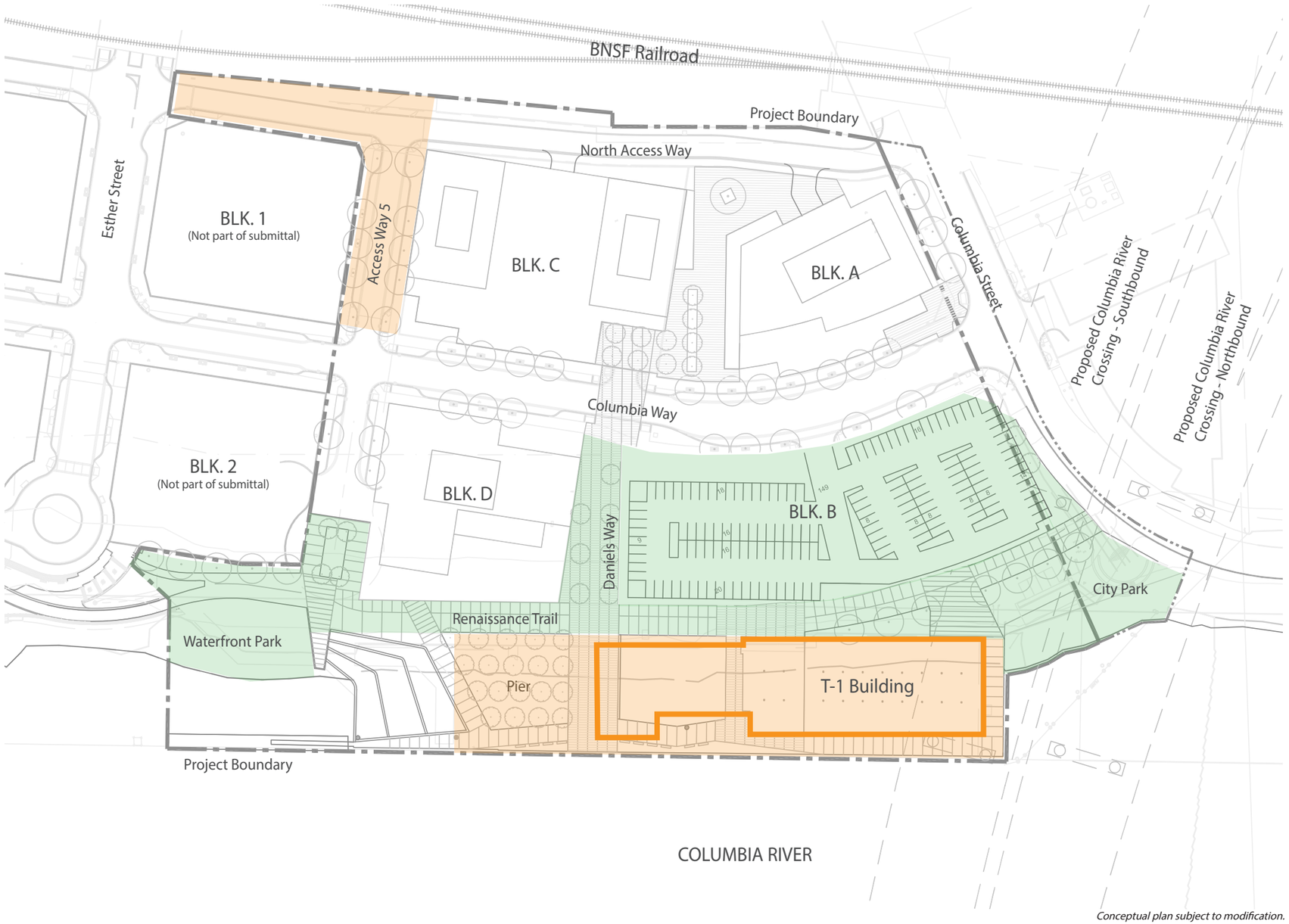
0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Phasing Plan: Phase 1 Figure 10

PHASE 1: Interim Terminal 1 Rehabilitation
Interim Pier Finishes
Access Way 5/North Access Way

PHASE 2: Renaissance Trail
Daniels Way Connection
Interim Surface Parking Block B



Conceptual plan subject to modification.

Port of Vancouver USA nbbj

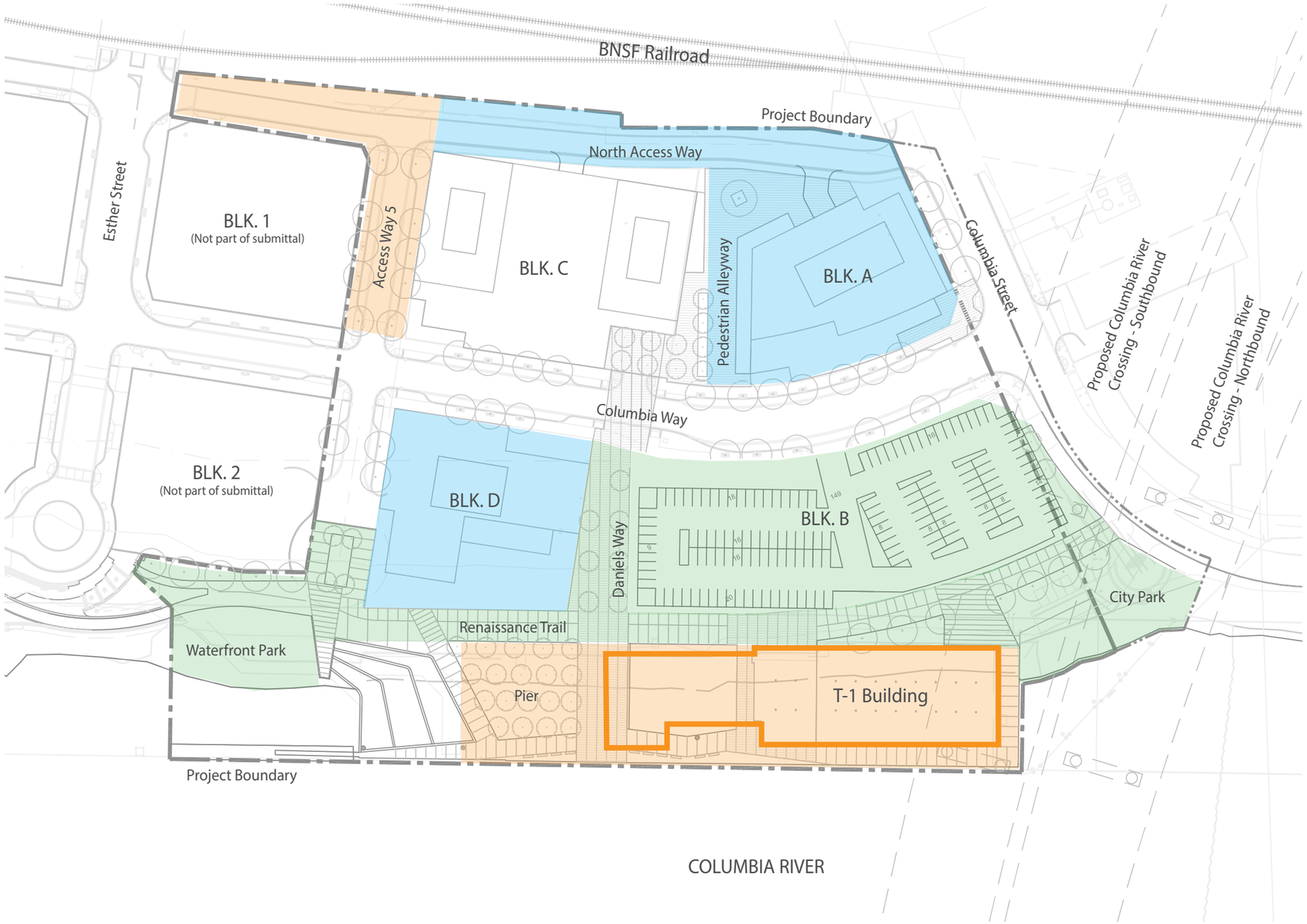
0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Phasing Plan: Phase 2 Figure 11

PHASE 1: Interim Terminal 1 Rehabilitation
Interim Pier Finishes
Access Way 5/North Access Way

PHASE 2: Renaissance Trail
Daniels Way Connection
Interim Surface Parking Block B

PHASE 3: Block D Hospitality Development
Block A Development
North Access Way



Conceptual plan subject to modification.

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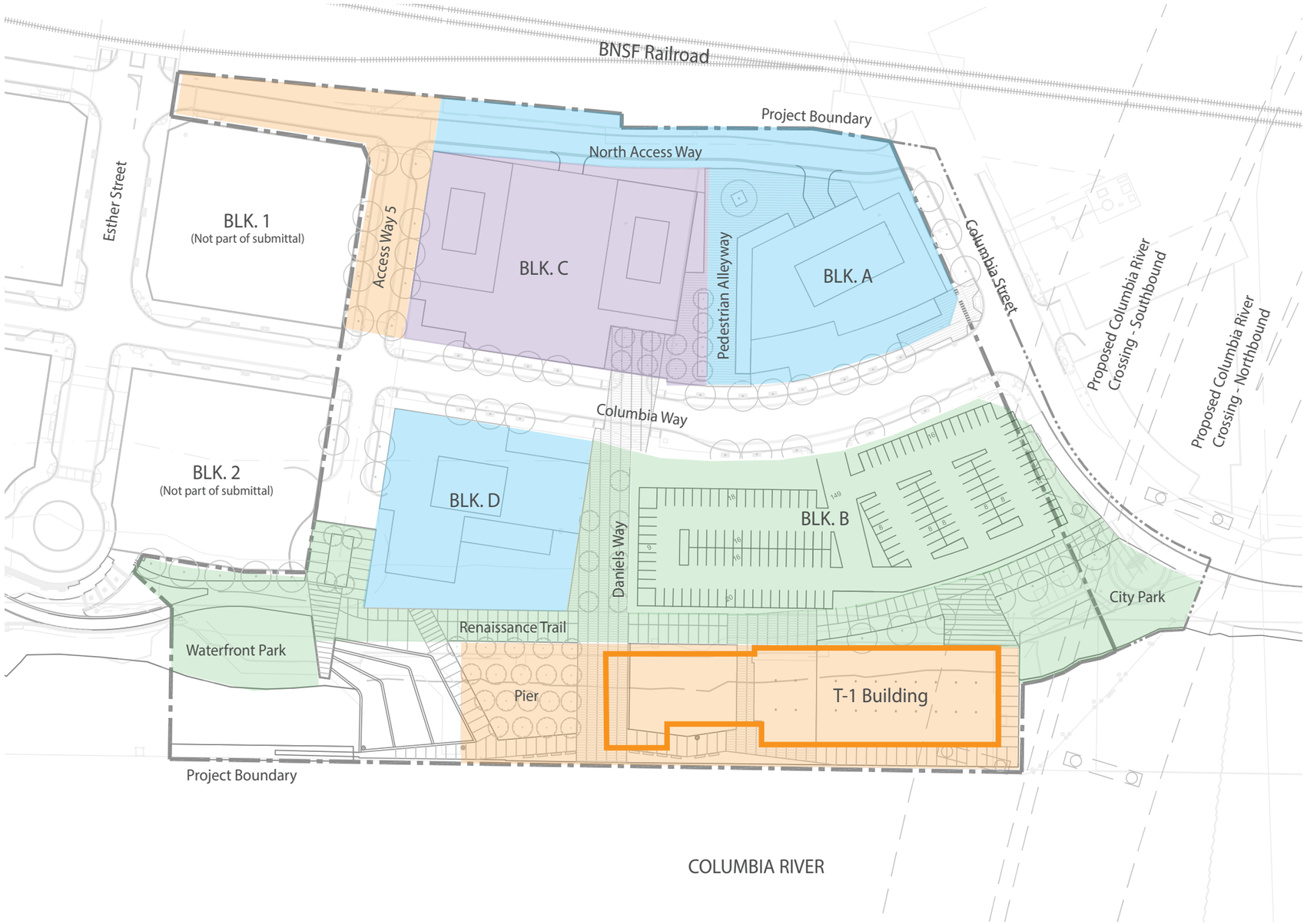
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Phasing Plan: Phase 3 Figure 12

PHASE 1: Interim Terminal 1 Rehabilitation
Interim Pier Finishes
Access Way 5/North Access Way

PHASE 2: Renaissance Trail
Daniels Way Connection
Interim Surface Parking Block B

PHASE 3: Block D Hospitality Development
Block A Development
North Access Way

PHASE 4: Block C Development



Conceptual plan subject to modification.

Port of Vancouver USA nbbj

0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Phasing Plan: Phase 4 Figure 13

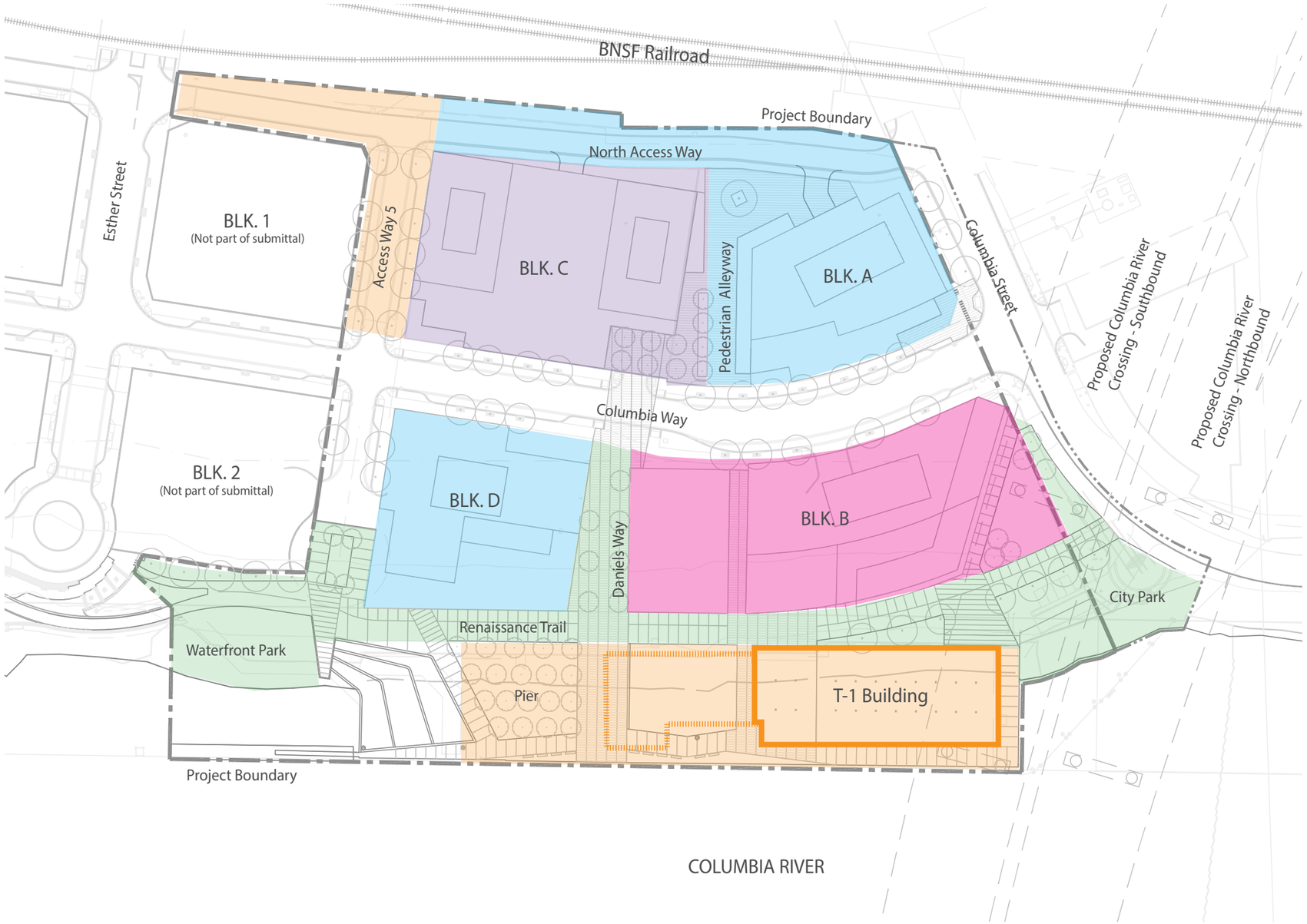
PHASE 1: Interim Terminal 1 Rehabilitation
Interim Pier Finishes
Access Way 5/North Access Way

PHASE 2: Renaissance Trail
Daniels Way Connection
Interim Surface Parking Block B

PHASE 3: Block D Hospitality Development
Block A Development
North Access Way

PHASE 4: Block C Development

PHASE 5: Block B Mixed-Use Development
Demolish Red Lion South Wing



Conceptual plan subject to modification.

Port of Vancouver USA nbbj

0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Phasing Plan: Phase 5 Figure 14

PHASE 1: Demolish Red Lion South Wing
Interim Terminal 1 Rehabilitation
Interim Pier Finishes
Access Way 5/North Access Way

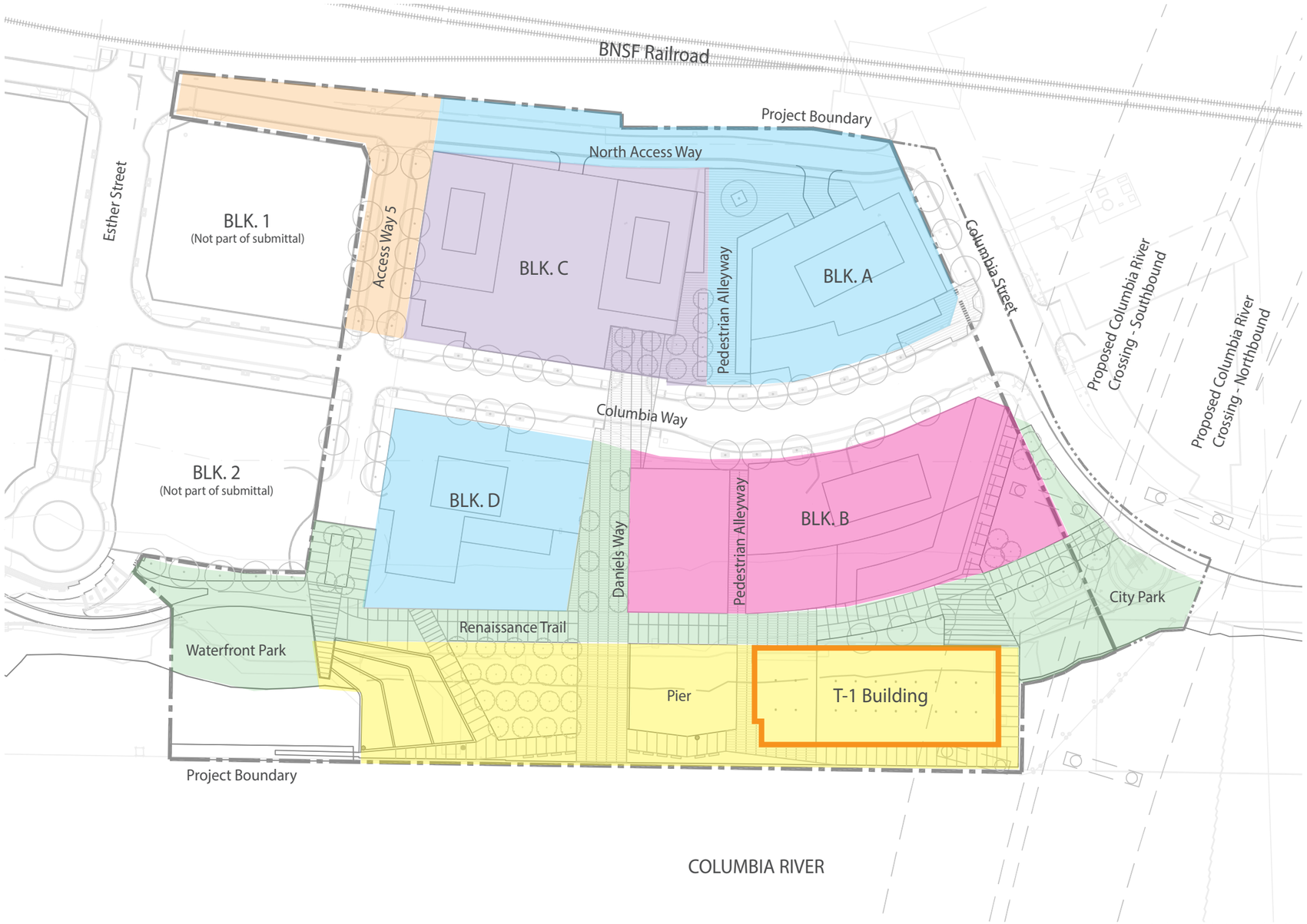
PHASE 2: Renaissance Trail
Daniels Way Connection
Interim Surface Parking Block B

PHASE 3: Block D Hospitality Development
Block A Development
North Access Way

PHASE 4: Block C Development

PHASE 5: Block B Mixed-Use Development
Demolish Red Lion South Wing

PHASE 6: T-1 Redevelopment
Pier Rehabilitation
Civic Space



Conceptual plan subject to modification.

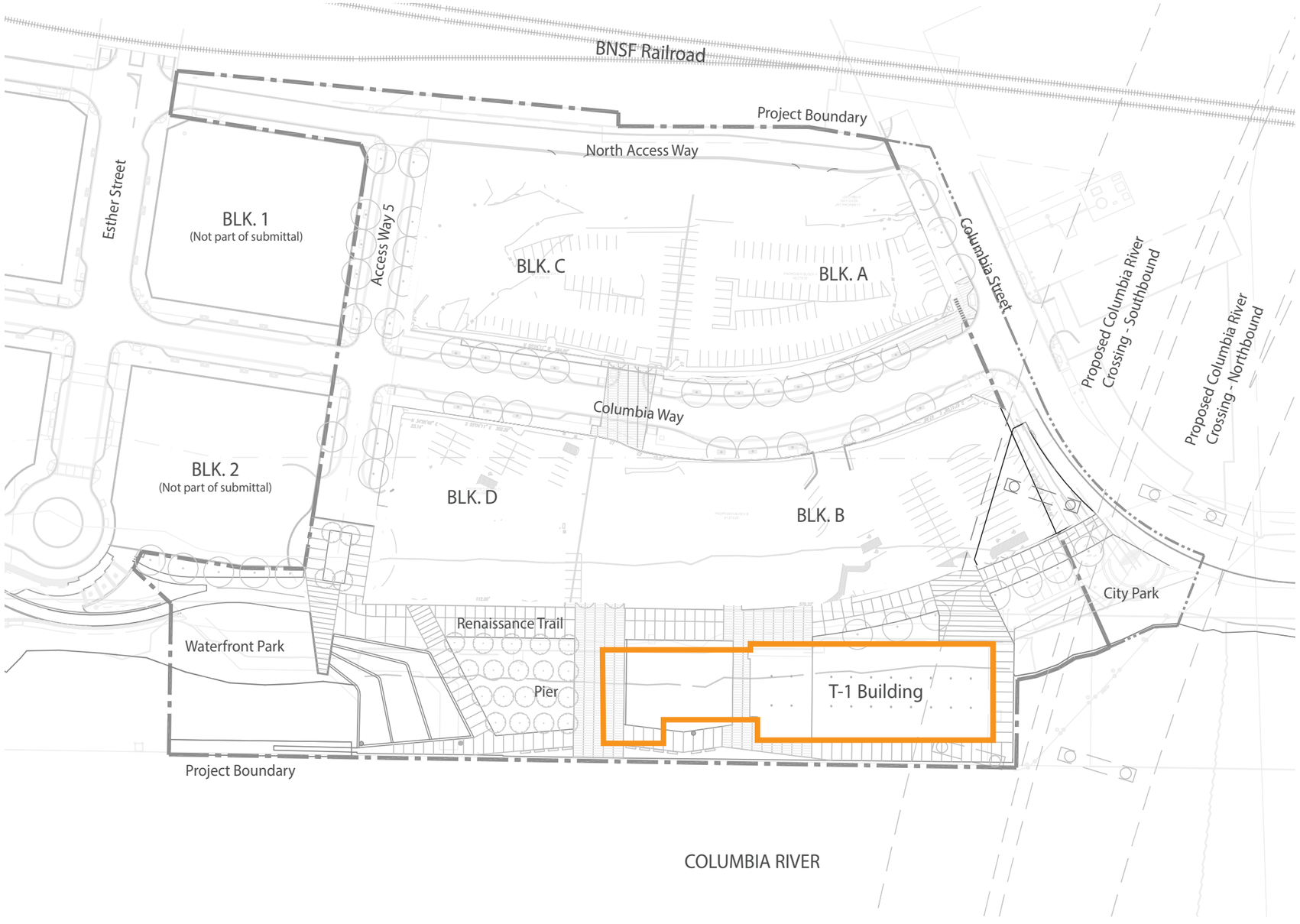
Port of Vancouver USA nbbj

0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Phasing Plan: Phase 6 Figure 15

PHASE 1: Existing Conditions

PHASE 1			
BLOCK	# of Stalls Req. COV	Surface	Structured
A	0	93	0
B	0	69	0
C	0	55	0
D	0	21	0
Pier/Public	49	-	-
via CW LLC	0	0	-
Sub-Totals	49	238	0
TOTAL REQUIRED	49	TOTAL PROVIDED	238



Port of Vancouver USA nbbj

0 50 100 200

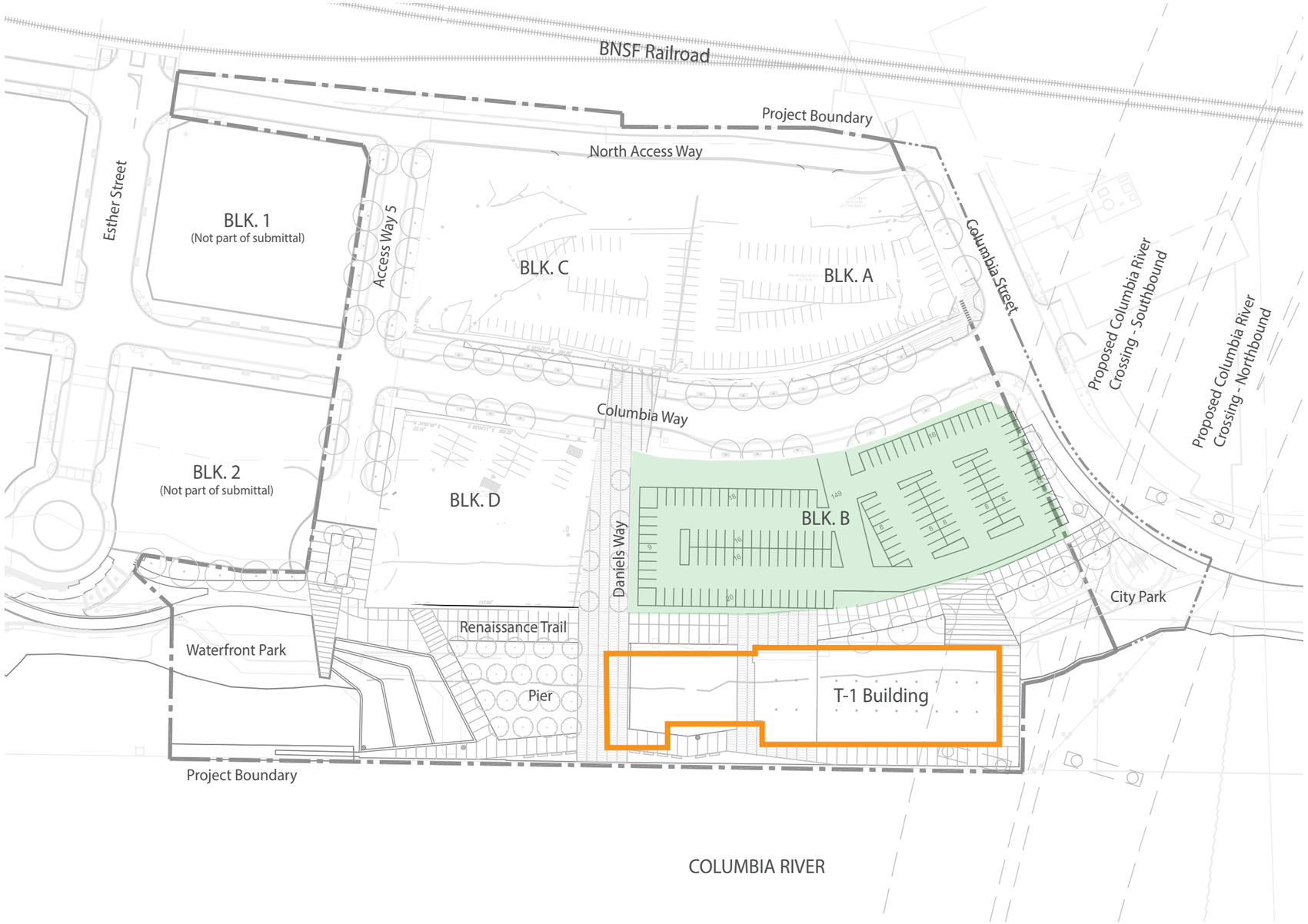
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Parking Phasing Plan: Phase 1 Figure 16

PHASE 1: Existing Conditions

PHASE 2: Interim Surface Parking Block B

PHASE 2			
BLOCK	# of Stalls Req. COV	Surface	Structured
A	0	93	0
B	0	149	0
C	0	55	0
D	0	21	0
Pier/Public	49	-	-
via CW LLC*	0	84	-
Sub-Totals	49	402	0
TOTAL REQUIRED	49	TOTAL PROVIDED	402

* CW LLC parking stalls will not be located within the study area.



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0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Parking Phasing Plan: Phase 2 Figure 17

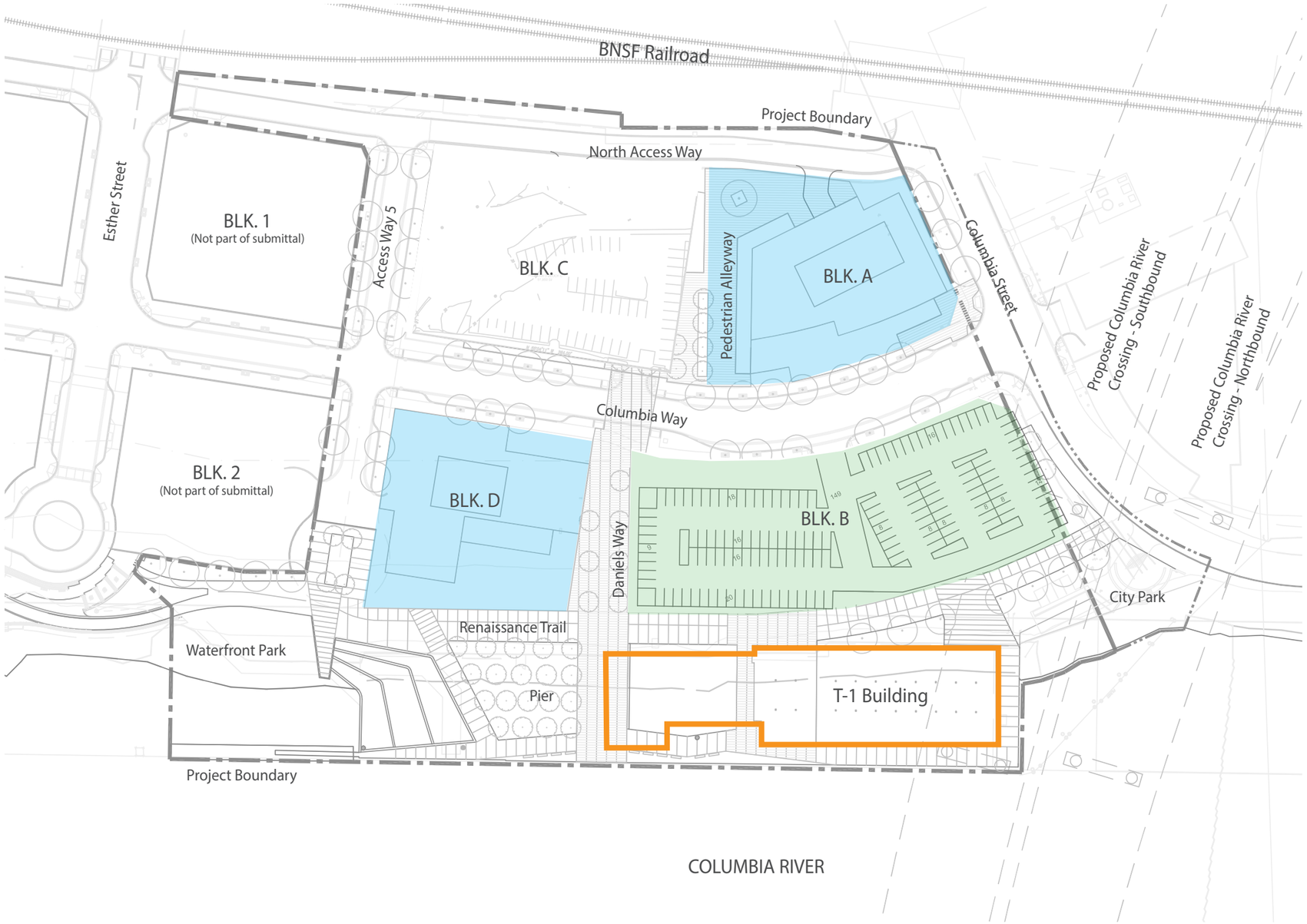
PHASE 1: Existing Conditions

PHASE 2: Interim Surface Parking Block B

PHASE 3: Block A Mixed-Use Structured Parking
Block D Hospitality Structured Parking

PHASE 3			
BLOCK	# of Stalls Req. COV	Surface	Structured
A	118	0	118
B	0	149	0
C	0	55	0
D	180	0	180
Pier/Public	49	-	-
via CW LLC*	0	84	-
Sub-Totals	347	288	298
TOTAL REQUIRED	347	TOTAL PROVIDED	586

* CW LLC parking stalls will not be located within the study area.



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PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Parking Phasing Plan: Phase 3 Figure 18

PHASE 1: Existing Conditions

PHASE 2: Interim Surface Parking Block B

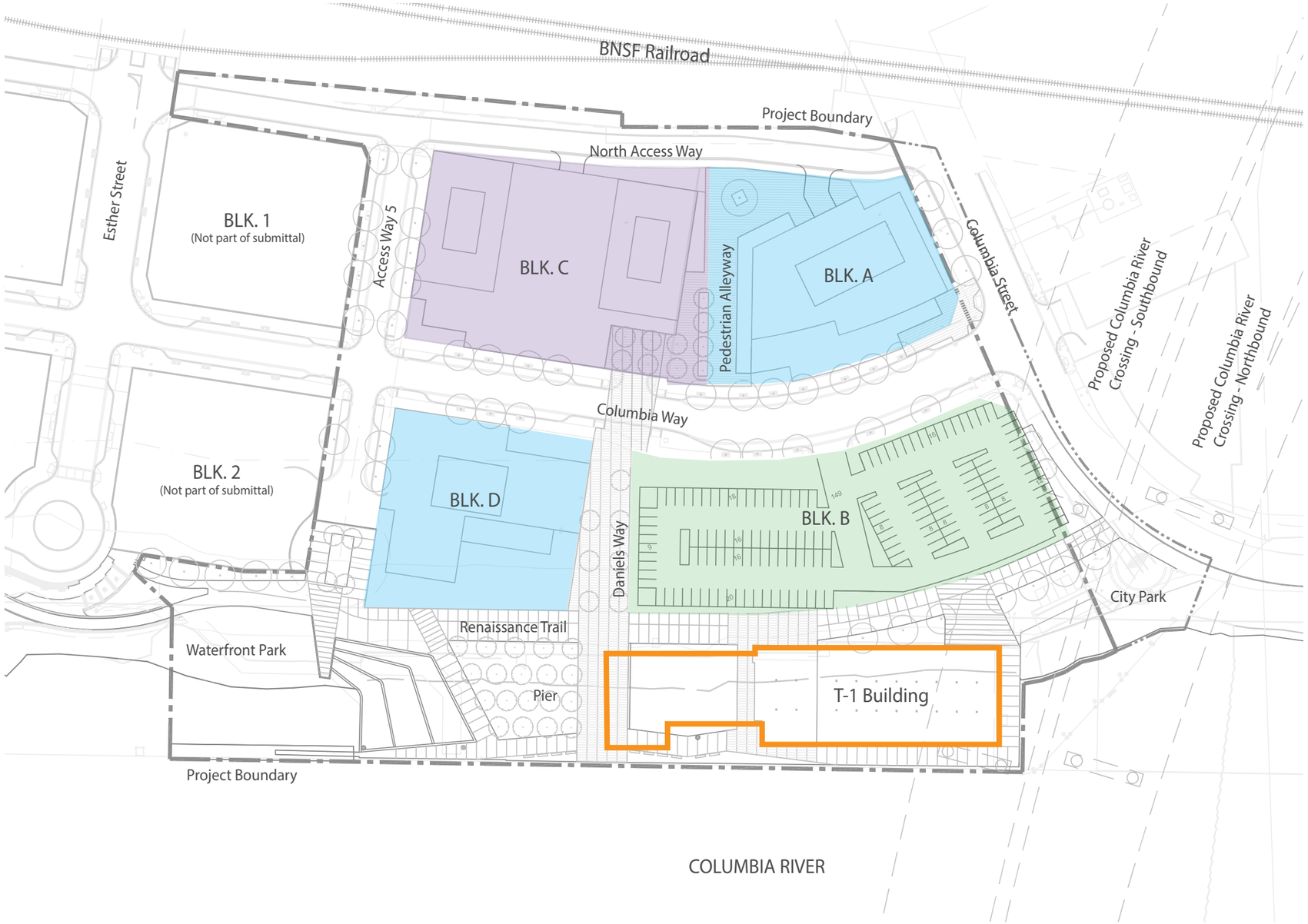
PHASE 3: Block A Mixed-Use Structured Parking
Block D Hospitality Structured Parking

PHASE 4: Block C Mixed-Use Structured Parking

PHASE 5: Block B Mixed-Use Structured Parking

PHASE 4			
BLOCK	# of Stalls Req. COV	Surface	Structured
A	118	0	118
B	0	149	0
C	316	0	316
D	180	0	180
Pier/Public	49	-	-
via CW LLC*	0	84	-
Sub-Totals	663	233	614
TOTAL REQUIRED	663	TOTAL PROVIDED	847

* CW LLC parking stalls will not be located within the study area.



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0 50 100 200

PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Parking Phasing Plan: Phase 4 Figure 19

PHASE 1: Existing Conditions

PHASE 2: Interim Surface Parking Block B

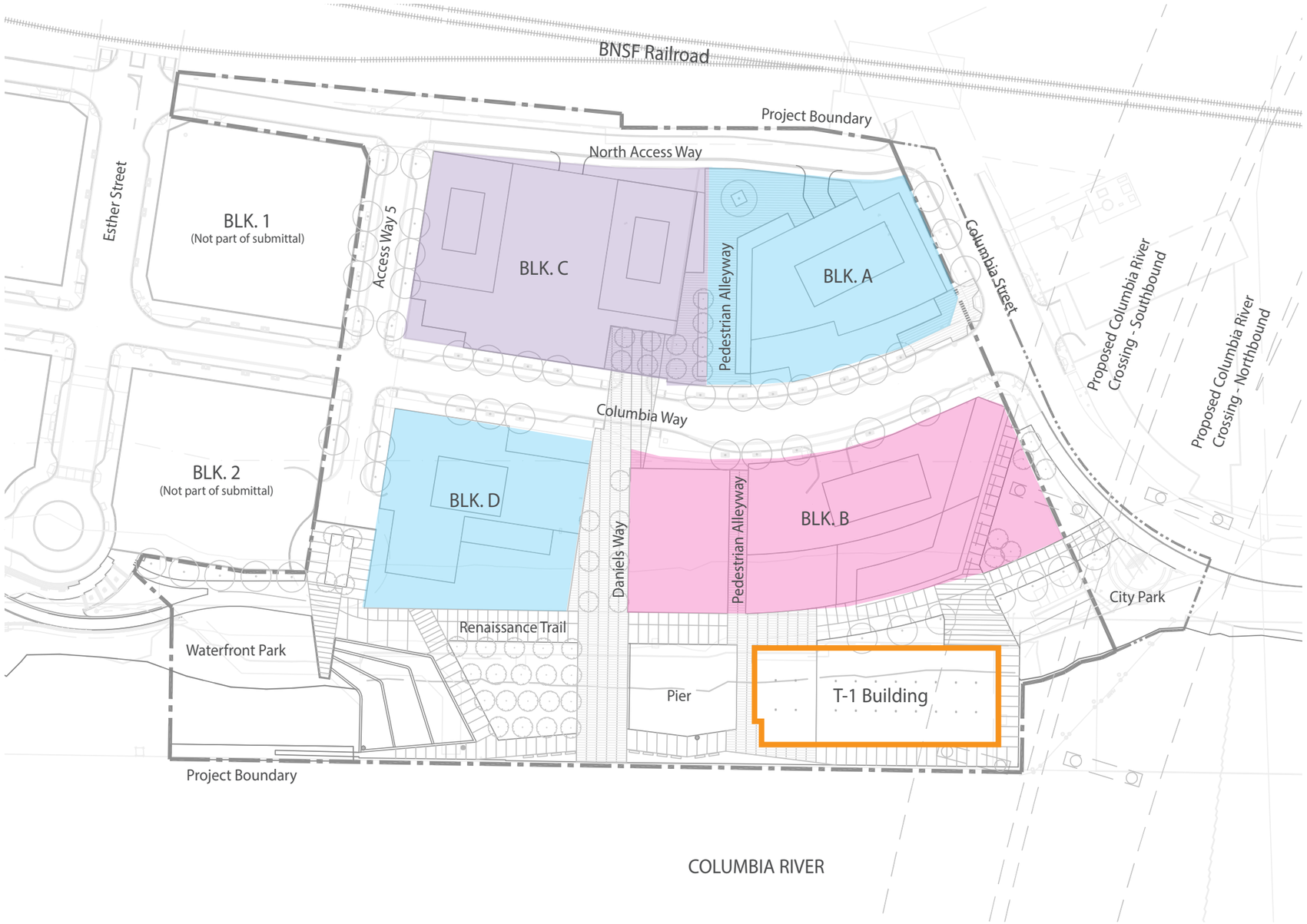
PHASE 3: Block A Mixed-Use Structured Parking
Block D Hospitality Structured Parking

PHASE 4: Block C Mixed-Use Structured Parking

PHASE 5: Block B Mixed-Use Structured Parking

PHASE 5			
BLOCK	# of Stalls Req. COV	Surface	Structured
A	118	0	118
B	170	0	170
C	316	0	316
D	180	0	180
Pier/Public	25	-	-
via CW LLC*	0	84	-
Sub-Totals	809	84	784
TOTAL REQUIRED	809	TOTAL PROVIDED	868

* CW LLC parking stalls will not be located within the study area.



Port of Vancouver USA nbbj

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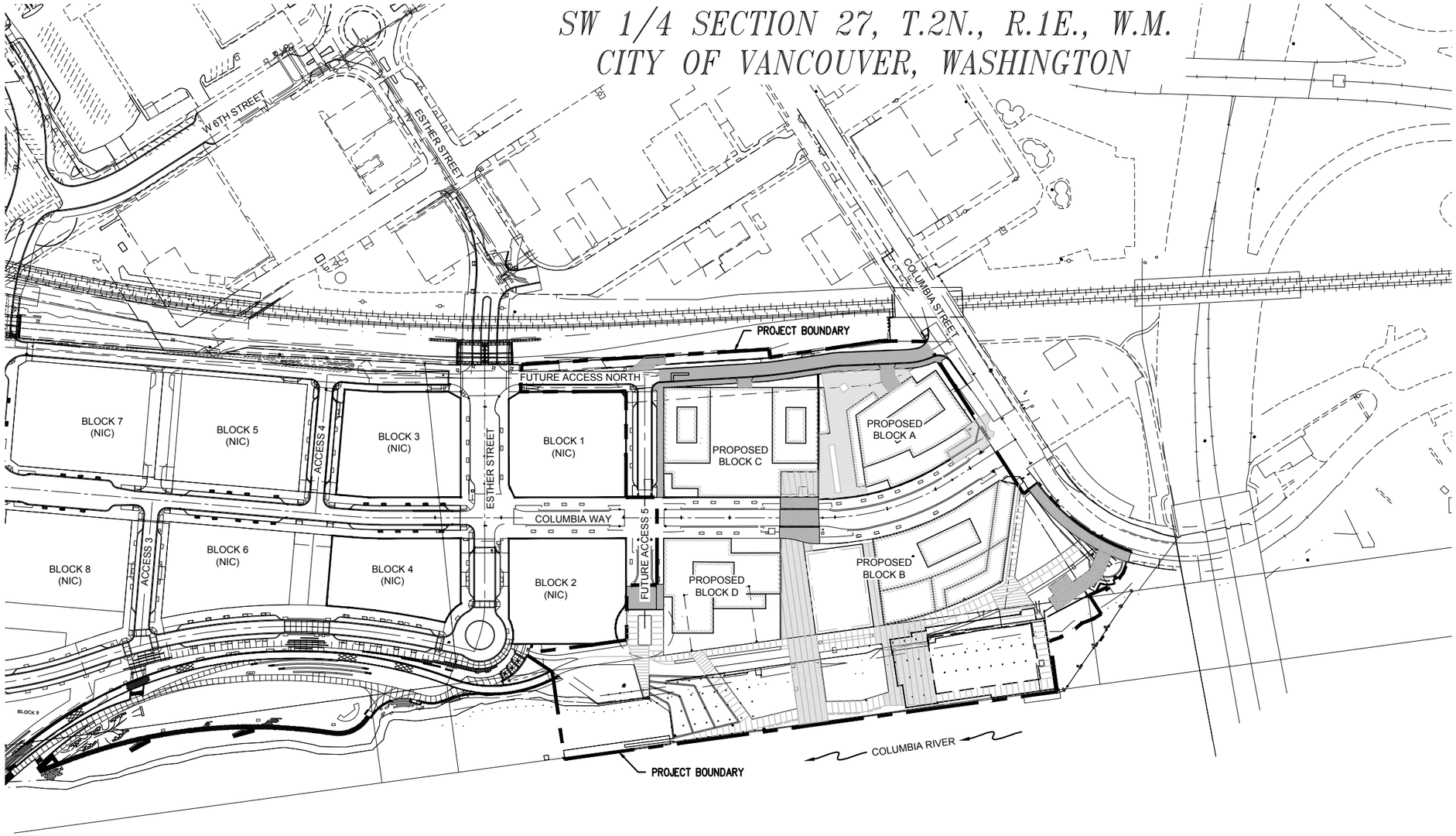
PORT OF VANCOUVER USA
CONCEPT DEVELOPMENT PLAN
Parking Phasing Plan: Phase 5 Figure 20

PORT OF VANCOUVER
TERMINAL 1 WATERFRONT DEVELOPMENT

SW 1/4 SECTION 27, T.2N., R.1E., W.M.
CITY OF VANCOUVER, WASHINGTON



INDEX OF DRAWINGS

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BOUNDARY, SURVEY, AND TOPOGRAPHIC INFORMATION PREPARED BY HDJ DESIGN GROUP DATED MAY 2014, NOVEMBER 2015, AND JUNE 2016.

BASIS OF BEARINGS
BEARINGS ARE BASED ON THE WASHINGTON STATE COORDINATE SYSTEM (SOUTH ZONE – 4602). DISTANCES SHOWN HEREON ARE GROUND.

VERTICAL DATUM:
ELEVATIONS SHOWN HEREON ARE NGVD29 A.K.A. CITY OF VANCOUVER DATUM BASED ON TIES TO CITY OF VANCOUVER BENCHMARK No. 12, A BRASS DISC IN TOP OF CURB AT NE QUAD OF 5TH AND GRANT (ELEVATION=31.56').

BENCHMARK:
SITE BENCHMARK 1: 1/2" IRON ROD WITH RPC STAMPED "OLSON ENG CONTROL". ELEVATION=28.91'

SITE BENCHMARK 2: IS A SCRIBED "X" IN CONCRETE IN VICINITY OF SW CORNER OF AUDITORIUM AREA. SOUTH, 8 FEET TO ENTRANCE TO DOCK. ELEVATION = 22.19'

1" = 100'
100 0 100 200
scale feet

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
COVER, DRAWING INDEX AND SITE MAP

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
G-1
SHEET NO.
1 OF 13

BASIS OF BEARINGS

BEARINGS ARE BASED ON THE WASHINGTON STATE COORDINATE SYSTEM (SOUTH ZONE – 4602). DISTANCES SHOWN HEREON ARE GROUND.

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LEGEND

- FOUND PROPERTY CORNER OF RECORD
- PROPERTY CORNER AS SHOWN IN R.O.S. BK. 65, PG. 31
- MONITORING WELL
- POWER TRANSFORMER
- ELECTRIC METER
- POWER JUNCTION BOX
- POWER STRUCTURE (AS NOTED)
- LIGHT POLE
- POWER POLE AND GUY ANCHOR
- GUARD POST
- 1" ORNAMENTAL IN PLANTER (TYP.)
- (C.I.) STORM CURB INLET
- (C.C.I.) COMBINATION CURB INLET
- STORM MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- CLEANOUT
- SANITARY MANHOLE
- TELEPHONE (FIBER OPTIC) MANHOLE
- FIBER OPTIC JUNCTION BOX
- TELEPHONE RISER
- TRAFFIC SIGNAL POLE
- ROOF DOWN SPOUT / CURB DRAIN

- PEDESTRIAN SIGNAL POLE
- GAS VALVE, METER AND FINK
- WATER METER, FIRE HYDRANT, VALVE AND BLOWOFF
- FIRE WATER STAND PIPE
- TELE COMMUNICATIONS BOX
- TRAFFIC JUNTION BOX
- SIGN POST
- CONIFEROUS TREE
- DECIDUOUS TREE
- STM — STORM SEWER LINE
- SAN — SANITARY SEWER LINE
- W — UNDERGROUND WATER LINE
- GAS — UNDERGROUND GAS LINE
- TEL — UNDERGROUND TELEPHONE LINE
- FO — UNDERGROUND FIBER OPTIC LINE
- CHAIN LINK FENCE
- PWR — UNDERGROUND POWER LINE
- EDGE OF WATER
- OH — OVERHEAD POWER LINE
- BTV — UNDERGROUND COMMUNICATIONS LINE
- CONCRETE PAVING
- ASPHALT PAVING
- NO PARKING SPACE
- GRAVEL SURFACE

NOTES

CONTOUR INTERVAL: 1 FOOT.

UPLAND NOTES:

THE LOCATION OF EXISTING UTILITY FACILITIES HAS NOT BEEN RESEARCHED. UNDERGROUND UTILITIES SHOWN HEREON ARE FROM TIES TO UTILITY PAINT MARKS MADE IN RESPONSE TO "ONE-CALL CONCEPTS" UTILITY NOTIFICATION TICKET NO. 15316511 AND 16012222. UTILITIES SHOWN SOUTH OF COLUMBIA WAY RIGHT OF WAY WERE DELINEATED BY PORT OF VANCOUVER IN JUNE, 2016. ACCORDING TO THE CITY OF VANCOUVER, CONDUITS FOR FIBER OPTIC, AND POWER WERE INSTALLED. HOWEVER, AT THE TIME OF SURVEY, THE ACTUAL LINES HAD NOT BEEN INSTALLED THROUGH THESE CONDUITS ALLOWING FOR LOCATE MARKS TO BE PLACED. THESE LOCATIONS HAVE BEEN SCALED FROM "RECORD DRAWINGS" FOR CITY OF VANCOUVER PROJECT "COLUMBIA WAY; ESTHER STREET; GRANT STREET", DATED 12/03/15. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES BY THE RESPECTIVE UTILITY OWNERS, NOR THE EXISTENCE OF BURIED OBJECTS WHICH ARE NOT SHOWN ON THIS PLAN.

FIELD WORK FOR THIS SURVEY WAS PERFORMED IN MAY 2014 AND SUPPLEMENTED IN NOVEMBER 2015 AND JUNE 2016 WITH NEW IMPROVEMENTS CONSTRUCTED IN CONJUNCTION WITH THE PORT OF VANCOUVER'S WATERFRONT UTILITY IMPROVEMENT PROJECT AND CITY OF VANCOUVER COLUMBIA WAY; ESTHER STREET; GRANT STREET PROJECT.

THIS SURVEY REFLECTS THOSE EASEMENTS PREPARED BY OLSON ENGINEERING, INC. IN CONJUNCTION WITH PREVIOUS WORK. EASEMENTS SHOWN WITHOUT RECORDING INFORMATION HAVE NOT BEEN PUBLICLY RECORDED AND ARE ON FILE WITH THE PORT OF VANCOUVER USA. ANY EASEMENTS SHOWN WITH RECORDING INFORMATION ARE BASED UPON DOCUMENTATION PROVIDED BY THE PORT OF VANCOUVER USA.

SURVEY MONUMENTS – ALL SURVEY MONUMENTS SHOWN HEREON, INCLUDING BENCHMARKS SHALL BE PROTECTED FROM DISTURBANCE OR DESTRUCTION SUBJECT TO WAC 332-120 (SURVEY MONUMENTS – REMOVAL OR DESTRUCTION). IF THE CONSTRUCTION OF NEW FACILITIES CAUSES THE NEED FOR ANY MONUMENT TO BE REMOVED. THE CONTRACTOR, IS ADVISED TO CONTACT THE APPROPRIATE LAND SURVEYOR PRIOR TO CONSTRUCTION FOR PERPETUATION OF THE ORIGINAL POSITION SUBJECT TO WAC 332-120-060.

BELOW WHARF NOTES:

NUMEROUS UTILITIES EXIST UNDERNEATH THE WHARF WHICH ARE NOT SHOWN. AT THE REQUEST OF THE PORT OF VANCOUVER, APPROXIMATE "UTILITY ZONES" ARE SHOWN. THESE AREAS CONSIST OF A HIGHER DENSITY OF UTILITIES AND PIPES OF UNKNOWN USE. OUTSIDE OF THESE ZONES, THERE ARE UTILITY RUNS WHICH WERE INACCESSIBLE. ANY UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE LOCATION.

LOCATIONS OF EXISTING BENTS ARE APPROXIMATE. MEASUREMENTS BETWEEN BENTS WERE TAKEN ALONG THE EXISTING CATWALK THAT RUNS PARALLEL WITH THE BULKHEAD. BENTS WERE RANDOMLY VERIFIED WITH RADIAL TIES FROM SURVEY CONTROL POINTS. ALIGNMENTS OF THE BENTS TOWARDS THE RIVER CHANNEL MAY VARY.

CONTOUR INFORMATION IS BASED ON A COMBINATION OF OLSON ENGINEERING, INC. TOPOGRAPHIC DATA UNDERNEATH THE EXISTING WHARF STRUCTURE AND ETRAC INC. HYDROGRAPHIC SURVEY DATA MEASURED OUTSIDE OF THE EXISTING WHARF. ETRAC DATA IS BASED UPON THEIR SURVEY INFORMATION COLLECTED IN JUNE, 2016. THE ETRAC INC. DATA WAS MEASURED ON NGVD 29 (A.K.A. CITY OF VANCOUVER VERTICAL DATUM) BASED UPON TIES TO OLSON ENGINEERING INC. CONTROL POINTS.

EXISTING CATCH BASIN TABLE

CB-1	STM C.I. RIM=26.63' 12" CPP (E) IE=23.94'
CB-2	FILTER C.B. RIM=27.44' 10" CPP (N) IE=23.72'
CB-3	FILTER C.B. RIM=27.66' 10" CPP (S) IE=23.68'
CB-4	C.C.I. RIM=30.13' 10" CPP (N) IE=25.17'
CB-5	C.C.I. RIM=30.07' 10" CPP (S) IE=25.24'
CB-6	C.C.I. RIM=29.75' 10" CPP (E) IE=24.71'
CB-7	C.C.I. RIM=29.75' 10" CPP (E) IE=24.68'
CB-8	C.C.I. RIM=29.88' 10" CPP (E) IE=24.90'
CB-9	C.C.I. RIM=29.92' 10" CPP (W) IE=24.63'
CB-10	C.C.I. RIM=30.82' 10" CPP (N) IE=25.84'
CB-11	C.C.I. RIM=30.81' 10" CPP (S) IE=25.88'
CB-12	C.C.I. RIM=32.07' 10" CPP (W) IE=27.01'
CB-13	C.C.I. RIM=32.04' 10" CPP (E) IE=26.74'
CB-14	C.C.I. RIM=33.06' 10" CPP (NE) IE=27.24'
CB-15	C.C.I. RIM=33.02' 10" CPP (S) IE=27.31'
CB-16	C.C.I. RIM=27.00' 10" CPP (E) IE=22.42'
CB-17	C.C.I. RIM=27.10' 10" CPP (SW) IE=22.52'
CB-18	C.C.I. RIM=26.78' 10" CPP (W) IE=21.74'
CB-19	C.C.I. RIM=26.65' 10" CPP (E) IE=21.82'
CB-20	C.C.I. RIM=27.46' 10" CPP (SE) IE=23.88'
CB-21	C.C.I. RIM=27.40' 10" CPP (SW) IE=24.52'

EXISTING SANITARY MANHOLE TABLE

MH-SS1	SAN MH RIM=28.44' 14" PVC (W), IE=11.39' 14" PVC (N), IE=10.88' 14" PVC (S), IE=12.12'
MH-SS2	SAN MH RIM=28.77' 14" PVC (W), IE=12.19' 14" PVC (E), IE=12.04'
MH-SS3	SAN MH RIM=30.46' 14" PVC (W), IE=12.57' 14" PVC (E), IE=12.48'
MH-SS4	SAN MH RIM=31.50' 14" PVC (W), IE=13.06' 14" PVC (E), IE=13.01'
MH-SS5	SAN MH RIM=31.72' 14" PVC (W), IE=13.55' 14" PVC (E), IE=13.45'
MH-SS6	SAN MH RIM=30.49' 14" PVC (W), IE=14.38' 14" PVC (E), IE=14.10'
MH-SS7	SAN MH RIM=32.97' 12" PVC (W), IE=15.21' 12" PVC (E), IE=15.02' 10" PVC (S), IE=15.35'
MH-SS8	SAN MH RIM=27.46' 8" PVC (W), IE=14.38' 8" PVC (N), IE=14.05' 8" PVC (S), IE=14.39' 8" PVC (E), IE=13.58'
MH-SS9	SAN MH RIM=27.26' 8" CONC, IN (W), OUT (E) 8" TERRA COTTA IN (N), CAPPED (S), CL FLOW =13.06'

EXISTING STORM MANHOLE TABLE

MH-ST1	STM MH RIM=29.19' 15" CPP (N), IE=21.31' 15" CPP (E), IE=21.11' 10" CPP (W), IE=21.70'
MH-ST2	STM MH RIM=28.96' 15" CPP (W), IE=21.11' 15" CPP (S), IE=21.15' 15" CPP (N), IE=21.08'
MH-ST3	STM MH RIM=28.49' 15" CPP (N), IE=19.21' 12" CPP (W), IE=19.35' 15" CPP (S), IE=18.90'
MH-ST4	STM MH RIM=28.01' 10" CPP (S), IE=23.49' 12" CPP (E), IE=21.22' 10" CPP (N), IE=23.29'
MH-ST5	STM MH RIM=30.34' 12" CPP (W), IE=22.05' 10" CPP (S), IE=24.92' 10" CPP (N), IE=25.14'
MH-ST6	STM MH RIM=30.51' 12" CPP (W), IE=21.86' 12" CPP (N), IE=24.21' 12" CPP (E), IE=21.89' 12" CPP (S), IE=21.99'
MH-ST7	STM MH RIM=30.99' 12" CPP (W), IE=21.69' 10" CPP (N), IE=25.44' 12" CPP (E), IE=21.68' 10" CPP (S), IE=25.47'
MH-ST8	STM MH RIM=32.98' 15" CPP (W), IE=20.73' 12" CPP (N), IE=20.73' 12" CPP (E), IE=20.95' 12" CPP (S), IE=24.28'
MH-ST9	STM MH RIM=33.24' 10" CPP (N), IE=27.11' 12" CPP (E), IE=20.56' 12" CPP (W), IE=20.53' 10" CPP (S), IE=27.08'
MH-ST10	STM MH RIM=32.31' 12" CPP (N), IE=24.42' 10" CPP (E), IE=26.35' 10" CPP (W), IE=26.53'
MH-ST11	STM MH RIM=32.70' 30" CPP (S), IE=16.92' 30" CPP (N), IE=16.97' UNABLE TO VERIFY PIPE (SW)
MH-ST12	STM MH RIM=27.71' 30" CPP (S), IE=17.82' 12" CPP (E), IE=19.49' 15" CPP (W), IE=18.02' 30" CPP (NW), IE=17.93'
MH-ST13	STM MH RIM=27.72' 30" CPP (N), IE=18.72' 10" CPP (NW), IE=21.85' 10" CPP (NE), IE=21.41' 30" CPP (S), IE=18.56'
MH-ST14	STM MH RIM=27.29' 15" CPP (E), IE=17.97' 15" CPP (W), IE=18.07' 8" CPP (NW), IE=19.51'
MH-ST15	STM MH RIM=27.62' 10" CPP (E), IE=21.57' 12" CPP (S), IE=21.56' 10" CPP (W), IE=21.66'
MH-ST16	STM MH RIM=27.60' 10" CPP (E), IE=21.97' 12" CPP (N), IE=21.42' 12" CPP (S), IE=21.27' 10" CPP (W), IE=22.00'
MH-ST17	STM MH RIM=30.09' 12" CPP (N), IE=22.04' 10" CPP (E), IE=24.30' 10" CPP (W), IE=24.24'
MH-ST18	STM MH RIM=29.94' 12" CPP (S), IE=24.37' 10" CPP (W), IE=24.42' 10" CPP (E), IE=24.47'

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
LEGEND

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO. G-2
SHEET NO. 2 OF 13

PROJECT BOUNDARY

TAX LOT 48843-000

TAX LOT 48841-000

TAX LOT 48844-000

TAX LOT 502240-000

TAX LOT 502245-000

TAX LOT 502246-000

TAX LOT 502250-000

COLUMBIA WAY

ESTHER STREET

COLUMBIA SHORES BUILDING

ORDINARY HIGHWATER (CORP OF ENGINEERS)

ORDINARY HIGHWATER (BIOLOGICAL)

COLUMBIA RIVER

PROJECT BOUNDARY

NOTES:

A - BUILDINGS AND ASSOCIATED INFRASTRUCTURE TO BE REMOVED BY OTHERS PRIOR TO PROPOSED DEVELOPMENT

B - ROAD IMPROVEMENTS AND ASSOCIATED INFRASTRUCTURE TO BE CONSTRUCTED BY OTHERS PRIOR TO PROPOSED DEVELOPMENT

1" = 40'

scale: 40 0 40 80 feet

DRAFT CDP

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Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
EXISTING CONDITIONS

DRAWN BY	VBV
DESIGN BY	JRB
CHECK BY	TSM
PROJ MGR	TRW
JOB #	A16.0262.02
DATE:	11/10/16

DRAWING NO. **C-1**
SHEET NO. 3 OF 13

PROJECT BOUNDARY
PROPOSED CENTERLINE OF NORTH ACCESS ROAD
11'-0" TRAVEL LANE EACH SIDE (BY OTHERS)
11'-0" TRAVEL LANE EACH SIDE
9'-0" SIDEWALK
PROPOSED ROW
4'-0" UTILITY EASEMENT UNDER SIDEWALK
PORT OF VANCOUVER A# 4894689
PORT OF VANCOUVER MAINTENANCE EASEMENT A# 4894703
PORT OF VANCOUVER MAINTENANCE EASEMENT A# 4896605
SLOPE EASEMENT C.G.V. TO P.O.V. A# 4894708
FUTURE ACCESS NORTH (PUBLIC)
24'-0"
20'-0"
S57° 29' 02"E 111.93
L=63.17 Δ=030° 09' 33" R=120.00
S2° 21' 03"W 133.45
COLUMBIA STREET (PUBLIC)
L=67.69 Δ=005° 02' 12" R=770.00
S58° 28' 53"E 149.41
S63° 31' 05"E 48.08
GARAGE ENTRANCE
L=18.96 Δ=006° 02' 03" R=180.00
S63° 31' 05"E 22.66
12'-0" SIDEWALK (BY OTHERS)
DESIGN BY OTHERS
64'-0" R/W
TAX LOT 48843-000
TAX LOT 48841-000
TAX LOT 48844-000
PROPOSED BLOCK C 51,850 SF
PROPOSED BLOCK A 48,777 SF
N34° 55' 49"E 187.36
S34° 55' 49"W 210.31
PEDESTRIAN ALLEYWAY (PRIVATE)
S47° 19' 06"W 28.20
N87° 41' 08"W 67.72
100-YR FLOOD LINE EL. 27.60'
ACQUISITION CO. 25,162 SF (PRELIMINARY)
ESTHER STREET (PUBLIC)
FUTURE ACCESS 5 (PUBLIC)
12'-0" SIDEWALK (BY OTHERS)
12'-0" SIDEWALK
8'-0" PARKING EACH SIDE (BY OTHERS)
12'-0" TRAVEL LANE EACH SIDE (BY OTHERS)
N55° 04' 11"W 264.00
N34° 55' 49"E 3.00
N55° 04' 11"W 7.54
L=215.18 Δ=032° 36' 57" R=378.00
S42° 39' 51"E 28.19
S2° 21' 03"W 15.49
S87° 41' 08"E 67.66
COLUMBIA WAY (PUBLIC)
70'-0" R/W
L=30.11 Δ=017° 15' 14" R=100.00
L=30.11 Δ=017° 15' 14" R=100.00
18'-0" SIDEWALK
31'-6"
GARAGE ENTRANCE
S55° 04' 11"E 200.00
L=258.44 Δ=032° 36' 57" R=454.00
S55° 04' 11"E 10.02
S55° 04' 11"E 2.20
PROPOSED BLOCK B 81,315 SF
N42° 38' 46"E 201.60
S2° 21' 03"W 213.97
24'-0" ACCESS DRIVE
200 FT SHORELINE SETBACK
S34° 55' 49"W 122.05
FUTURE ACCESS 5 (PUBLIC)
N34° 55' 49"E 122.02
36'-5"
GARAGE ENTRANCE
PROPOSED BLOCK D 36,256 SF
TAX LOT 502246-000
TAX LOT 502250-000
N34° 55' 49"E 172.13
S55° 05' 55"E 64.00
S34° 52' 42"W 77.50
DANIELS WAY (PRIVATE)
N62° 51' 57"W 143.61
N62° 51' 57"W 325.31
TAX LOT 502245-000
S62° 52' 03"E 201.83
N62° 51' 57"W 60.31
COLUMBIA RENAISSANCE TRAIL (PUBLIC)
PROPOSED 15' WIDE UTILITY EASEMENT TO CITY OF VANCOUVER
100-YR FLOOD LINE EL. 27.60'
ORDINARY HIGH WATER MARK (USACE)
APPROX. EDGE OF WATER
ORDINARY HIGH WATER (BIOLOGICAL)
COLUMBIA RIVER
FUTURE I-5 PROJECT ENEVELOPE
PROJECT BOUNDARY
COLUMBIA RIVER
1" = 40'
40 0 40 80
scale feet

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
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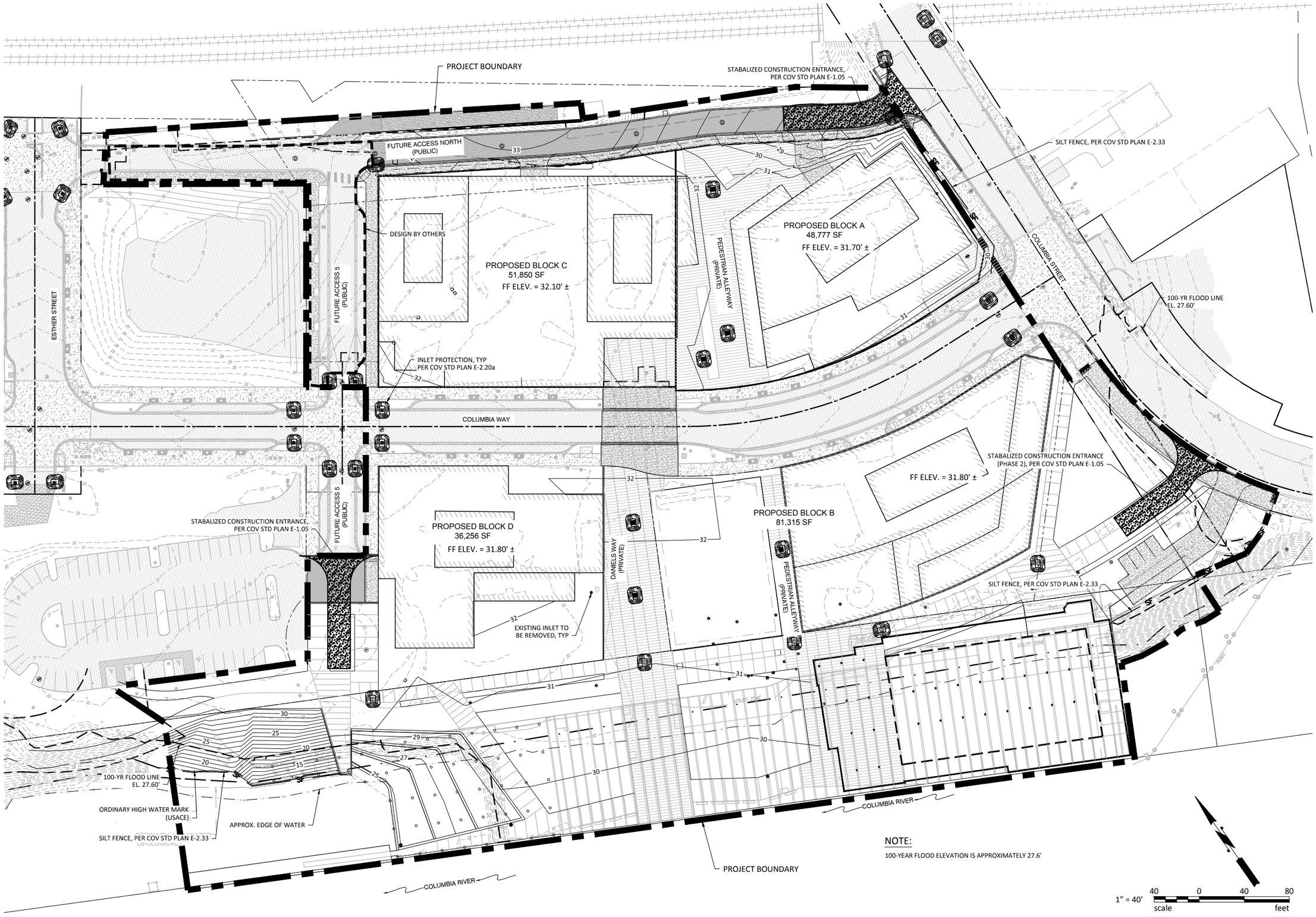
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
PRELIMINARY BLOCK DIAGRAM

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
C-2
SHEET NO.
4 OF 13



MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
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Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT

EROSION CONTROL AND GRADING PLAN

DRAWN BY	VBV
DESIGN BY	JRB
CHECK BY	TSM
PROJ MGR	TRW
JOB #	A16.0262.02
DATE:	11/10/16

DRAWING NO.
C-3
SHEET NO.
5 OF 13

GENERAL EROSION PREVENTION & SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND IN WORKING CONDITION PRIOR TO ANY LAND DISTURBING ACTIVITY INCLUDING CLEARING OR GRADING. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE APPROVED BY THE CITY EROSION SPECIALIST PRIOR TO THE COMMENCEMENT OF WORK. AN ON-SITE INSPECTION SHALL BE REQUESTED WHEN EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE AND PRIOR TO COMMENCEMENT OF WORK. ONCE APPROVED, THE SITE MUST BE MAINTAINED THROUGH THE LIFE OF THE PROJECT, AS SHOWN ON THE PLANS. ADDITIONAL MEASURES MAY BE REQUIRED TO MEET THE PROVISIONS OF THE CITY EROSION PREVENTION AND SEDIMENT CONTROL ORDINANCE VMC 14.24.

2. EROSION AND SEDIMENT CONTROL BMPS SHALL BE SITED, DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS IN THE CITY OF VANCOUVER'S LATEST VERSION OF GENERAL REQUIREMENTS AND STANDARD DETAILS MANUAL AND THE WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON. WHERE THE CITY OF VANCOUVER GENERAL REQUIREMENTS SHALL TAKE PRECEDENCE.

3. THE DEVELOPER AND/OR OWNER IS RESPONSIBLE FOR MAINTAINING EROSION PREVENTION AND SEDIMENT CONTROL BMPS DURING AND AFTER INSTALLATION OF ALL UTILITY WORK ASSOCIATED WITH UTILITY TRENCHES.

4. PRIOR TO ANY SITE EXCAVATION, ALL STORM DRAIN INLETS SHALL BE PROTECTED DOWN SLOPE FROM ANY DISTURBED OR CONSTRUCTION AREAS PER STANDARD DETAIL E-2.20 TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAINAGE SYSTEM PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREAS. CLEAN FILTER FABRIC AS NECESSARY TO MAINTAIN DRAINAGE. REMOVE FILTER AND CLEAN CATCH BASINS FOLLOWING COMPLETION OF SITE WORK.

5. NEWLY CONSTRUCTED OR MODIFIED INLETS AND CATCH BASINS SHALL BE PROTECTED FROM SEDIMENT IMMEDIATELY UPON INSTALLATION.

6. THE CONTRACTOR SHALL NOT ALLOW SEDIMENT OR DEBRIS TO ENTER NEW OR EXISTING PIPES, CATCH BASINS OR INFILTRATION SYSTEMS. IF THIS OCCURS, THE CONTRACTOR SHALL REMOVE ALL ACCUMULATED SEDIMENT FROM THE CATCH BASINS, DRYWELLS, AND STORM PIPES IMMEDIATELY. FINAL ACCEPTANCE WILL NOT BE ISSUED BY THE CITY UNTIL THIS OCCURS.

7. PRIOR TO LEAVING A CONSTRUCTION SITE OR PRIOR TO DISCHARGING INTO AN INFILTRATION SYSTEM, SEDIMENT-LADEN WATER SHALL PASS THROUGH A SEDIMENT POND, TRAP, OR OTHER APPROVED BMP SYSTEM.

8. ALL EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY THE APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS). FROM OCTOBER 1 TO APRIL 30, NO SOILS SHALL BE EXPOSED AND UNWORKED FOR MORE THAN TWO (2) DAYS. FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL BE EXPOSED AND UNWORKED FOR MORE THAN SEVEN (7) DAYS.

9. SOIL STOCKPILES SHALL BE STABILIZED FROM EROSION, PROTECTED WITH SEDIMENT TRAPPING MEASURES, AND WHEN POSSIBLE, BE LOCATED AWAY FROM STORM DRAIN INLETS, WATER WAYS AND DRAINAGE CHANNELS.

10. CONSTRUCTION ROADS AND PARKING AREAS SHALL BE STABILIZED WHEREVER THEY ARE CONSTRUCTED, WHETHER PERMANENT OR TEMPORARY, FOR THE USE OF CONSTRUCTION TRAFFIC.

11. IF THE BMPS APPLIED TO A SITE ARE INSUFFICIENT TO PREVENT SEDIMENT FROM REACHING WATER BODIES, ADJACENT PROPERTIES, STORM FACILITIES OR PUBLIC RIGHT-OF-WAY, THEN THE CITY SHALL REQUIRE ADDITIONAL BMPS.

12. IF THE CITY INSPECTOR OR ENGINEER(S) HAS EVIDENCE OF POOR CONSTRUCTION PRACTICES OR IMPROPER EROSION PREVENTION BMPS, CITATIONS AND/OR A STOP WORK ORDER SHALL BE ISSUED UNTIL PROPER MEASURES HAVE BEEN TAKEN AND APPROVED BY THE CITY OF VANCOUVER.

PROTECTION OF ADJACENT PROPERTIES, ROADS/STREETS AND PAVED SURFACES

13. PROVIDE A 12-INCH DEEP PAD OF CRUSHED ROCK FOR A DISTANCE OF 100 FEET INTO THE SITE FOR ALL ACCESS POINTS UTILIZED BY CONSTRUCTION EQUIPMENT AND TRUCKS. PAD WIDTH SHALL BE A MINIMUM OF 20 FEET. ALL VEHICLES LEAVING THE SITE SHALL EGRESS ACROSS THE PAD. ACCUMULATED SEDIMENT SHALL BE PERIODICALLY REMOVED, OR ADDITIONAL ROCK SHALL BE PLACED UPON THE PAD SURFACE. ROCK SHALL BE CLEAN 4-INCH TO 8-INCH QUARRY SPALLS. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS SHALL BE REMOVED IMMEDIATELY.

14. PAVEMENT SWEEPING AND SHOVELING IS REQUIRED. WASHING THE PAVEMENT INTO THE STORM SYSTEM IS NOT PERMITTED.

15. IF SEDIMENT, MUD OR DEBRIS IS TRANSPORTED ONTO A PAVED SURFACE OR ROADWAY, THE PAVED SURFACE OR ROADWAY SHALL BE THOROUGHLY CLEANED WITH HIGH EFFICIENCY STREET SWEEPERS AT THE END OF EACH WORKDAY, OR MORE OFTEN IF NECESSARY. SIGNIFICANT SOIL DEPOSITS SHALL BE REMOVED FROM ROADS BY SHOVELING AND SWEEPING. STREET WASHING IS NOT ALLOWED UNLESS APPROVED BY THE DIRECTOR AND ONLY AFTER SEDIMENT IS REMOVED IN THE MANNER DESCRIBED ABOVE.

16. A WHEEL WASH MAY BE REQUIRED IF CONSTRUCTION ENTRANCE IS NOT SUFFICIENT IN PREVENTING SEDIMENT FROM BEING TRACKED ONTO PAVEMENT. WHEEL WASH SHALL BE PER STANDARD PLAN E-1.06 AND THE STORMWATER MANUAL.

17. INSTALL SEDIMENT FENCE PER STANDARD PLAN E-2.33 PRIOR TO BUILDING CONSTRUCTION AND/OR EXCAVATION TO PREVENT SILT INTRUSION UPON ADJACENT LOTS. IF CONSTRUCTION OCCURS SIMULTANEOUSLY ON ADJACENT LOTS AND THE LOTS HAVE THE SAME OWNER DURING CONSTRUCTION, THE SILT FENCE ALONG THE COMMON LOT LINE MAY BE ELIMINATED.

18. PROPOSED PERMEABLE PAVEMENT AREAS SHALL BE SHOWN ON THE EROSION CONTROL PLAN. PERMEABLE PAVEMENT AREAS SHALL BE PROTECTED FROM SEDIMENT DURING AND AFTER INSTALLATION.

MAINTENANCE OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS

19. ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE REGULARLY INSPECTED AND MAINTAINED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.

20. THE CONTRACTOR SHALL MAINTAIN AND HAVE ON-SITE A WRITTEN LOG OF EROSION PREVENTION AND SEDIMENT CONTROL BMP MAINTENANCE.

21. ALL TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER SITE STABILIZATION IS ACHIEVED OR AFTER TEMPORARY BMPS ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED PER THE STORMWATER MANUAL.

DUST CONTROL

22. IN AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST, REFER TO THE STORMWATER MANUAL FOR DUST CONTROL BMPS.

TEMPORARY SEEDING

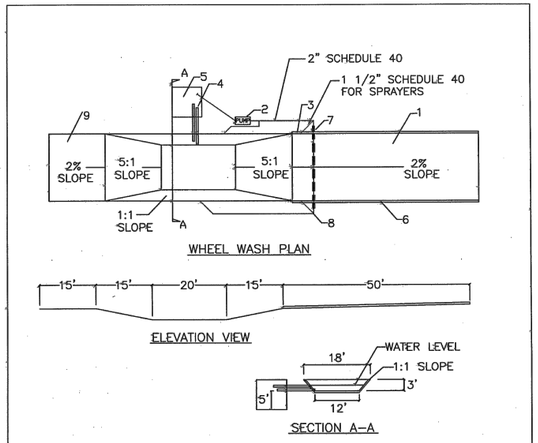
23. EXPOSED SURFACES THAT WILL NOT BE BROUGHT TO FINAL GRADE OR GIVEN A PERMANENT COVER TREATMENT WITHIN 30 DAYS OF THE EXPOSURE SHALL HAVE SEED MIX AND MULCH PLACED TO STABILIZE THE SOIL AND REDUCE EROSION SEDIMENTATION. SEEDED AREAS SHALL BE CHECKED REGULARLY TO ASSURE A GOOD STAND OF GRASS IS BEING MAINTAINED. AREAS THAT FAIL TO ESTABLISH VEGETATION COVER ADEQUATE TO PREVENT EROSION WILL BE RESEEDED AS SOON AS SUCH AREAS ARE IDENTIFIED.

24. AN APPROVED TEMPORARY SEEDING MIXTURE SHALL BE APPLIED TO THE PREPARED SEED BED AT A RATE OF 120 LBS/ACRE. NOTE: "HYDROSEEDING" APPLICATIONS WITH APPROVED SEED-MULCH-FERTILIZER MIXTURES MAY ALSO BE USED.

EROSION PREVENTION & SEDIMENT CONTROL — STANDARD PLAN NO. **E-1.00**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
	06/03/04	AMG	
1	11/01/05	KAO	AMG
2	06/10/09	DN	AMG



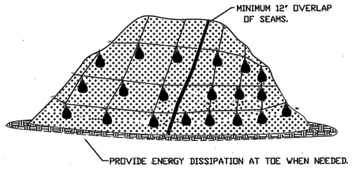
LEGEND:
1. ASPHALT CONSTRUCTION ENTRANCE 6 IN. ASPHALT TREATED BASE (ATB).
2. 3 IN. TRASH PUMP WITH FLOATS ON THE SUCTION HOSE.
3. MIDPOINT SPRAY NOZZLES, IF NEEDED.
4. 6 IN. SEWER PIPE WITH BUTTERFLY VALVES. BOTTOM ONE IS A DRAIN. LOCATE TOP PIPE'S INVERT 1 FT. ABOVE BOTTOM OF WHEEL WASH.
5. 8 FT. X 8 FT. SUMP WITH 5 FT. OF CATCH. BUILD SO CAN BE CLEANED WITH TRACKHOE.
6. 6-IN. ASPHALT CURB ON THE LOW ROAD SIDE TO DIRECT WATER BACK TO POND.
7. 6-IN. SLEEVE UNDER ROAD.
8. BALL VALVES.
9. 15 FT. ATB APRON TO PROTECT GROUND FROM SPLASHING WATER.

N.T.S.

WHEEL WASH — STANDARD PLAN NO. **E-1.06**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
	06/07/04		AMG



PLASTIC SHEETING

NOTES:

1. PLASTIC SHEETING IS USED TO PROVIDE IMMEDIATE PROTECTION TO SLOPES AND STOCKPILES.
2. DO NOT USE PLASTIC COVERING UPSLOPE OF AREAS SUCH AS STEEP AND/OR UNSTABLE SLOPES THAT MIGHT BE ADVERSELY AFFECTED BY CONCENTRATED RUNOFF.
3. WHEN POSSIBLE, INSTALL AN INTERCEPTOR DIKE AT THE TOP OF THE PLASTIC TO DIVERT FLOWS AWAY FROM THE PLASTIC.
4. TOE-IN THE TOP OF THE SHEETING IN A 6"x6" TRENCH BACKFILLED WITH COMPACTED NATIVE MATERIAL.
5. INSTALL A GRAVEL BERM, RIPRAP, OR OTHER SUITABLE PROTECTION AT THE TOP OF THE SLOPE IN ORDER TO DISSIPATE RUNOFF VELOCITY.
6. ANCHOR THE PLASTIC USING SANDBAGS OR OTHER SUITABLE TETHERED ANCHOR SYSTEM SPACED ON A 10' GRID SPACING IN ALL DIRECTIONS.
7. OVERLAP SEAMS 1-2', TAPE, ROLL AND STAKE THE SEAMS AND THEN WEIGH DOWN THE ENTIRE LENGTH.
8. PROVIDE ENERGY DISSIPATION AT TOE WHEN NEEDED.
9. REPLACE TORN SHEETS AND REPAIR OPEN SEAMS. COMPLETELY REMOVE AND REPLACE PLASTIC WHEN IT BEGINS TO DETERIORATE.

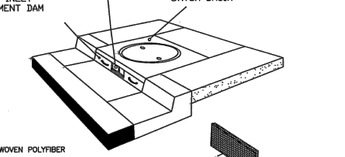
N.T.S.

PLASTIC COVERING — STANDARD PLAN NO. **E-1.23**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
	01/05/05		AMG

CURB INLET SEDIMENT DAM

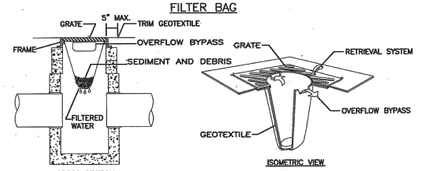


MATERIAL: 100% NON-WOVEN POLYFIBER
COLOR: BLUE
HEIGHT: 5" (CUSTOM)
WIDTHS: 36" - 54" -70" (CUSTOM)

INSTALLATION:
PLACE STRAP THROUGH HOLE(S) PROVIDED. WRAP AROUND THE HORIZONTAL ROD IN MOUTH OF CURB INLET AND EXTEND STRAP THROUGH ADJACENT HOLE AND TIE.

1. INLET PROTECTION MUST BE REGULARLY INSPECTED TO INSURE PROPER PLACEMENT/FUNCTION AND MAINTENANCE.

FILTER BAG



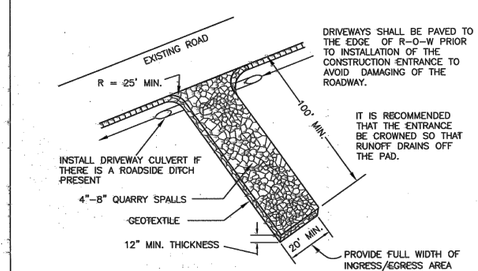
NOTES:
1. SIZE THE BELOW GRATE INLET DEVICE (BGID) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
2. THE REMOVAL SYSTEM MUST ALLOW REMOVAL OF THE BGID WITHOUT SPILLING THE COLLECTED MATERIAL.
3. THE BGID SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
4. THE CONTRACTOR SHALL INSPECT THE BAG AFTER EACH STORM EVENT AND AT REGULAR INTERVALS.
5. THE FILTER BAG SHALL BE CLEANED OR REPLACED WHEN THE BAG BECOMES HALF FULL.

N.T.S.

INLET PROTECTION DETAILS — STANDARD PLAN NO. **E-2.20a**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
	06/07/04	MDH	
2	08/10/09	DN	AMG



NOTES:

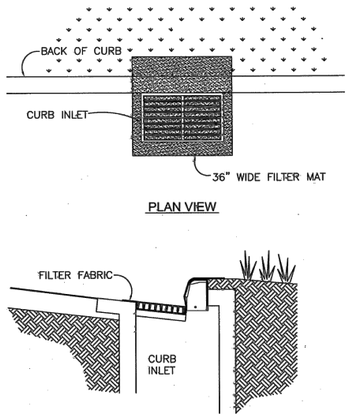
1. IF THE ENTRANCE SITS ON A SLOPE, PLACE A FILTER FABRIC FENCE DOWN GRADIENT.
2. TOP DRESS THE PAD WITH CLEAN 3" MINUS ROCK WHEN THE CONSTRUCTION ENTRANCE BECOMES CLOGGED WITH SEDIMENTS.
3. ANY SEDIMENT CARRIED FROM THE SITE ONTO THE STREET SHALL BE CLEANED UP IMMEDIATELY.
4. IF EQUIPMENT TRAVELS EXTENSIVELY ON UNSTABILIZED ROADS ON THE SITE, A TIRE AND VEHICLE UNDERCARRIAGE WASH NEAR THE ENTRANCE WILL BE NEEDED. PERFORM WASHING ON CRUSHED ROCK. WASH WATER WILL REQUIRE TREATMENT IN A SEDIMENT POND OR TRAP.
5. WHERE CONSTRUCTION ACCESS ABUTS A CURB, MINIMUM 2" DIAMETER PVC AND COLD-PATCH ASPHALT SHOULD BE USED TO CONSTRUCT THE APPROACH IN ORDER TO PROTECT THE CURB AND MINIMIZE OBSTRUCTION TO STORMWATER FLOW IN THE GUTTER.
6. TRUCKS LEAVING THE SITE SHALL EGRESS ACROSS THE FULL LENGTH OF THE PAD.
7. SINGLE FAMILY LOT ENTRANCES MAY HAVE THE PAD LENGTH REDUCED TO 20 FEET IN LENGTH AND ROCK SHALL BE CLEANED 2 INCH TO 4INCH.

N.T.S.

STABILIZED CONSTRUCTION ENTRANCE — STANDARD PLAN NO. **E-1.05**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
	01/06/02	MDH	



NOTES:

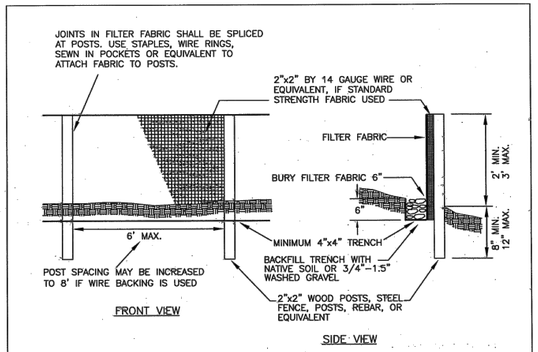
1. USE FILTER MAT SEDIMENT BARRIER WHEN CURB INLET IS LOCATED IN GENTLY SLOPING STREET, WITH MINIMAL NEED, WHERE WATER CAN FILTER AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. BARRIER SHALL ALLOW FOR OVERFLOW FROM SEVERE STORM EVENT.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

N.T.S.

INLET PROTECTION DETAILS — STANDARD PLAN NO. **E-2.20b**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
1	06/07/04	MDH	



NOTE: FILTER FABRIC FENCES SHALL BE INSTALLED ALONG CONTOUR WHENEVER POSSIBLE

MAINTENANCE STANDARDS: ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY

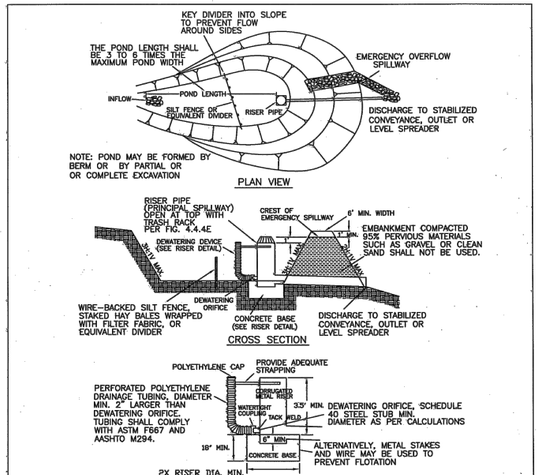
1. SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. IF CONCENTRATED FLOWS ARE EVIDENT UPHILL OF THE FENCE, THEY MUST BE INTERCEPTED AND CONVEYED TO A SEDIMENT POND.
3. IT IS IMPORTANT TO CHECK THE UPHILL SIDE OF THE FENCE FOR SIGNS OF THE FENCE CLOGGING AND ACTING AS A BARRIER TO FLOW AND THEN CAUSING CHANNELIZATION OF FLOWS PARALLEL TO THE FENCE. IF THIS OCCURS, REPLACE THE FENCE OR REMOVE THE TRAPPED SEDIMENT.
4. SEDIMENT DEPOSITS SHALL EITHER BE REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE-THIRD THE HEIGHT OF THE SILT FENCE, OR A SECOND SILT FENCE SHALL BE INSTALLED.
5. IF THE FILTER FABRIC (GEOTEXTILE) HAS DETERIORATED DUE TO ULTRAVIOLET BREAKDOWN, IT SHALL BE REPLACED.

N.T.S.

SILT FENCE — STANDARD PLAN NO. **E-2.33**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
2	01/08/02	MDH	



NOTES:
1. STRUCTURES HAVING A MAXIMUM STORAGE CAPACITY AT THE TOP OF THE DAM OF 10 ACRE-FT (435,600 FT^3) OR MORE ARE SUBJECT TO THE WASHINGTON DAM SAFETY REGULATIONS (CHAPTER 173-175 WAC).
2. GRADE BOTTOM OF BASIN AS LEVEL AS POSSIBLE.
3. SPILLWAY SHALL BE LINED WITH 2"-4" ROCKS.
4. ALL INLETS AND OUTLETS SHALL BE PROTECTED WITH RIPRAP.
5. IF THE POND POSES A SAFETY HAZARD, IT SHALL BE FENCED.
6. REMOVE SEDIMENT BEFORE 1-FOOT ACCUMULATES.

N.T.S.

SEDIMENT POND — STANDARD PLAN NO. **E-2.41**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
SURFACE WATER MANAGEMENT

REV. NO.	DATE	BY	APPROVED
	01/09/02	MDH	

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT

EROSION CONTROL DETAILS

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO. **C-4**
SHEET NO. 6 OF 13

DRAFT CDP

PROJECT BOUNDARY
APPROX. LOCATION OF RETAINING WALL
11'-0" TRAVEL LANE EACH SIDE
35'-0" ACCESS DRIVEWAY FOR MAINTENANCE EASEMENT (BY OTHERS)
11'-0" TRAVEL LANE EACH SIDE (BY OTHERS)
FUTURE ACCESS NORTH (PUBLIC)
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
PC 12+68.65
PT 12+53.51
PC 14+74.95
PT 15+19.26
PC 15+89.69
PT 16+11.06
PC 17+75.63
PT 17+22.99
R=25'
20'-0"
24'-0"
12'-0" SIDEWALK (BY OTHERS)
GARAGE ENTRANCE
PROPOSED CENTERLINE OF NORTH ACCESS ROAD
PROPOSED RIGHT OF WAY FOR NORTH ACCESS ROAD
9'-0" SIDEWALK
GARAGE ENTRANCE
DESIGN BY OTHERS
64'-0" R/W
ESTHER STREET (PUBLIC)
TAX LOT 48843-000
FUTURE ACCESS 5 (PUBLIC)
PROPOSED BLOCK C
51,850 SF
PROPOSED BLOCK A
48,777 SF
TAX LOT 48844-000
PEDESTRIAN ALLEYWAY (PRIVATE)
COLUMBIA STREET (PUBLIC)
RL ACQUISITION CO. 25,162 SF (PRELIMINARY)
12'-0" SIDEWALK (BY OTHERS)
8'-0" PARKING EACH SIDE (BY OTHERS)
12'-0" SIDEWALK
12'-0" TRAVEL LANE EACH SIDE (BY OTHERS)
LANDSCAPE AREA, TYP
COLUMBIA WAY (PUBLIC)
EXIST 70'-0" R/W
PEDESTRIAN CROSSING IMPROVEMENTS
31'-6"
GARAGE ENTRANCE
18'-0" SIDEWALK
200-FOOT SHORELINE BUFFER
PROPOSED BLOCK D
36,256 SF
PROPOSED BLOCK B
81,315 SF
TAX LOT 502246-000
TAX LOT 502250-000
PEDESTRIAN ALLEYWAY (PRIVATE)
24'-0" ACCESS DRIVE
FUTURE ACCESS 5 (PUBLIC)
36'-5"
GARAGE ENTRANCE
DANIELS WAY (PRIVATE)
100-FOOT ORDINARY HIGH WATER MARK (OHWM) SETBACK
TAX LOT 502245-000
COLUMBIA RENAISSANCE TRAIL (PUBLIC)
UTILITY ZONE
25-FOOT OHWM SETBACK
OHWM (CORP OF ENGINEERS)
OHWM (BIOLOGICAL)
COLUMBIA RIVER
PROJECT BOUNDARY
COLUMBIA RIVER

1" = 40'
40 0 40 80
scale feet

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
STREET PLAN

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
C-5
SHEET NO.
7 OF 13

STM MH-A4
STA 16+11.85 (0.46' RT)
STM MH-A6
STA 14+14.99
STM MH-A5
STA 15+34.86 (0.46' RT)
STM MH-A7
STA 13+29.99
STM MH-A3
STA 17+29.35 (0.66' RT)
STM MH-A2
STA 17+59.95 (1.03' LT)
STM MH-A1
STA 17+81.15 (2.33' LT)
STM MH RIM=26.90'
12" CPP (W), E=19.73'
12" CPP (E), E=19.73'
10" CPP (S), E=19.81'
85LF (12")
120LF (12")
77LF (12")
30LF (12")
21LF (12")
12" CPP (S) E=22.83'
12" CPP (N) E=22.26'
C.B. RIM=25.83'
12" CPP (N), E=21.22'
8" CPP (S), E=21.33'
FUTURE ACCESS NORTH
(PUBLIC)
10LF (8")
STM CB FILTER C1
STA 17+60.78 (9.84' RT)
118LF (12")
40LF (8")
26LF (8")
15LF (8")
STORM LATERAL
STM CB C2
N113328.86
E1084016.49
RIM 31.47
IE (IN) = 24.55 (8" SW)
IE (OUT) = 24.45 (8" NE)
STORM LINE 'C'
PROPOSED BLOCK A
48,777 SF
DESIGN BY OTHERS
STM C.O. RIM=27.39'
TAX LOT
48843-000
TAX LOT
48841-000
TAX LOT
48844-000
PROPOSED BLOCK C
51,850 SF
FUTURE ACCESS 5
(PUBLIC)
ESTHER STREET
(PUBLIC)
128LF (8")
PEDESTRIAN ALLEYWAY
(PRIVATE)
STM CB C3
N113216.81
E1083954.12
RIM 31.86
IE (IN) = 27.21 (8" W)
IE (OUT) = 27.11 (8" NE)
STM CB C4
N113209.91
E1083923.47
RIM 31.85
IE (OUT) = 27.84 (8" E)
31LF (8")
COLUMBIA STREET
(PUBLIC)
RL ACQUISITION CO.
23,162 SF
(PRELIMINARY)
EXIST STORM MANHOLE
(TYP)
COLUMBIA WAY
(PUBLIC)
EXIST STORM MAIN
(TYP)
EXIST CATCH BASIN
(TYP)
PROPOSED BLOCK D
36,256 SF
CB-D2
N113126.77
E1083789.16
RIM 32.12
IE (OUT) = 28.12 (8" SW)
PROPOSED BLOCK B
81,315 SF
CB-D3
N113031.98
E1083883.12
RIM 31.83
IE (OUT) = 27.83 (8" SW)
TAX LOT
502246-000
TAX LOT
502250-000
CB-D1
N113072.90
E1083753.61
RIM 31.81
IE (IN) = 26.83 (8" NE)
IE (OUT) = 26.73 (8" SW)
65LF (8")
60LF (8")
DANIELS WAY
(PRIVATE)
PEDESTRIAN ALLEYWAY
(PRIVATE)
83LF (8")
16LF (8")
STORM LATERAL
STM MH-D3
STA 4+22.10
134LF (12")
33LF (8")
STORM LINE 'D'
TAX LOT
502245-000
EXIST MH
RIM 32.34
IE (IN) = 23.84 (12" SW)
IE (IN) = 26.00 (8" SE)
IE (OUT) = 23.74 (18" NW) (EXIST)
23LF (8")
STORM LATERAL
243LF (12")
44LF (12")
STM MH-D2
STA 2+87.83
STM MH-D1
STA 0+44.34
TO ESTHER
STREET OUTFALL
151LF (12")
14LF (8")
STORM LATERAL
STM MH-D5
STA 6+51.13
STM MH-D4
STA 5+00.28
78LF (12")
COLUMBIA RENAISSANCE TRAIL
(PUBLIC)
COLUMBIA
STREET OUTFALL
OLD STM CB
(BROKEN, FU
UNABLE TO
DIRECTION AT
TOP CASING=
EDGE OF WATER TIED
11/02/15 AT 2:15PM
EDGE OF WATER TIED
11/02/15 AT 12:40PM
ORDINARY HIGHWATER
(CORP OF ENGINEERS)
ORDINARY HIGHWATER
(BIOLOGICAL)
COLUMBIA RIVER
COLUMBIA RIVER
UTILITY ZONE
PORT OF VANCOUVER
MANAGEMENT AREA
BOUNDARY
1" = 40'
40 0 40 80
scale feet
DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
STORMWATER CONVEYANCE PLAN

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
C-6
SHEET NO.
8 OF 13

EXISTING 8" SEWER

CONNECT TO EXISTING SANITARY FORCE MAIN

520 LF (10") SANITARY FORCE MAIN (BY OTHERS)

FUTURE ACCESS NORTH (PUBLIC)

DESIGN BY OTHERS

TAX LOT 48843-000

ESTHER STREET (PUBLIC)

FUTURE ACCESS 5 (PUBLIC)

PROPOSED BLOCK C 51,850 SF

TAX LOT 48841-000

PEDESTRIAN ALLEYWAY (PRIVATE)

PROPOSED BLOCK A 48,777 SF

TAX LOT 48844-000

COLUMBIA STREET (PUBLIC)

SAN MH RIM 28.85' 8" PVC (N–S) SAN. LINE RUNS THROUGH THIS MANHOLE, NO EXPOSED INVERTS. TOP OF PIPE 16.47' APPROX. IE=15.80'

FUTURE SANITARY SEWER FORCE MAIN PUMP STATION

EXIST 14" SANITARY SEWER MAIN

CONNECT TO EXISTING SANITARY SEWER PIPE SS MH A1 N:113020.66 E:1084176.42

EXIST SANITARY SEWER MANHOLE

EXIST 8" SANITARY SEWER SERVICE LATERAL

EXIST 8" SANITARY SEWER MAIN

COLUMBIA WAY (PUBLIC)

35LF (8")

SS MH A2 N:112985.99 E:1084170.16

112LF (8")

SANITARY SEWER LINE 'B'

EXIST 8" SANITARY SEWER SERVICE LATERAL

PROPOSED BLOCK D 36,256 SF

PROPOSED BLOCK B 81,315 SF

CONNECT TO EXISTING SANITARY SEWER SERVICE

TAX LOT 502246-000

TAX LOT 502250-000

DANIELS WAY (PRIVATE)

PEDESTRIAN ALLEYWAY (PRIVATE)

COLUMBIA RENAISSANCE TRAIL

TAX LOT 502245-000

ORDINARY HIGHWATER (CORP OF ENGINEERS)

ORDINARY HIGHWATER (BIOLOGICAL)

COLUMBIA RIVER

COLUMBIA RIVER

1" = 40'

40 0 40 80

scale feet

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

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Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
SANITARY SEWER PLAN

DRAWN BY	VBV
DESIGN BY	JRB
CHECK BY	TSM
PROJ MGR	TRW
JOB #	A16.0262.02
DATE:	11/10/16

DRAWING NO. **C-7**

SHEET NO. 9 OF 13

CONNECT TO EXISTING 12" WATER MAIN
CONNECT TO EXISTING 12" DI WATER MAIN
WATER LINE 'A'
243LF (12" DI)
FUTURE ACCESS NORTH (PUBLIC)
DOMESTIC AND FIRE WATER SERVICES
DESIGN BY OTHERS
EXIST 12" WATER MAIN
TAX LOT 48843-000
ESTHER STREET (PUBLIC)
FUTURE ACCESS 5 (PUBLIC)
PROPOSED BLOCK C 51,850 SF
TAX LOT 48841-000
PROPOSED BLOCK A 48,777 SF
TAX LOT 48844-000
PEDESTRIAN ALLEYWAY (PRIVATE)
COLUMBIA STREET (PUBLIC)
EXIST FIRE HYDRANT
EXIST 12" DUCTILE IRON WATER MAIN
EXIST 6" DUCTILE IRON WATER MAIN
RL ACQUISITION CO. 25,162 SF (PRELIMINARY)
EXIST 8" WATER PIPE
EXIST FIRE HYDRANT
COLUMBIA WAY (PUBLIC)
EXIST 8" WATER MAIN
EXIST WATER SERVICE
EXIST 8" DI WATER MAIN
CONNECT TO EXISTING WATER MAIN
EXIST FIRE HYDRANT
EXIST WATER SERVICE
EXIST FIRE HYDRANT
CONNECT TO EXISTING WATER MAIN
DOMESTIC AND FIRE WATER SERVICES
PROPOSED BLOCK B 81,315 SF
PROPOSED BLOCK D 36,256 SF
TAX LOT 502246-000
TAX LOT 502250-000
FUTURE ACCESS 5 (PUBLIC)
183LF (8" DI)
DANIELS WAY (PRIVATE)
PEDESTRIAN ALLEYWAY (PRIVATE)
207LF (8" DI)
WATER LINE 'D'
TAX LOT 502245-000
COLUMBIA RENAISSANCE TRAIL (PUBLIC)
WATER LINE 'D'
165LF (8" DI)
247LF (8" DI)
90LF (8" DI)
ORDINARY HIGHWATER (CORP OF ENGINEERS)
ORDINARY HIGHWATER (BIOLOGICAL)
COLUMBIA RIVER

NOTES:

1. UNDERGROUND FIRE WATER SUPPLY PIPING AND CONNECTIONS SHALL BE UNDER A SEPARATE PERMIT ISSUED TO A CONTRACTOR LICENSED IN WASHINGTON STATE IN ACCORDANCE WITH WAC 212-80.

1" = 40' scale — 40 0 40 80 feet

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

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Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
WATER MAIN PLAN

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO. **C-8**
SHEET NO. 10 OF 13

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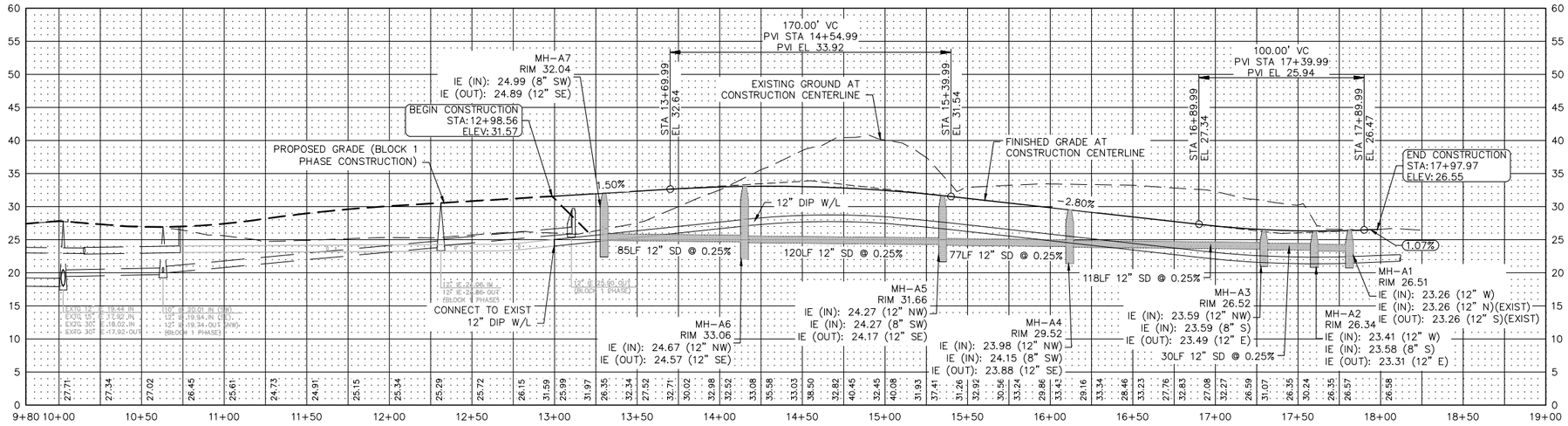
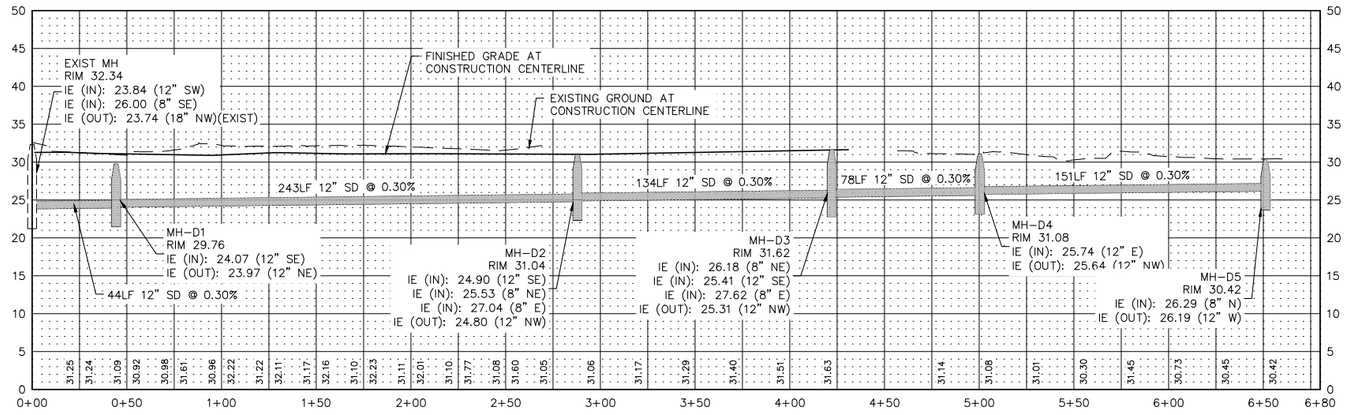


PROFILE
FUTURE ACCESS NORTH
SCALE: 1"=40'(HORIZ), 1"=10'(VERT)



PROFILE
STORM DRAIN D
SCALE: 1"=40'(HORIZ), 1"=10'(VERT)

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

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700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
STREET / STORM PROFILES

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
C-9
SHEET NO.
11 OF 13

DOUBLE ACORN STREET LIGHT WITH NO PARKING SIGN (TYP)
STOP BAR (TYP)
100' SPACING (TYP)
FUTURE ACCESS NORTH (PUBLIC)
STOP SIGN
DESIGN BY OTHERS
TAX LOT 48843-000
ESTHER STREET (PUBLIC)
FUTURE ACCESS S (PUBLIC)
12'
PROPOSED BLOCK C 51,850 SF
TAX LOT 48841-000
DOUBLE ACORN STREET LIGHT (TYP)
12'' TRAVEL LANE (TYP)
8' ON STREET PARKING (TYP)
EXIST STREET LIGHT (TYP)
PEDESTRIAN ALLEYWAY (PRIVATE)
PROPOSED BLOCK A 48,777 SF
TAX LOT 48844-000
COLUMBIA STREET (PUBLIC)
RL ACQUISITION CO. 25,162 SF (PRELIMINARY)
COLUMBIA WAY (PUBLIC)
PROPOSED BLOCK D 36,256 SF
TAX LOT 502245-000
PROPOSED BLOCK B 81,315 SF
TAX LOT 502246-000
TAX LOT 502250-000
DANIELS WAY (PRIVATE)
PEDESTRIAN ALLEYWAY (PRIVATE)
COLUMBIA RENAISSANCE TRAIL (PUBLIC)
UTILITY ZONE
PORT OF VANCOUVER WATERFRONT AREA
ORDINARY HIGHWATER (CORP OF ENGINEERS)
ORDINARY HIGHWATER (BIOLOGICAL)
COLUMBIA RIVER
1" = 40'
40 0 40 80
scale feet

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

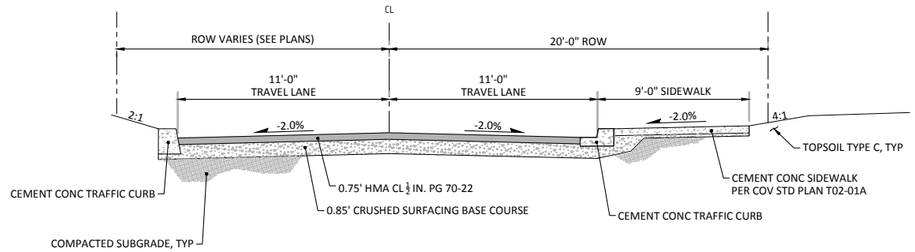
BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
SIGNING, STRIPING AND ILLUMINATION PLAN

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
C-10
SHEET NO.
12 OF 13

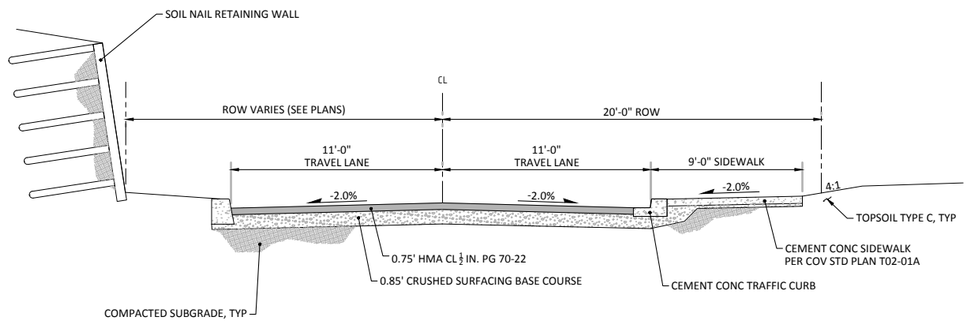
Last Saved by: Dustin.briggs on: Dec 16, 2016 3:16 PM File: Q:\Vancouver\2016\A16.0262\02\CADD\Dwgs\02_C10.dwg



1 - TYPICAL SECTION - FUTURE ACCESS NORTH

SCALE: NOT TO SCALE
(AASHTO A-1 / FILL SOILS)

STA 12+73.06 TO STA 13+45.00
STA 14+88.35 TO STA 17+65.82



2 - TYPICAL SECTION - FUTURE ACCESS NORTH

SCALE: NOT TO SCALE
(AASHTO A-1 / FILL SOILS)

STA 13+45.00 TO STA 14+88.35

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

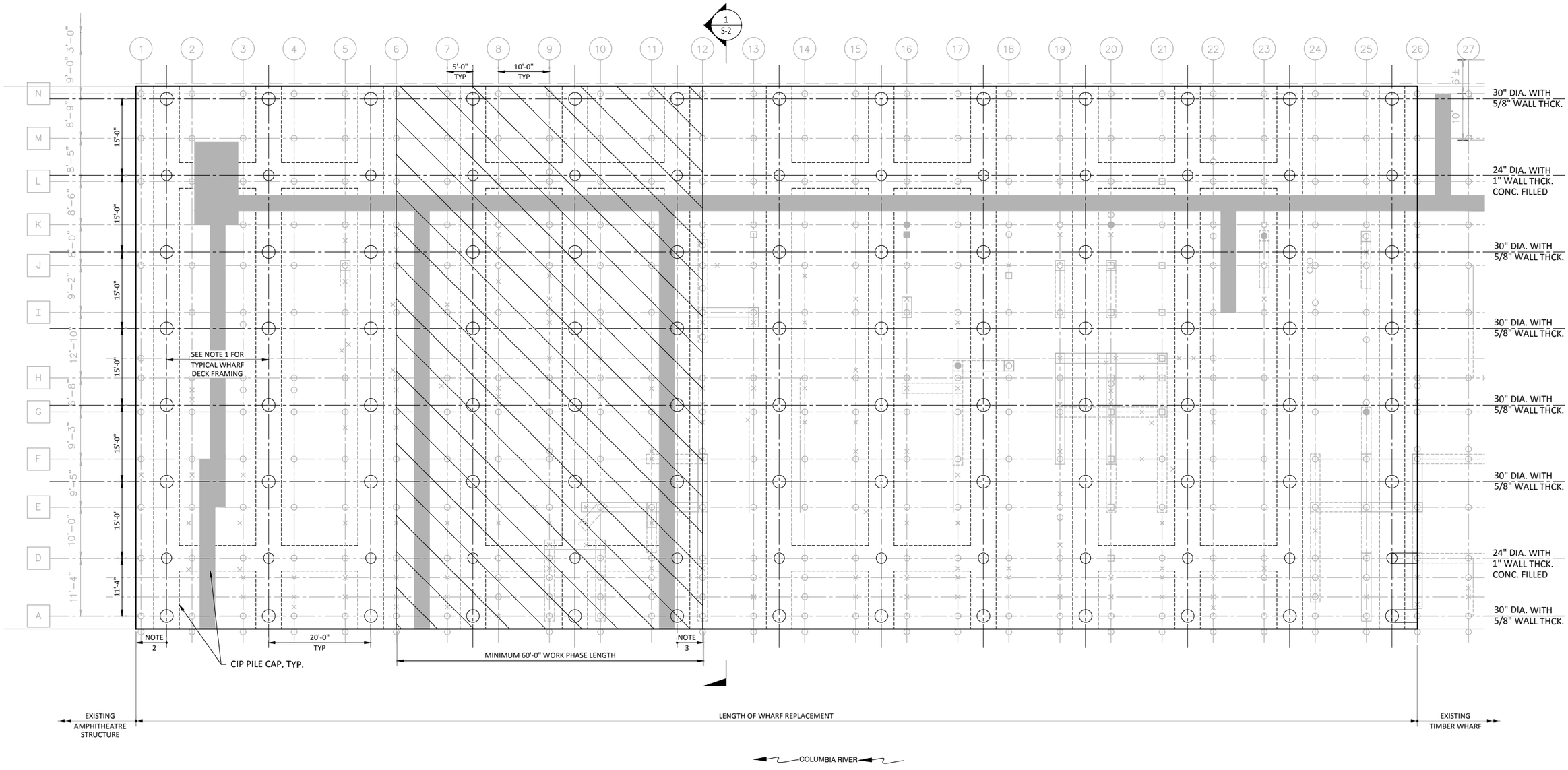
BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT

TYPICAL STREET SECTIONS

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
C-11
SHEET NO.
13 OF 13



NOTES:
1. TYPICAL WHARF DECK CONSISTS OF PRESTRESSED HAUNCHED DECK PANELS SPANNING E-W BETWEEN ADJACENT CAPS WITH A CAST-IN-PLACE (CIP) TOPPING SLAB.
2. USE CAST-IN-PLACE CANTILEVER SLAB AT ENDS.
3. REMOVE EXISTING PIER DECK TO PILE BENT. BUILD REPLACEMENT DECK TO PILE CAP ALONG NEW PILE BENT. REBUILD GAP BETWEEN OLD AND NEW PILE BENT WITH REMOVED WOOD STRINGERS AND WOOD DECK FROM EXISTING WHARF.

1/S-1 WHARF REPLACEMENT CONCEPT GLS 1-26

SCALE: 1" = 10'

1" = 10' scale: 10 0 10 20 feet

DRAFT CDP

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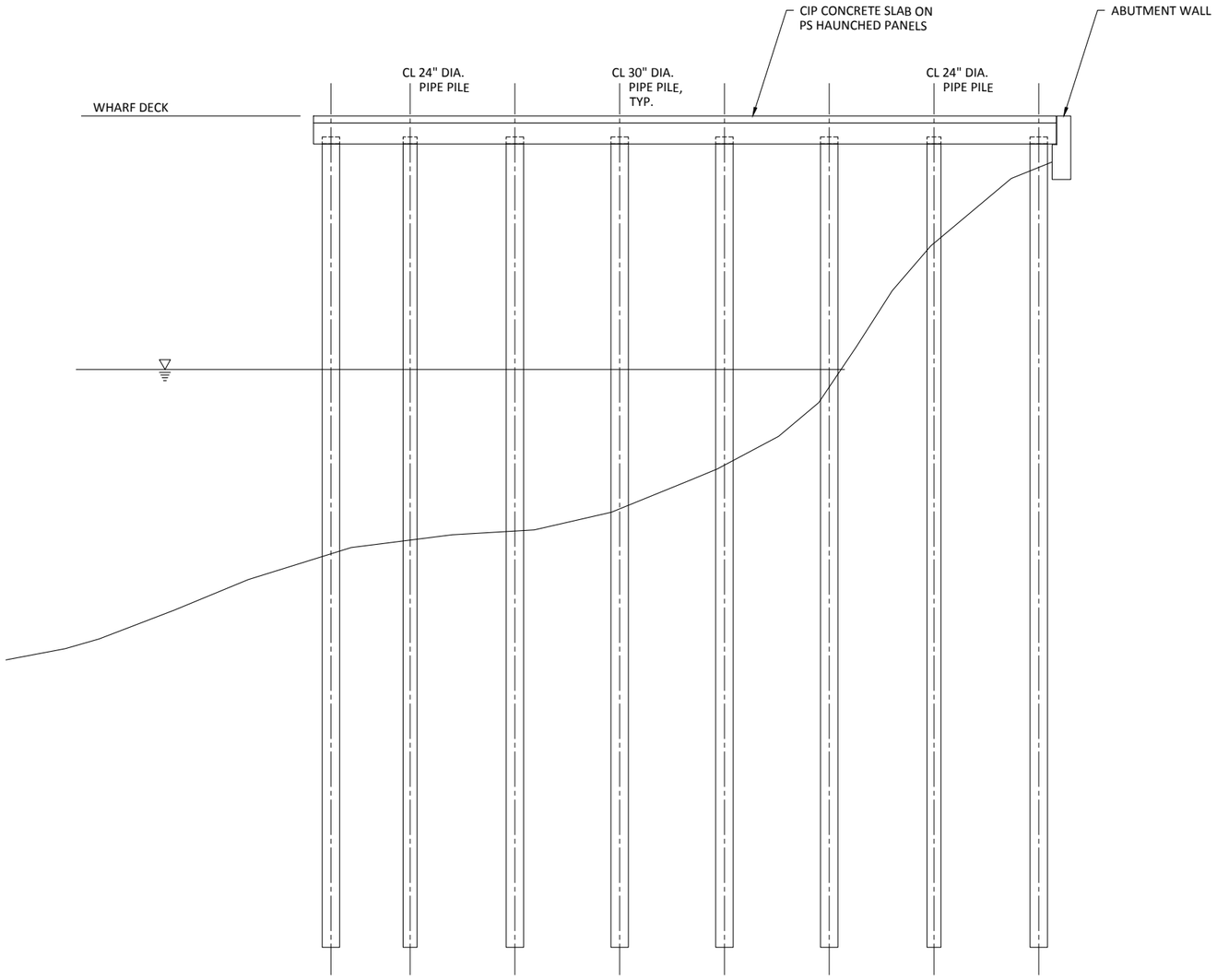
BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
WHARF STRUCTURAL PLAN

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
S-1
SHEET NO.
12 OF 13

Last Saved by: Dustin.briggs on: Dec 16, 2016 1:19 PM File: Q:\Vancouver\2016\A16.0262\02\CADD\Dwgs\03_S01.dwg



1 / S-2 WHARF REPLACEMENT CONCEPT SECTION
SCALE: 1" = 10'

1" = 10' scale 10 0 10 20 feet

DRAFT CDP

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, OR 97232
(503) 872-4100 FAX: (503) 872-4101

CITY OF VANCOUVER | WASHINGTON
PORT OF VANCOUVER
T1 WATERFRONT
WHARF STRUCTURAL SECTION

DRAWN BY VBV
DESIGN BY JRB
CHECK BY TSM
PROJ MGR TRW
JOB # A16.0262.02
DATE: 11/10/16

DRAWING NO.
S-2
SHEET NO.
13 OF 13

Last Saved by: Dustin.briggs on: Dec 16, 2016 1:19 PM File: Q:\Vancouver\2016\A16.0262\02\CADD\Dwgs\03_S02.dwg

Port of Vancouver Terminal 1 Design Standards

1. Introduction

Located within the Columbia West Renaissance District of the Vancouver City Center Vision (VCCV) Subarea Plan, the Port of Vancouver Terminal 1 Waterfront Development (the project) will serve as an extension of downtown Vancouver, connecting the Esther Short Neighborhood and the central business district to the Columbia River. As proposed, the project will be consistent with the principles, goals and policies of the VCCV and City Center (CX) Waterfront Standards for mixed-use development and connections to the waterfront. The following Design Standards (Standards) have been developed to ensure that development within the project is consistent with the VCCV and other development standards established by the City.

The following City Center (CX) Waterfront design standards are indented to:

- Implement the principles, goals, and policies of the VCCV subarea plan for mixed-use development and connections to the waterfront.
- Build to the highest density that is financially viable and achievable within the allowable height restrictions and grid dimensions.
- Create an urban high activity waterfront character.
- Create tangible connections to the waterfront, connecting Vancouver's city center businesses, neighborhoods, and parks to a vibrant waterfront district that is accessible to all.
- Design streets to enhance the district's ability to function as a pedestrian-oriented urban neighborhood, encourage pedestrian activity, and create a lively active district.
- Extend the Columbia River Renaissance Trail to the west.
- Encourage water oriented uses along the shoreline area.
- Encourage environmentally friendly site and development design and construction.
- Secure public access to or along the shoreline, to include waterfront public spaces.

Source: VMC Section 20.630.080 City Center Waterfront

2. Location and Applicability

The project encompasses the parcels shown in Table 1; all are owned by the port.

Table 1 – Site Parcels

Parcel	Size (acres)	Township, Range, Section, 1/4 Section
48843-000	4.01	SW 1/4,S27,T2N,R1E and SE 1/4,S28,T2N,R1E
48841-000	2.25	SW 1/4,S27,T2N,R1E
48844-000	1.35	SW 1/4,S27,T2N,R1E
502240-000	2.00	SW 1/4,S27,T2N,R1E
502245-000	0.24	SW 1/4,S27,T2N,R1E
502246-000	0.69	SW 1/4,S27,T2N,R1E
502250-000	1.58	SW 1/4,S27,T2N,R1E

In addition to the parcels noted in Table 1 - Site Parcels, the project area includes land waterward of the ordinary high water mark that are owned by the state and managed by the Port through its port management agreement with the Washington State Department of Natural Resources. The street addresses of the existing hotel and the existing office building are 100 Columbia Street and 110 Columbia Street, respectively. These Standards apply to all of the project as defined.

3. Intent

The Standards are intended to integrate the project with future developments within the CX zone and along the Columbia River. A fundamental design objective is the creation of a pedestrian-friendly, mixed-use waterfront development combining pedestrian-oriented urban streets, distinctive architecture, integration of the Port of Vancouver's unique history and culture, and progressive sustainable development strategies that will guide development at the project as it develops over the next 20 years. The purpose of the Standards is to govern the urban form of the project by establishing a set of Standards intended to organize, manage, and integrate a variety of mixed-uses within the development.

The Standards are intended to provide a comprehensive approach to site development, building design, public realm and landscapes to ensure the long-term viability of the project. The Standards provide developers, architects, constructors, and managing entities with the tools to ensure high-quality design standards are applied throughout the project. The Standards are consistent with the City's Planned Development Chapter 20.260, Concept Development Plan Submission Requirements (Section 20.260.070) and the City Center Waterfront Section 20.630.080 waterfront design standards.

4. Process and Use

The Standards will be applied to individual development activities to implement the overall project objectives. These Standards are supplemental to and in addition to other applicable city codes and regulations except as specifically noted herein. Compliance with the Standards contained herein will be determined by the City of Vancouver through the detailed plan review process required for the project.

1. Deviation from or modification to standards may be requested through the detailed site plan review process. Such requests are not considered to be variances per VMC chapter 20.290 and shall be presented in the detailed site plan review process. Deviations or modifications would equally or better meet the intent and purpose of the Standards. The following must be shown for deviation or modification to be granted.

2. The deviation or modification can be granted without substantial detriment to the adjacent properties.

    1. The deviation or modification can be granted without substantially impairing the intent and purpose of the Standards.

    2. The benefits of the deviation or modification would substantially outweigh any detriment.

5. Design and Development Standards

5.1 Streets and Street Grid

Intent: Develop a well-connected neighborhood integrating multiple transportation modes.

a. The design and treatment of thoroughfares shall be consistent with the street classification types defined by the City of Vancouver development standards and as illustrated in the project Concept Development Plan (CDP) and the City Center Vision Subarea Plan as follows.

Table 2 - Existing and Proposed Transportation Facilities and Roadway Designations

Roadway	Classification	Cross Section	Speed Limit	Sidewalks?	Bicycle Lanes?	Median?	On-Street Parking?
Columbia Street[a]	Minor Arterial	2-lane	25 mph	Yes	Partial[b]	None	No[c]
Columbia Way	Minor Arterial	2-3 lane	25 mph	Yes	Shared	No	Yes
Esther Street	Minor Arterial	3 lane	25 mph	Yes	Yes	Partial	No
Access Way North	Local Access - Option B	2-lane	25 mph	South side only	No	No	No
Access Way 5	Minor Arterial	3 lane	25 mph	Yes	No	No	Yes

[a] A left-turn lane is provided northbound on Columbia Street at Columbia Way.
[b] Striped bicycle lanes are provided northbound and southbound on Columbia Street north from the Columbia Way intersection.
[c] On-street parking provided north of the BNSF Railroad Bridge along the east side of the roadway, ending between West Fourth Street and West Fifth Street.

b. Columbia Way will be the primary thoroughfare through the project.
c. The street system shall be based on a grid pattern and pedestrian system similar to the existing City Center grid of 200 foot blocks. Based on site and environment constraints the City may approve a limited number of smaller or larger blocks. Where blocks are 300 feet or longer on a face, mid-block pedestrian connections shall be provided.
d. South of Columbia Way, Daniel's Way separates Block B and Block D. The corridor shall serve primarily as a pedestrian corridor and designed also to accommodate emergency vehicle access.

This corridor shall be no less than 28 feet wide at its narrowest point to accommodate fire apparatus access as required and open up wider closer to the Columbia River Renaissance Trail to accommodate adjacent active uses and outdoor seating along the corridor.

e. For Blocks A and C, an activated pedestrian alleyway shall separate the structures on each block. The pedestrian alleyway shall include a continuous vertical separation above grade and activated ground uses such as retail or residential entries. The width of the alleyway shall vary to add interest. At the narrow point, the alleyway shall be no less than 16 feet wide.

5.2 Traffic Calming

Intent: Create a safe waterfront neighborhood that accommodates pedestrians, bicyclists and vehicles alike.

a. On-street parking shall be provided on all public streets except Access North, Daniel's Way and Columbia Street.
b. The intersection of Daniel's Way and Columbia Way may be re-constructed to provide a strong visual crosswalk with a raised or tabled pedestrian crossing at the intersection.
c. Daniel's Way between Blocks B and D will be designated as a pedestrian corridor—referred to as 'woonerf'—design, in which service and emergency vehicles and pedestrians share the same space. The 'woonerf' street design is characterized as a shared open corridor with no vertical curbs. Street trees, pavement materials, outdoor seasonal seating and public art enrich the corridor environment. The corridor accommodates pedestrian and bicycle circulation, and access to retail shops while establishing a safe comfortable experience for all users.
d. Sidewalks shall be provided on all streets consistent with the standards in VMC Section 20.630.080. (D)(3).

5.3 Sidewalks

Intent: Provide a safe and well connected pedestrian-oriented development.

a. Columbia Way and Columbia Street are designate as primary corridors. Daniel's Way, Access Way 5 and Access Way North are secondary corridors. For primary streets, vertically separated sidewalks will be provided and shall be a minimum width of 12 - 15 feet based on city development standards. Access Way 5 and Access Way North sidewalk widths will be a minimum of 8 feet in width. As a pedestrian design feature, the design intent for Daniel's Way is to maintain a cross section that may not include a vertically separated sidewalk. For this corridor, the cross section would include a continuous flat surface (with allowance for surface drainage) with variable paving materials to delineate the emergency access lane as required.
b. Enhanced pavement materials will be provided at intersections of Daniel's Way and the Columbia River Renaissance Trail.
c. City of Vancouver paving and curb standards and street tree planting details shall apply to all streets with the exception of Daniel's Way. No vertical curb sidewalk separation is anticipated for Daniel's Way south of Columbia Way to the Columbia River Renaissance River Trail. Street trees, slush mounted tree grates and seating areas are anticipated for this section of Daniel's Way.
d. Where outdoor seating is anticipated, insure that a minimum sidewalk width and clearance is maintained for pedestrian circulation.

5.4 Street Lights

Intent: Develop a comprehensive and sustainable lighting system to provide safety and an enjoyable environment.

a. Street and urban trail lighting shall be provided consistent with the street lighting standards established for the overall waterfront district and Columbia Way.
b. Pedestrian scale poles, bollards, pathway lights, or architecturally integrated fixtures such as catenary supported fixtures or wall sconces may be used for lighting pathways.
c. Lighting for the Columbia River Renaissance Trail shall reflect but need not be identical to the lighting utilized by the City for the adjacent Vancouver Waterfront Park.
d. Lighting poles along the waterfront should have a height between 10 - 15 feet and should not impose upon views of the water from main corridors and destinations on the site.
e. Street and sidewalk fixtures shall be designed to prevent upward illumination and limit light pollution.

5.5 Building Lighting

a. All building mounted or façade lighting (in-grade, façade mounted, and entry lighting) should be carefully selected for scale, finish, appropriate light output, and consideration of light pollution reduction and to not create hazards for birds or other wildlife.
b. In grade and up lighting shall be minimized.

5.6 Parking

Intent: Provide a dispersed, shared parking strategy through a combination of below grade, at-grade, and above grade mixed-use parking structures that meet the demand of residents, visitors, and employees.

a. Parking will be provided to meet the City of Vancouver standards for the CX zoning district:

Table 3 - CX Parking Zone Requirements.

Land Use	Parking Requirement
Residential	1 Space/Dwelling Unit
Transient Lodging	1 Space/Living Unit
All Other Uses	1 Space/1,000 SF of Floor Area

b. No standalone parking structures are permitted. All structured parking shall be accessory to and integrated into a building housing another permitted use in the project.
c. Interim surface parking may be developed as a part of the development. New interim surface parking lots shall meet city development standards as required.
d. Existing surface parking lots will be allowed to be maintained until replaced by development of the lots.
e. Access to structured parking on Blocks A, C and D shall be provided from North Access Way and Access Way 5, respectively. Access to structured parking on Block B is anticipated to be from Columbia Way consistent with the existing driveway access location or another location consistent with City of Vancouver standards or approved road modification.
f. Design at grade structured parking, with exception of garage entrances, such that they will not be visible to pedestrians along sidewalks, pathways, or other pedestrian connections.
g. Screen structured parking and integrate into overall building design. Screening provides an opportunity to enhance building design through the use of art, green walls, and innovative materials.

h. Structured parking located at or above grade on Blocks B and D shall be designed and located within the building such that active building space (usable square footage) is located between the structured parking and the shoreline.

5.7 Bicycle Parking

Intent: Provide a system of long and short-term bicycle parking that meets the demand of residents, visitors, and employees and encourages use of bicycles to access the project.

a. Bicycle parking shall be provided for long-term (residents, hotel visitors and employees) and short-term (customers and visitors) within each block and building.
b. Long-term bicycle parking shall be provided (per VMC Bicycle Parking Standards and Guidelines) within the building at the following rates:

Table 4 - Long Term Bicycle Parking Requirements.

Land Use	Parking Requirement
Residential	1 Space/ 4 Dwelling Units
Transient Lodging	1 Space/ 20 Rooms
All Other Uses	1 Space/3,000 SF of Floor Area

c. Long-term bicycle parking shall be provided in an accessible and safe location that is convenient to building occupants. Signing shall be provided where the location is not clearly evident from public ways providing access to the building.
d. Short-term bicycle parking may be provided within or outside the building at the following rates:

Table 5 - Short Term Bicycle Parking Requirements.

Land Use	Parking Requirement
Residential	1 Space/ 20 Dwelling Units
Transient Lodging	1 Space/ 20 Rooms
All Other Uses	1 Space/3,000 SF of Floor Area

e. Short-term bicycle parking shall be positioned in visible areas with appropriate lighting, where not subject to vehicle traffic and within 50 feet of the building entrance. At least 50% of the spaces shall include rain protection. Bicycle parking shall be provided consistent with the *City of Vancouver Bicycle Parking Standards and Guidelines.*
f. Short-term bicycle parking shall be provided for visitors as required throughout the development and other open space areas along the Columbia River.

5.8 Pathways, Open Space and Connections

Intent: Establish and reinforce a vibrant and active waterfront.

a. The Columbia River Renaissance Trail shall be constructed across the project from Columbia Street to the easterly extension of the trail being constructed by the City on the adjacent Waterfront Park. The shared-use trail shall vary in width to accommodate connections to the City's Waterfront Park trail to the west and connections to Columbia Street to the east. The Renaissance Trail adjacent to Blocks B and D is envisioned to be wide, shared-use promenade with a minimum of width of 28 feet in width to accommodate fire apparatus access lanes where required.

b. The Columbia River Renaissance Trail shall be designed as a shared use pedestrian path for bicycles, pedestrians and other non-motorized modes of travel.
c. Access to the Columbia River shoreline and the Columbia River Renaissance Trail will be provided from adjacent streets and public spaces from Access Way 5, Daniel's Way and Columbia Street.
d. The majority of the existing pier structure will remain and be open to the public and devoted to active and passive uses.
e. The existing floating small boat moorage will be maintained.
f. At least 10% of the gross square foot area of the site will be devoted to open space accessible to the general public.
g. Daniel's Way—from Columbia Way south to the Columbia River Renaissance Trail—will serve as a pedestrian corridor connection with a minimum clear width as to meet emergency vehicle access requirements for fire apparatus access. This corridor is envisioned to include planting areas, trees for shade, rain protection, site furniture and other opportunities for interaction in the public realm.
h. A pedestrian alleyway connection shall be included between Block A and Block C. This pedestrian alleyway may vary in width and be a minimum width of 16 feet and shall accommodate ground level residential and retail uses as required.
i. Pedestrian connections throughout the site shall be designed to encourage walk trips to Columbia and Esther Streets with access beyond the project to the downtown and Esther Short Park.

5.9 Landscape Plans

Intent: Define and enhance the outdoor experience and environment.

a. Incorporate low-impact development strategies such as vegetated roofs, permeable pavement, and bio-retention cells (raingardens), where feasible.
b. Use the preferred native and adaptive plant species list (attached) for all at-grade planting areas.
c. Shoreline areas not devoted to the existing pier structure will be enhanced through the removal of non-native invasive species and replanted with appropriate native riparian species.

5.10 Building Design

Intent: Provide well-proportioned and memorable buildings which contribute to the waterfront district and enhances the experience of the user both inside and outside.

5.10.1 General

a. Building heights shall step down from Blocks A and C to the waterfront to provide views to the waterfront from these blocks. Use terraces as an active amenity for the building occupants and/or landscape vegetation.
b. Façade articulation should reinforce human scale by conveying occupancy types utilizing strategies as balconies, bay windows and operable windows for residential and hospitality uses, solar screening and rhythmic windows patterns and spacing for office, clear glass and signature entries for retail.
c. All building elevations should be addressed in the architectural design with the same degree of detail, proportion, and materials.
d. Locate loading docks and service areas, including trash collection facilities and utility transformers, internal to the building, including the truck parking. The single exception is the loading and service area of the proposed Terminal 1 Marketplace. Loading and service areas for the proposed

Marketplace may be located outside but shall be designed and screened to minimize visual impacts along the Columbia River Renaissance Trail and waterfront edge.

e. For the following locations: north elevation of Columbia Way, and East and West elevations adjacent to Daniel's Way, building facades should be a minimum of 25 feet and a maximum of 45 feet in height and shall include a horizontal step back of a minimum of 10 feet above 45 feet.
f. The project encourages the design of urban spaces and a diversity in architecture with varying building typologies and massing and scale along Columbia Way and the waterfront edge. This may be accomplished in many ways, including:
    1. Configuration of the building orientation and mass to be perpendicular to the river;
    2. Stepping the building façades from Blocks A and C, to Blocks B and D and down to the shoreline;
    3. Incorporating interesting building materials and human-scale proportions and design elements at the street level and along the Columbia River Renaissance Trail and river edge;
    4. Development of a variety of building volumes to break down the visual appearance of taller structures and building mass; or,
    5. Expression of different uses within the building to break up potentially monolithic building forms.

5.10.2 Ground Floor Uses

a. Buildings should be designed to have a minimum 60% ground level facade transparency between 2 feet and 8 feet above sidewalk grade.
b. Active ground floor uses should be provided at the following ratios: a minimum of 75% along Columbia Way, Daniel's Way, Columbia River Renaissance Trail, and Columbia Street; a minimum of 50% along Access Way 5.
c. Blank Walls of more than 20 feet in length are not permitted without prior approval. Refer to 3.3.6.a Link to City Blank Walls
d. A continuous frontage of ground level uses, such as; building lobbies and/or individual residential entrances, restaurant or pedestrian-oriented retail uses built to the sidewalk and property line shall include a minimum floor-to-floor height of 16 feet.

5.10.3 Entries

a. Residential unit ground floor entrances shall include elements that provide transitional space between public and private realm such as landscape spaces, low walls, stoops, porches or recessed entry.

5.10.4 Materials & Color

a. The following are prohibited exterior building materials: plastic laminates, glossy or large expanses of acrylic or plexiglas, pegboard, mirror, highly polished or plated metals (except as trim), mirrored glass, vinyl, fabric or paper wall coverings, plywood or particle board, sheet or modular vinyl, shingles, shakes, and rustic siding are prohibited.
b. Building materials shall not present a hazard to birds or other wildlife.

5.11 **Link to City Center**

Intent: The principles of the Downtown Plan District sub-sections 20.630.020, Building Lines; 20.630.030, Rain Protection; 20.630.040, Blank Walls; 20.630.050 C, Maximum Building Heights; and Parking Control, 20.630.060 shall apply to the Columbia West Renaissance District waterfront area zoned City Center (CX).

5.11.1 Building Lines

a. Buildings constructed along Columbia Way, Columbia Street, Access Way 5 and Daniel's Way shall comply with the provisions of VMC 20.630.020 that describe building lines provisions for street frontages. The exception is for future building on Block B, whereas future building frontages may not meet the standard for Columbia Street due to the potential for a future I-5 bridge replacement project.

5.11.2 Rain Protection

a. Overhead weather protection should be provided along all streets with a minimum clear height of 10 feet and maximum clear height of 13 feet consistent with the provisions of VMC 20.630.030. This standard shall not apply to buildings on Block B along Columbia Street due to the potential for a future I-5 bridge replacement project or along Access Way North.

5.11.3 Blank Walls

a. Buildings constructed along Columbia Way, Columbia Street, Access Way 5 and Daniel's Way shall comply with the provisions of VMC 20.630.040, Blank Walls.
b. At least 75% of the width of any new or reconstructed ground level building wall facing a street should be devoted to pedestrian-oriented features or material variation, pedestrian entrances and/or windows affording views into retail, storefront, office or lobby space.
c. Continuous blank walls should not exceed 20 feet in length. Where unavoidable, incorporate a range of design approaches such as: green walls, façade articulation, art or other approved applications to create interest at the adjacent pedestrian area.

5.11.4 Building Heights

a. Building heights shall be determined based on consistency with City standards.

5.12 View Protection

Intent: Provide and enhance views to natural features.

a. Buildings shall be arranged and designed to maximize views and preserve views of the shoreline and Columbia River from the site by stepping down to the river from north to south and not exceeding a floor plate of 12,000 square feet for all floors higher than 90 feet on Blocks A and B and higher than 120 feet for Blocks C and D.

5.13 Sustainable Site and Development Design

Intent: Incorporate sustainable design concepts as integral components to the site and development.

a. All new buildings are to be constructed to a minimum LEED Gold Certification or similar equivalent or better.
b. Incorporate low-impact development strategies such as vegetated roofs, permeable pavement, and raingardens, where feasible.
c. Incorporate low-impact development practices in the site and landscape where feasible.
d. Integrate ecological landscape elements in site designs.
e. Remove invasive species and restore shoreline habitat consistent with the Shoreline Master Program where applicable.

5.14 **Signs**

Intent: Provide for a cohesive and intuitive system of signage.

a. All signs shall comply with the provisions of VMC 20.960 Signs for number, location and size restrictions. Free standing, sidewalk signs and monument signs intended to advertise uses within the development are prohibited. Kiosk, wayfinding and interpretive signage intended to promote a comprehensive project Wayfinding Program shall be allowed.
b. Signage on the Terminal 1 Building (marketplace) and within the shoreline jurisdictions shall comply with signage provisions of the Shoreline Master Program.
c. A comprehensive project Wayfinding Program will be developed, as well as the Master Development Signage Program (MSP) for individual buildings as part of the Site Plan review process.
d. Individual buildings that accommodate multiple businesses and require signage for each business shall produce a MSP that defines the size, number, and locations of signs. The design of signs shall be reviewed and approved by the Port as a part of the MSP and building design review process to ensure the signage is integrated into the architecture and overall development.
e. Signs shall be constructed of high quality, durable materials and follow the design aesthetic as outlined by the project Wayfinding Program.
f. Signage shall be appropriate for its intended use such as residential, office and retail.

CITY OF Vancouver WASHINGTON

SUBMIT TO:
City of Vancouver
Community & Economic Development
415 W. 6th ST
Vancouver, WA 98660
www.cityofvancouver.us

SEPA ENVIRONMENTAL CHECKLIST WAC 197-11-960

Property Owner: Port of Vancouver, USA (Print or Type Name) Telephone: (360) 693-3611

Mailing Address: 3103 NW Lower River Road, Vancouver, WA 98660 (No., City, State, ZIP)

Applicant: Port of Vancouver, USA, (Attn: Matt Harding) (Print or Type Name) Telephone: (360) 693-3611

Mailing Address: 3103 NW Lower River Road, Vancouver, WA 98660 (No., City, State, ZIP)

Relationship to Owner: Same

Tax Assessor Serial Number(s): 48843000, 48841000, 48844000, 502240000, 502245000, 502246000, 502250000, 48850000 (City Owned), and 48840000 (City Owned).

Legal description: Lot(s) See attached figure Block(s) N/A Plat name N/A
(If a Metes and Bounds description, check here ☐, and attach narrative to this application.)

Site Address (if any): 100 Columbia Street, Vancouver, WA, 98660

② Include 8½" x 11" copies of ☒Quarter Section Map, ☒Topographic Map, ☒ Scaled Site Plan. Delineate site on maps.
Notice to Applicants: You must use the current revision of this form or your application will not be accepted. If you use our disk version of this form (MS Word 6.0) you may not alter the format. Make sure you have the current version before submittal.

Purpose of checklist:
Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for Applicants:
This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.
The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:
Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:
For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus *the* SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). *Please completely answer all questions that apply and note that the words "project," "Applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively.* The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. BACKGROUND

1. *Name of proposed project, if applicable:*

   Terminal 1 Waterfront Development Project

2. *Name of Applicant:*

   Port of Vancouver USA

3. *Address and phone number of Applicant and contact person:*

   Matt Harding, Environmental Project Manager
   Port of Vancouver, USA
   3103 NW Lower River Road
   Vancouver, WA 98660
   360.992.1138
   mharding@portvanusa.com

   a. *Date checklist prepared:*

   December 2016

4. *Agency requesting checklist:*

   City of Vancouver (City)

5. *Proposed timing or schedule (including phasing, if applicable):*

   The Terminal 1 Waterfront Development project (the project) is a multi-phased project implemented over multiple years beginning in 2017. The project will be implemented by the Port and selected developers for various phases and building projects. Project activities are expected to begin in 2017 and occur over approximately 10 years. The anticipated phases are explained in detail in the Concept Development Plan (CDP) application narrative.

6. *Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.*

   As noted above, the project will be developed in phases over time. There are no future plans beyond that identified.

7. *List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.*

   This checklist is provided pursuant to City of Vancouver Ordinance M-3833 and Vancouver Municipal Code (VMC) Section 20.790.530. The project site is located within the boundaries of the Vancouver City Center Vision (VCCV) subarea plan and the project is consistent with the development anticipated within the VCCV. This checklist is provided to document consistency with the Final Supplemental Environmental Impact Statement (FSEIS) for the Vancouver City Center Vision

Subarea Plan prepared and issued by the City of Vancouver and the SEPA planned action established by the City by Ordinance M-3833.

The following information is relevant to this proposal:

- Vancouver Comprehensive Plan 2011-2030
- Vancouver City Center Vision and Subarea Plan, City of Vancouver, June 2007 (the VCCV subarea plan)
- Final Supplemental Environmental Impact Statement for the Vancouver City Center Vision Subarea Plan, City of Vancouver, November 2006 (the VCCV FSEIS)
- City of Vancouver Ordinance M-3833, Vancouver City Center Vision & Subarea Ordinance (Established VCCV planned action)
- Cultural Resource Assessment for the Port of Vancouver Terminal 1 Waterfront Master Plan, Heritage Research Associates, July 10, 2015
- Hazardous Material Survey (asbestos, lead, and mold), Certified Environmental Consulting Inc., November 2015
- City of Vancouver Archaeological Predetermination Report, Archaeological Investigations Northwest Inc., March 2016
- Terminal 1 Waterfront Development Transportation Compliance Letter, Kittelson and Associates, December, 2016
- Preliminary Geotechnical Investigation Terminal 1 Redevelopment Port of Vancouver, USA, Geotechnical Resources Inc., October 2016
  Port of Vancouver USA Terminal 1 Critical Areas Report, BergerABAM, October 2016.
- Waterfront Development Master Plan, Port of Vancouver, USA, November 13, 2016.
- Soil and Groundwater Investigation Report, Hahn and Associates, Inc. January 21, 2016.
- Analysis of Pearson Airfield FAA standards. HDR December 2016.

8. *Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.*

The Port has applied for a demolition permit to remove some of the existing buildings on the project site (City file #PRJ-154128/LUP-57489). A separate SEPA checklist was submitted in conjunction with the demolition permit application and the City determined the demolition was consistent with the planned action. The subject buildings are in disrepair and removal is necessary regardless of action on this project. Demolition activities are anticipated to be completed before any action is taken on this project.

9. *List any government approvals or permits that will be needed for your proposal, if known.*

The Concept Development Plan requires the following approvals:

Local

- Concept Development Plan approval (VMC Chapter 20.620)
- Shoreline Substantial Development (SSDP)/Conditional Use (CUP) (VMC Chapter 20.760)
- Tree removal (VMC Chapter 20.770)
- Archaeological pre-determination or resource survey (VMC Chapter 20.710)

- Critical area compliance (including floodplains, fish and wildlife habitat conservation areas, critical aquifer recharge areas [CARAs], geological hazards) (VMC Chapter 20.740)
- Concurrency certificate (VMC Chapter 11.95)

Construction of the development under the approved Concept Development Plan will require the following approvals or reviews:

Local

- Site plan review (VMC Chapter 20.270)
- Grading permit (VMC Title 14)
- Right of Way (VMC Chapter Title 11)
- Utility connections (VMC Chapters 14.08, 14.10, and 14.12)
- Notice of intent (NOI) (for demolition and asbestos abatement) (Southwest Clean Air Agency Chapter 476)
- Building/electrical/mechanical/plumbing/demolition permits (Vancouver Municipal Code [VMC] Title 17 Buildings and Construction)
- Fire alarm/sprinkler permit (VMC Title 16, International Fire Code)

State

- Hydraulic Project Approval (HPA) (Revised Code of Washington (RCW) Chapter 77.55 and Washington Administrative Code (WAC) 220.110)
- Section 401 water quality certification (WAC Chapters 173.201A and 173.225)
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit

Federal

- U.S. Army Corps of Engineers (USACE) Section 10 Permit (33 U.S.C. 403)
- USACE Section 404 Review (33 U.S.C. 1344)
- U.S. Coast Guard (USCG) Private Aids to Navigation (PATON) (33 CFR Part 66)
- Endangered Species Act (ESA) (16 U.S.C. 1531–1543) review
- National Historic Preservation Act (NHPA) Section 106 compliance
- Magnuson-Stevens Fishery Conservation and Management Act Evaluation (16 U.S.C. 1801–1884) review
- Marine Mammal Protection Act (MMPA) compliance (16 U.S.C. 1361-1407)
- Federal Aviation Administration (FAA) Notice of Proposed Construction or Alteration (Form 7460-1)(14 CFR Part 77)

10. *Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to*

repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The project will result in the development of the site with approximately 355 residential units, 62,000 square feet of retail space, 200,000 square feet of commercial office space and a 160-room hotel (potentially including retail, restaurant, event and office space). The project also includes the potential reuse of approximately 36,000 square feet of existing building area as "market place". In addition to these elements the project includes public amenities including an extension of the Columbia River Renaissance Trail, and enhancement of the existing pier to add new civic open spaces and amenities.

The plan approval process follows the requirements of VMC 20.260, Planned Developments. The Port is seeking approval of the conceptual master plan according to VMC 20.260.030(A)(1). After approval of the plan, individual buildings would require detailed plan (site plan) and design review approvals prior to building permit issuance.

The plan will:

- Assure that the proposed development is considered as a whole and will conform to the comprehensive plan and the underlying requirements of the zoning district.
- Assure that phased development is properly coordinated.
- Provide the Port and its development partners with reliable assurances of the City's expectations for the overall project as a basis for detailed planning and investment.
- Coordinate the master plan process with the requirements of the state Shoreline Management Act (SMA) and the City of Vancouver Shoreline Master Program (SMP).

A complete project description is included in the CDP application narrative.

11. *Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.*

The project site is located on the north bank of the Columbia River immediately west of the Interstate-5 bridge and south of the BNSF rail line. The project area includes the parcels shown in the table below; all are owned by the Port. The parcels include land beyond the project area.

Site Parcels

Parcel	Size (acres)	Township Range Section ¼ Section
48843-000	4.01	SW 1/4,S27,T2N,R1E and SE 1/4,S28,T2N,R1E
48841-000	2.25	SW 1/4,S27,T2N,R1E
48844-000	1.35	SW 1/4,S27,T2N,R1E

502240-000	2.00	SW 1/4,S27,T2N,R1E
502245-000	0.24	SW 1/4,S27,T2N,R1E
502246-000	0.69	SW 1/4,S27,T2N,R1E
502250-000	1.58	SW 1/4,S27,T2N,R1E

In addition to the parcels noted in the table above, the project includes aquatic land (no parcel numbers) owned by the state and managed by the Port through its port management agreement with the Washington State Department of Natural Resources (DNR). Project elements may also require construction activities within the City-owned right of way east of the project area along the shoreline and adjacent to Columbia Street. The project site totals approximately 10.37 acres. Some of the parcel boundaries extend beyond the project area and the total acreage of the parcels is more than the size of the project area. The actual developable area is less based on existing right-of-way which will not need to be altered to accommodate the planned development. There are existing buildings on the site. The street addresses of the existing restaurant and the existing office building on the site are 100 Columbia Street and 110 Columbia Street, respectively.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. *General description of the site*
(circle one): ***Flat****, rolling, hilly, steep slopes, mountainous,*
other _____

The site is generally flat. There are slopes adjacent to the BNSF rail line, which is located on an elevated structure/berm, along the shoreline of the site on the Columbia River.

b. *What is the steepest slope on the site (approximate percent slope)?*

The extreme north and south (along the BNSF line and Columbia River) are mapped by the Clark County GIS online mapping tool as containing 5-10 percent slopes. Additionally, a portion of land beneath the existing Terminal 1 pier is mapped with a 40-100 percent slope. This slope is engineered and, as a result is not subject to the City's critical area ordinance per VMC 20.740.130(A)(1)(a).

c. *What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any* agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

According to the U.S. Department of Agriculture Web Soil Survey, the project site is mapped as containing 100 percent fill land (Fn). Additionally, the March 29, 2016 *Preliminary Geotechnical Investigation Terminal 1 Redevelopment Port of Vancouver, USA*, further defines the fill soil type as being predominantly sand and silt material.

There are no agricultural soils on site.

d. *Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.*

There are no surface indications of unstable soils on the project site as shown by aerial photographs and site visits.

The Clark County GIS Online mapping tool and the GRI geotechnical report classify the entire site as susceptible to liquefaction during seismic events because of the composition of its soil (fill material), and the geotechnical report classifies the project site as a Site Class D or E earthquake hazard (highest relative hazard on the National Earthquake Hazards Reduction Program scale). Also, a portion of the Columbia River is mapped as a severe erosion and landslide hazard area. No impacts to land mapped with severe erosion or landslide hazards is proposed.

e. *Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.*

Excavations will be necessary for building foundations, parking garages and utilities. The exact amount of excavation will depend on the foundation design and whether underground parking is proposed. Minor cuts and placement of fill may be required for other project elements such as roads, building sites and pathways.

f. *Could erosion occur as a result of clearing, construction, or use? If so, generally describe.*

Erosion could occur from the development proposed in this CDP. Ground disturbance, such as site grading during construction, will expose soils, increasing the risk for soil erosion. However, Best Management Practices (BMPs) will be required which are anticipated to limit the potential for erosion. BMP's will be implemented during project construction in compliance with VMC 14.24 (Erosion Control).

g. *About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?*

Most of the site will be covered with impervious surfaces after completion, including roads, sidewalks, pedestrian plazas, and buildings. It is anticipated that approximately 80% percent of the site will be covered with impervious surfaces, however, this could be amended as projects are developed. Existing impervious surfaces also cover approximately 80% of the site.

h. *Proposed measures to reduce or control erosion, or other impacts to the earth, if any:*

The VCCV FSEIS and Ordinance M-3833 did not identify specific mitigation measures necessary to address impacts to earth resources. As noted in the VCCV FSEIS, the proposed project will need to comply with the City's erosion control ordinance (VMC 14.24) and its stormwater control ordinance (VMC 14.25) to ensure that adequate erosion control measures are in place during construction.

For each phase or project, a final erosion control plan will be prepared by a professional engineer and submitted to the City in conjunction with individual site development applications.

2. Air

a. *What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.*

During construction, air emissions would result from the use of typical construction equipment such as diesel- or gasoline-powered vehicles and heavy equipment. Dust could also be generated from exposed soils or other construction activity.

During operations at the site, emissions would be generated by the mechanical equipment typically used in office, hotel, residential and retail development. Emergency diesel generators may also be installed. Typical maintenance activities would include landscaping, window and building washing, interior cleaning, and street sweeping as well as repairs of buildings or other infrastructures such as roads, sidewalks, utility lines, etc. These activities would not be expected to generate substantial emissions.

The air impacts of the proposed alternative were addressed in the VCCV FSEIS, and the analysis indicated that the development envisioned in the subarea would have a lesser impact on air than taking the no action (development under the prior zoning and land use). The proposed project would not increase the future uses in the VCCV subarea beyond those anticipated in the VCCV FSEIS.

b. *Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.*

The VCCV FSEIS identified no off-site sources of emissions or odor that would affect development within the VCCV subarea. Review of the surrounding area indicates that the project is in the vicinity of primarily commercial and office uses that are unlikely to emit odors or emissions that will affect the project. There are a number of industrial facilities located west of the project that have the potential to emit odors or other pollutants. These include an asphalt and fuel storage facility, a cement storage facility, a metal recycler and others. These facilities are all permitted for specific emission requirements with Southwest Clean Air Agency (SWCAA).

c. *Proposed measures to reduce or control emissions or other impacts to air, if any:*

For construction emissions, BMPs will be employed on the project site. These will include, as required, applying water for dust suppression and requiring that all construction vehicles and equipment employ legally required emission controls.

If uses or buildings proposed within the project include emission sources (such as diesel generators), appropriate approval will be required through the SWCAA.

No additional mitigation measures are proposed, as the project impacts fall within the scope of those addressed in the VCCV FSEIS, which found that no mitigation measures are necessary for development in the VCCV subarea.

3. *Water*

a. *Surface Water:*

1) *Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.*

The Columbia River is included within the project site. The river is considered a shoreline of the state (WAC 222-16-030 and VMC Table 20.740.110-1).

2) *Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.*

The project will require the following work over, in, and adjacent to the Columbia River.

- Work within the Columbia River may include pile removal and installation for repair and maintenance of the existing pier including the following:
  - Pile repair involving cutting piles at an elevation where no pile deterioration is present and adding a new sub-cap with posts above or splicing new posts above using concrete filled steel collars. Where the pile is cut near or below the mudline, the pile will require a spliced collar connection to avoid a buried wood connection.
  - Timber pile strengthening of timber including wrapping or fiber reinforced polymer.
  - Post repair consisting of removal of deteriorated section of post and fill with new sub-cap and spacing corbels.
  - Alternatively remove and replace post to below bent cap above.
  - Installation of new steel or concrete piles through the deck surface.
  - Removal of existing wood or steel piles.
  - Rehabilitation of the existing floating dock.
- Work proposed over the Columbia River includes the following:
  - The demolition of the existing hotel wing
  - Interior and exterior remodeling of the existing Terminal 1 building and other exterior cosmetic modifications such as new windows, siding, and roofing.
  - Pier repairs including removal and replacement of sub-cap and corbels with new connecting steel straps and thru-bolts, removal and replacement of deteriorated sections of bracing with new members or splicing of new members with new connections, addition of horizontal and longitudinal cross-bracing and providing new bolts and hardware with possible splices to new member pieces.
  - Replacement of decking and construction of pier surface features.
- Work within 200 feet of the Columbia River will generally include the construction of the termini of Daniels Way and Access Way 5 and of ground floor retail, hospitality, office, event spaces, and residential units as well as a parking structure integrated into the buildings that

are proposed at Block B and Block D. The work adjacent to the Columbia River will also include structures not intended for occupation such as the hardscapes associated with travel corridors, a pedestrian overlook and the extension of the Waterfront Renaissance Trail as well as shoreline restoration, open/green space, interim parking during project phasing, ADA parking and a loading/unloading zone which will serve the remodeled over-water Terminal No.1 building, and landscaping typical of urban areas. Ground improvements to address seismic conditions are also likely along the shoreline. These could consist of concrete soil mixing and/or grout panels or other similar activities.

Plans depicting the uses proposed in the project within 200 feet of the Columbia River are included in the CDP application.

3) *Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.*

No fill or dredge material placement is planned to be placed in the Columbia River as part of the proposed project.

4) *Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.*

Development under the CDP will not require surface water withdrawals or diversions.

5) *Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.*

The project site contains a designated 100-year floodplain associated with the Columbia River per Federal Emergency Management Agency FIRM panel 53011C0481D. The floodplain does not extend into the site beyond the top of bank.

6) *Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.*

No direct discharge of waste materials is planned for the project.

b. *Ground Water:*

1) *Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.*

Uses proposed under the project will use the City water system available at the site. City water is sourced from groundwater. According to the pre-application report for the project (lines 2193-2197), new water connections to existing City facilities will be required, but no new direct connection to groundwater sources will be required.

2) *Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . .; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.*

The proposed environmental alternative assessed in the VCCV FSEIS states that development may impact groundwater as follows: "stormwater infiltration from development of the Plan Area could increase interflow and groundwater base flows, and has the potential to pollute groundwater."

The proposed project is not anticipated to result in the discharge of any waste materials to the ground. Domestic sanitary waste will be treated at a City treatment facility. No land uses with the potential to produce non-domestic wastewater are proposed and no other waste sources are anticipated, as the uses proposed will be residential or commercial, and stormwater quality control measures will be implemented consistent with Chapter 14.25 of the VMC.

c. *Water runoff (including stormwater):*

1) *Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.*

Currently, the site consists of mostly impervious surfaces such as asphalt concrete, packed gravel, landscaping, and structures. Stormwater is collected in existing catch basins that are connected to one of three existing outfalls along the Columbia River.

Storm runoff from the proposed street improvements will be treated by a mechanical vault treatment, such as cartridge catch basin units that will be sized to treat and handle the contributing basin area. Private stormwater will be treated on site in accordance with City minimum requirements, if any pollutant-generating surfaces (PGS) are included in the design. At this time, however, no PGS is anticipated for the private developments, and therefore no treatment is anticipated for the private stormwater runoff before its discharge to the public storm main. The project will use all three of the existing outfalls and no new discharge points will be introduced. Quantity control will not be included at these discharge points because the Columbia River is a flow controlled-exempt water body.

The stormwater collection and treatment system will be designed to meet the requirements of Ecology's 2012 Stormwater Management Manual for Western Washington (amended in December 2014) and VMC Chapter 14.25.

2) *Could waste materials enter ground or surface waters? If so, generally describe.*

Stormwater from the project site could include pollutants that are typical of urban developments. Stormwater from pollutant generating surfaces (such as new roads) will be treated to remove pollutants consistent with the regulations noted above, which will reduce the potential for pollutants to enter the Columbia River from the project.

3) *Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.*

There are no natural drainage courses on or in the vicinity of the site as this area has been subject to past disturbance that has altered the natural drainage patterns. The upland portion of the site is in an urban area and will be graded to drain stormwater runoff to designed collection points. Work within and adjacent to the Columbia River will have minimal effect on the river's drainage patterns.

4) *Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:*

The VCCV FSEIS identified a number of mitigation measures including centralization of parking facilities, compliance with VMC 14.25 (Stormwater Control) and 14.26 (Water Resources Protection), the use of sump pumps to address flooding of underground parking garages, and the consideration of hydrostatic pressure in underground parking garage design. The project will comply with these mitigation measures and when necessary, obtain any required permits under applicable City, state, and federal regulations, including, but not limited to the following:

- Construction Stormwater General Permit
- City Waste Discharge Permit and sewer connection requirements (VMC Chapters 14.08, 14.10 and 14.12)
- City stormwater control (VMC Chapter 14.25)

4. Plants

a. *Check the types of vegetation found on the site:*
__X__*deciduous tree: Oregon ash, black walnut, bigleaf maple, gingko biloba,* ***other:*** ornamental varieties of birch, plum, and maple
__X__*evergreen tree: Douglas-****fir****, cedar,* ***pine****,* ***other:*** True-cedar
__X__*shrubs*
__X__*grass*
_____*pasture*
_____*crop or grain*
_____*orchards, vineyards or other permanent crops.*
_____*wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other*
_____*water plants: water lily, eelgrass, milfoil, other*
_____*other types of vegetation*

Because of the existing pier and other development on site, there is very little habitat on the upland portions of the site. The only upland habitat consists of vegetation along the Columbia River both upstream and downstream of the existing pier. The only vegetation on the upland portion of the site consists of landscaping and perimeter plantings around existing structures and parking lots with some limited riparian vegetation in areas not devoted to overwater structures.

b. *What kind and amount of vegetation will be removed or altered?*

The site is an existing urban development and, with the exception of a narrow band of vegetation along the Columbia River upstream and downstream of the existing dock, and scattered upland vegetation associated with landscaping from past uses,

there is no natural vegetation on the site. Vegetation is limited to landscape planters and buffers in existing parking lots and building landscaping that consists of grass or other ground covers, shrubs, and trees. To accommodate the development, all trees and vegetation will likely be removed from the site except for the riparian vegetation and the existing street trees along Columbia Way. Noxious and invasive species (specifically Himalayan blackberry [*Rubus armeniacus*], and false indigo [*Amorpha fruticose*]) will also be removed.

c. *List threatened and endangered species known to be on or near the site.*

According to the U.S. Fish and Wildlife database Information for Planning and Conservation (IPaC), water howellia (*Howellia aquatilis*) and golden paintbrush (*Castilleja levisecta*) could or may occur at the site. However, these species are not likely to be present at or near the project site because of lack of suitable habitat.

d. *Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:*

The project will include urban landscaping both upland and on portions of the existing pier. In addition, an existing ramp provides access to the amphitheater on the west of the site; project construction will remove the ramp, and then the riparian zone downstream of the existing dock will be restored. Additional habitat restoration has also been proposed on the bank of the river east of the existing Terminal No.1 structure. These areas will be planted with native riparian plantings to revegetate the riparian zone.

e. *List all noxious weeds and invasive species known to be on or near the site.*

Himalayan blackberry and false indigo are known to occur on the project site.

5. Animals

a. *List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:*

Birds: **hawk, eagle, heron, songbirds, , osprey, waterfowl, seagull, pigeon, crow, migratory song and shore birds**
Mammals: **raccoons, opossum, common rat and mice species, coyotes, Steller sea lion, harbor seal, squirrel, rabbits**
Fish: **sturgeon, steelhead, salmon, cutthroat, chum, eulachon, lamprey, dace, chub, smelt, trout**

The project site includes the Columbia River which provides habitat for a wide variety of aquatic species. Aquatic habitat within the project site is limited because of the shading and piles associated with the existing pier and the riprapped shoreline. Animal species on the upland portion of the project site consist of smaller species typical of urban environments such as birds, rodents, and squirrels.

b. *List any threatened and endangered species known to be on or near the site.*

The Columbia River is habitat for a number of threatened or endangered species. According to the Washington Department of Fish and Wildlife Priority Habitat and Species web tool, the following threatened or endangered species may be found in the river:

- Dolly Varden/ bull trout (*Salvelinus malma/ Salvelinus confluentus*)

- White sturgeon (*Acipenser transmontanus*)
- Spring Chinook (*Oncorhynchus tshawytscha*)
- Winter steelhead (*Oncorhynchus mykiss*)
- Pink salmon odd years (*Oncorhynchus gorbuscha*)
- Coho (*Oncorhynchus kisutch*)
- Summer steelhead (*Oncorhynchus mykiss*)
- Residential cutthroat (*Oncorhynchus clarkii*)
- Sockeye (*Oncorhynchus nerka*)
- Fall chinook (*Oncorhynchus tshawytscha*)
- Summer chinook (*Oncorhynchus tshawytscha*)
- Green sturgeon (*Acipenser medirostris*)
- Fall chum (*Oncorhynchus keta*)
- Pacific eulachon/smelt (*Thaleichthys pacificus*)

The U.S. Fish and Wildlife online database indicates that streaked horned lark (*Eremophila Alpestris Strigata*) and yellow-billed cuckoo (*Coccyzus Americanus*) could or may occur at the project site. However, these species are not likely to be present at or near the project site because of lack of suitable habitat. The west end of Hayden Island (approximately 4,000 feet to the southwest) likely contains suitable habitat for streaked horned lark.

Other protected species

In addition to the listed species above, the following species are notable and may occur within or near the port. The Sandhill crane and Pacific pond turtle are not likely to be present on or near the project site because of the lack of suitable habitat in the immediate vicinity but Sandhill crane are known to be present on the Port's Parcels 3, approximately 4.8 miles from the project site:

- Steller sea lion (Eumatopius jubatus) (Eastern DPS)
- Sandhill crane (Grus canadensis)
- Bald eagle (Haliaeetus leucocephalus)
- Pacific pond turtle (Actinemys marmorata)
- Osprey (Pandion haliaetus)

c. *Is the site part of a migration route? If so, explain.*

The Columbia River is a known migration route for the species listed in section 5(b) above, as well as other aquatic fish and mammals. Additionally, while the general project area is within the Pacific Flyway, a broad migratory corridor that extends from Alaska to Central America and is used by many different species of migratory birds. The site is not known to be a stopover along this route because it is an urban, developed site and lacks suitable habitat.

d. *Proposed measures to preserve or enhance wildlife, if any:*

Existing pier maintenance, repair and modification activities will result in effects to benthic habitat below the OHWM of the Columbia River that have the potential to affect local migratory pathways and alter predator prey dynamics by reducing the available habitat for benthic macroinvertebrates and temporary impacts during construction from demolition and construction activities.

Additionally, the portion of the Columbia River that would be affected by the proposed construction activities provides primarily migratory habitat for the following species protected under the ESA and/or the MMPA: adult and juvenile

salmonids, Pacific eulachon, and pinniped species such as Steller sea lion (*Eumatopius jubatus*), California sea lion (*Zalophus californianus*), and harbor seal (*Phoca vitulina ssp. richardsi*).

To mitigate for the project effects during construction, a variety of measures will be implemented that will mitigate effects on aquatic resources or provide an ecological uplift. Mitigation measures will be implemented in compliance with Section 7 of the ESA, the MMPA, and Section 10 of the Rivers and Harbors Act. These measures may include, but are not limited to those outlined below, and are referred to as minimization measures, BMPs, and conservation measures.

Minimization Measures

- In-water work will occur during permitted in-water work times when listed species are least likely to be present.
- Appropriate construction BMPs will be employed to minimize the potential for the discharge of petroleum-based products or other material into the Columbia River.
- Work barges will be prohibited from grounding out on the river bottom.
- Demolition and construction materials will be stored where wave action or upland runoff cannot cause materials to enter surface waters.

Conservation Measures

- Restorative plantings with native vegetation will occur on the Columbia River shoreline along the east and west boundaries of the project. Therefore, the proposed project will improve the natural character of the shoreline through restoration efforts. Offsetting the placement of new piles below the OHWM by removing existing in-water piles which have been treated with creosote.
- The project specific design standards require project lighting to be carefully selected for scale, appropriate light output, and consideration of light pollution reduction and to not create hazards for birds or other wildlife.

e. *List any invasive animal species known to be on or near the site.*

There are no known invasive animal species on or near the site. In general, invasive animal species in the vicinity of the site are limited to aquatic species in the Columbia River including New Zealand mud snails and grass carp.

6. Energy and natural resources

a. *What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.*

The completed project will require electricity for lighting and building operation, natural gas and electricity to heat the buildings and operate appliances, and diesel fuel for emergency power.

b. *Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.*

The proposed project is separated from land uses to the east and north by the BNSF rail right of way and Columbia Street and the I-5 Bridge. Consequently, the construction of the proposed project will not reduce the potential for solar use by adjacent property owners. The site is bordered to the south by the Columbia River, and the west by a mixed use waterfront development and park which have been permitted for construction. Therefore, the project will not obstruct solar access.

Buildings proposed at the north end of the project site will be approximately 130 feet in maximum height above ground level. These buildings may result in shading of developed areas north of the project site. However, there are no known solar installations on these properties and the presence of Access Way North, the rail lines and Phil Arnold Way result in a significant separation reducing the potential for and length of any shading the project buildings would result in.

c. *What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:*

The project has been designed to encourage pedestrian and bicycle access between the site and other adjoining areas of downtown via sidewalks and the extension of the public road network as well as the extension of the Waterfront Renaissance Trail along the shoreline. Future buildings will be designed to comply with the International Building Code (IBC) and the Washington State Energy Code and LEED or other similar certification.

No probable significant adverse impacts to energy were identified in the VCCV FSEIS and no impacts are anticipated from the proposed project that are outside the scope of the VCCV FSEIS. Therefore, no further mitigation measures are proposed.

7. Environmental health

a. *Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.*

The proposed project includes the construction of an urban development that is consistent with adjacent mixed use development in downtown Vancouver and on the proposed development to the west. There are no project elements proposed which will increase the risk of environmental health hazards beyond what would be typical of commercial, residential, and recreational uses.

1) *Describe any known or possible contamination at the site from present or past uses.*

In 2015, Hahn and Associates, Inc. (HAI) investigated soil and groundwater on the project site. The report concluded that there are known contaminants on the project site, including petroleum and metals-related contaminants on eastern portion of the site. With the exception of near surface soils located near the northeastern corner of the site, contaminants appear sporadically present within fill and, with several exceptions, concentrations are generally less than MTCA Method A Cleanup Levels for both Unrestricted Use and Industrial Properties.

Concentrations of contaminants (gasoline-, diesel-, oil-range Total Petroleum Hydrocarbons [TPH], naphthalene, and carcinogenic Polycyclic Aromatic Hydrocarbon [PAH] toxicity equivalency factor [TEF] values) as detected in soil near the northeastern corner of the property exceed Model Toxics Control Act (MTCA) Method A Cleanup Levels for Industrial Properties.

With regard to groundwater quality, petroleum-related contaminants at concentrations greater than MTCA Method B screening levels (naphthalene) were limited to a single well located near the southeastern portion of the site.

Additionally, soil vapors were found above screening levels in shallow soils at the same location. Contamination at the site appears to be limited in concentration and extent.

2) *Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.*

According to the Washington State Utility and Transportation Commission, there are no pipelines carrying hazardous liquid or high-pressure natural gas above 250 psi in the vicinity of the project site. Therefore, there are no known hazardous conditions affecting the site at this time.

3) *Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.*

The project does not anticipate introduction of toxic or hazardous chemicals which are inconsistent with typical commercial, office and residential uses.

4) *Describe special emergency services that might be required.*

The proposed project will require police, fire, and ambulance services typical of a downtown urban neighborhood. Impacts to such services and necessary mitigation consistent with the VCCV FSEIS are addressed in section 15, Public Services. In general, the proposed development will require an increase in the following special emergency services:

Fire

- Increases in fire service will be dictated by the increase in population within the overall project area. As the project will establish 355 new multi-family residential (MFR) homes, with the average MFR home containing 2.2 residents, the project could add up to an estimated 781 new residents to the project area. According to the VCCV FSEIS, one firefighter will be required for every 1,311-person population increase. Therefore, the addition of 781 more people in the project area would necessitate an increase of 0.59 additional firefighters to the overall project area. These increases were anticipated in the VCCV FSEIS and no mitigation was identified that is the responsibility of the project.

Police

- Chapter 12 of the planned action ordinance mitigation document, and the VCCV FSEIS describe how the impacts to emergency services within the VCCV subarea will be mitigated:
    - To improve site security and prevent crime in the area, building designs must include adequate lighting and other safety features.
    - The City anticipates hiring 1.3 officers and 0.4 civilian employees per 1,000 new residents within the district, as identified in the VCCV FSEIS.

It is anticipated that at full buildout of the project, and at no vacancy for the proposed MFR development, 781 new residents will be introduced to the VCCV project area. Therefore, approximately 1.01 additional police officers will

be required, and 0.31 civilian employees will be required to accommodate the new residential development. These increases were anticipated in the VCCV FSEIS and no mitigation was identified that is the responsibility of the project.

5) *Proposed measures to reduce or control environmental health hazards, if any:*

Consistent with the mitigation identified in the VCCV FSEIS, the proposed project will be designed to comply with the IBC and fire and mechanical codes which will minimize the potential for environmental health hazards within buildings.

The project will address existing contamination consistent with the Washington State Model Toxics Control Act. A site specific contaminated media management plan will be developed to include appropriate handling, staging and disposal of contaminated material during project construction. In addition, proper erosion and sediment control BMPs will be developed as part of the Stormwater Pollution Prevention Plan as required by the Construction Stormwater General Permit for the project to address site specific runoff from contaminated areas.

b. *Noise*

1) *What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?*

Sources of noise on and adjacent to the site were identified in the VCCV FSEIS and include:

- **Aircraft** – Planes taking off from and landing at Pearson Field Airport (approximately 0.5 miles from the project site) and Portland International Airport (approximately 3 miles from the project site) travel over the site.

- **Trains** –The BNSF railroad is located on a berm immediately north of the proposed project site. The Federal Railroad Administration (FRA) requires that a train blow its horn at all public crossings as well as at private crossings with vehicles present. The nearest crossing effected by train horns is located approximately a half mile to the west of the project site. The City implemented several projects since publication of the VCCV FSEIS that closed at-grade rail crossings and significantly reduced the location and frequency of train horn noise in the project area.

- **Traffic** – Vehicles traveling on the surrounding road network, including I- 5, create ambient noise that is audible on the site.

2) *What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.*

During construction temporary noise will be generated by construction equipment, such as heavy equipment (e.g., excavators, front loaders, graders, concrete trucks, dump trucks, flat bed equipment haulers, etc.), stationary equipment (e.g., pumps, power generators, and air compressors), and impact equipment (e.g., jackhammers, pavement breakers, and pile drivers). The levels of construction noise will vary depending on the type of equipment used,

duration of use, and site conditions. In general, impact equipment such as pile driving causes the greatest noise levels (up to 100 dba) but usually consists of a series of peak events; whereas noise from heavy and stationary equipment (70 to 95 dba) is generally continuous throughout the workday.

Temporary construction noise associated with the project is exempt from the state laws for maximum environmental noise levels (WAC 173-60) as long as construction activities occur during daytime hours (i.e., 7:00 AM to 10:00 PM). Because VMC 20.935 references the WAC noise laws, construction noise is also exempt at the local level.

Long-term noise from the project would result from typical urban activities including the building's mechanical equipment and the vehicles visiting the buildings. These noise levels are consistent of the urban development in the area and would be lower than the noise levels from existing noise sources.

3) *Proposed measures to reduce or control noise impacts, if any:*

For construction noise, the project will comply with VMC 20.935 and WAC 173-60 by limiting construction to the time between 7 AM and 10 PM. Earth removal, grading, hauling, and paving activities in the vicinity of noise sensitive receptors will be limited to weekday daytime hours. If project conditions or the schedule require construction outside these hours, the Contractor will notify the Port immediately and obtain all appropriate approvals for conducting noise outside of daytime hours as required by the City.

The project will be designed to comply with the Noise Impact Overlay District (VMC 20.520) as stated in the VCCV FSEIS:

> *Special construction standards that would mitigate interior sound levels to 45 Ldn are required for all new, expanded, or reconstructed residential structures inside the Noise Impact Overlay District.*

Per this requirement, the buildings will be designed to limit indoor noise levels in residential uses to an average level no greater than 45 Ldn.

Because no significant operational noise sources are proposed, mitigation specific to operational noise levels is not identified.

8. Land and shoreline use

a. *What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.*

The site contains a former hotel, public amenities, an office building and associated parking. The Red Lion Inn at the Quay operated on the site until 2015. Since that time, similar commercial uses have been established in portions of the building. The north and west wings of the building have been permitted for demolition for early 2017, under a separate land use action. The existing restaurant portion of the inn is currently occupied by a commercial tenant, Warehouse 23 (restaurant), which occupies the over-water portion of the former Inn. The office building on the site, Columbia Business Center is occupied and there are public amenities including an overwater pier, a small boat moorage (existing dock connected to the pier); and parking.

Land uses in the general proximity of the proposed project area include vacant land to the west, which has been approved for a mixed-use development (the Waterfront Development project) and a new City park and trail, the Columbia River to the south, the I-5 Bridge directly to the east, and downtown commercial, office, and public facilities to the north of the existing BNSF rail berm.

The proposed project includes a mix of uses that are consistent with the City's CX zone and the surrounding existing and proposed uses. There will be sufficient permanent parking on the site which will include a mixture of on-street and structured parking. Permanent parking spaces will be provided per the standards of the VMC for the CX zoning district. The exact number will be based on the building size and specific uses constructed. Interim parking has been proposed where the existing parking lot serving the former Red Lion Inn at the Quay is located. Interim parking will be provided during phasing of construction of the project. The project will also include the construction of mixed-use buildings which will feature a mixture of retail, office, residential, hospitality, and civic uses. Public space in the form of trails, green/open space, and outdoor civic space has also been proposed.

Public access to the site will be improved and will be consistent with the adjacent properties. The proposed project includes extension of the Waterfront Renaissance Trail through the Port property. This will connect trail segments to the east and west of the proposed project site. Pedestrian circulation will also be improved within the project site once sidewalks and pedestrian routes have been constructed.

b. *Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?*

The project site consists primarily of fill and has not been known to be used as farm or forest lands.

1) *Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:*

There is no farm or forest land in the vicinity of the project. Therefore, the proposed development activities are not anticipated to have an effect on farm or forest lands.

c. *Describe any structures on the site.*

As described above, the site includes a former hotel building, a restaurant, office building, parking, landscaping, public amenities and overwater structures that have been constructed at various times.

The Terminal No. 1 dock and warehouse (now incorporated into the remaining portion of the former Red Lion Inn and existing restaurant) were constructed in 1926 following the transfer of the dock from the City to the Port. The dock is constructed primarily of numerous wooden piles with concrete and wood decking. There are also areas of steel piles at mooring points. The dock originally extended approximately 1,300 feet along the shoreline. In 1959 and 1960, the restaurant on the dock was expanded and meeting rooms and the hotel were constructed. The

now-disused approximately 55,000-SF hotel included 160 guest rooms, banquet rooms, and a swimming pool, along with an additional 30,000-SF restaurant/bar. The dock is used for various marine purposes, including moorage by cruise ships.

The Columbia Business Center is a 2-story office building owned by the Port and leased to multiple tenants. This structure provides 8,000 SF of general office space.

The amphitheater on the west end of the site was constructed in 1991 and the float for small boats was constructed in 1993, when the 1,300-foot dock was shortened on the west end to its present configuration. The amphitheater is constructed of steel piles with a concrete deck.

d. *Will any structures be demolished? If so, what?*

The north and west wings of the former Red Lion Inn have been permitted for demolition and will be demolished in early 2017. Other structures which will require demolition prior to full development of the proposed project include the south wing of the former Red Lion Inn and the Columbia Business Center. Additionally, the existing parking lot and landscaping planters will be removed to accommodate the development of the proposed project.

e. *What is the current zoning classification of the site?*

The site is zoned City Center (CX), is regulated by the Downtown District (VMC 20.630), and is within the City Center Waterfront sub district (VMC 20.630.080). In addition, the site is within the Columbia River Shoreline Enhancement Plan District, and is also within the Airport Height Overlay District.

f. *What is the current comprehensive plan designation of the site?*

The City of Vancouver Comprehensive Plan 2011-2030 designates the site as Commercial. In addition, the site is within the VCCV subarea plan.

g. *If applicable, what is the current shoreline master program designation of the site?*

The City's shoreline master program designates the shoreline of the project site landward of the OHWM as High Intensity and areas waterward of the OHWM as Aquatic.

h. *Has any part of the site been classified as a critical area by the city or county? If so, specify.*

The project site contains the following critical areas, as designated by the City's municipal code and Shoreline Management Master Program:

- **Frequently Flooded Areas** – According to Federal Emergency Management Agency FIRM panel 53011C0481D, portions of the project site lie within the 100-year floodplain. According to VMC 20.740.120(A), land within the 100-year floodplain is designated a frequently flooded area. The southern edge of the upland portion of the project site and southeast corner of the project site are both mapped as being within the 100-year floodplain.

- **Critical Aquifer Recharge Area (CARA)** – Per VMC 14.26.115(B)(1), the entire area within the City's boundaries is designated as a CARA. As the project site is located within city limits, the project site is located within a CARA.

- **Fish and Wildlife Habitat Conservation Areas** – The Columbia River forms the southern boundary of the project site. The river is considered a shoreline of the state by DNR and the City, per their stream type classifications (WAC 222-16-030 and VMC Table 20.740.110-1). Shorelines of the state and their buffers are considered a fish and wildlife habitat conservation area per the SMP.

- **Geologic Hazard Areas** – According to the GRI geotechnical report, the entire site is susceptible to liquefaction because its soil is composed of fill, which constitutes a seismic hazard per VMC 20.740.130(A)(2)(a)(1) & (2). In addition, the geotechnical report classifies the project site as a Site Class D or E earthquake hazard area, which is also considered as a seismic hazard per VMC 20.740.130(A)(2)(b). Per VMC 20.740.130(A), seismic hazards qualify as geologic hazard areas.

i. *Approximately how many people would reside or work in the completed project?*

The project proposes to create up to 355 residential units. Based on the maximum number of residential units and the 2010 estimate of household size in the City, the project could provide housing for approximately 781 persons.

Until the tenants for the proposed buildings are determined, the exact numbers of employees cannot be determined. The City uses an estimate of 25 jobs per acre for commercial development which would result in an estimated 150 jobs with the proposed development.

j. *Approximately how many people would the completed project displace?*

There are no residential units on the project site and the completed project will not displace any residential units. Most businesses currently lease from the Port, on a month to month basis such as the tenants within the Columbia Business Center. Tenants in the Columbia Business Center will be displaced when the building is demolished to accommodate uses proposed by this project. The proposed project includes development of new office facilities. The exact number of tenant employees who will be displaced is not known but would likely be fewer than 50.

k. *Proposed measures to avoid or reduce displacement impacts, if any:*

The Port will notify tenants of the Columbia Business Center of the need to vacate the structure as far in advance as possible. Space within the building is currently leased from month to month, reducing the potential impacts as long-term tenancy is not an expectation of the tenants.

l. *Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:*

The proposed project will be developed consistent with the City's shoreline master program, and the zoning and development standards established for the CX zone codified in VMC Chapter 20.430. This project will be developed to incorporate the following building design sections of VMC Chapter 20.630:

- 20.630.020 Building Lines
- 20.630.030 Rain Protection
- 20.630.040 Blank Walls
- 20.630.050 Maximum Building Height
- 20.630.060 Parking Control
- 20.630.080 City Center Waterfront

A discussion of the consistency with these and other application development standards is provided within the CDP application submitted for the project.

The VCCV FSEIS identifies the land use mitigation required of an Applicant as follows:

- To assure cohesive redevelopment, design and connectivity of the waterfront in the Columbia West Renaissance District require a master development plan, which incorporates a public access element, grid-street pattern, connections to the City Center and Renaissance Trail; extends the principles of the Downtown Plan District; and addresses the relationship between the east and west adjacent properties and uses.

- Extend the Columbia River Renaissance Trail westward through the redeveloped City Center waterfront.

Consistent with the above-noted mitigation measures, the Port has submitted a CDP application to the City for the proposed project. This project includes an extension of the Waterfront Renaissance Trail through the site.

The proposed project will be developed consistent with the CX standards in VMC Chapter 20.430 and will follow the procedural mitigation measures from the VCCV FSEIS as identified above, and will be consistent with the proposed alternative in the VCCV FSEIS. The VCCV seeks to redevelop underutilized lands with a mixture of uses which balance residential and job producing land uses. As the project seeks to develop mixed use waterfront development on land mostly vacant, or containing underutilized land uses, the project meets the intent of the VCCV.

m. *Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:*

As stated above, the project will not impact any agricultural or forest lands; therefore, the proposal includes no measures to ensure compatibility.

9. Housing

a. *Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.*

The proposed project is estimated to include up to 355 new residential units. The makeup of the units has not been determined.

b. *Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.*

The project will not eliminate any housing units.

c. *Proposed measures to reduce or control housing impacts, if any:*

The proposed project will not result in any impacts to existing residences because none are located within or adjacent to the project. The proposed housing units are consistent with the VCCV subarea plan and the VCCV FSEIS, which estimates that development in the VCCV subarea could create approximately 4,551 new dwelling units. The project will include up to approximately 355 residential units which exceeds the amount of residential capacity left in the VCCV subarea by 105 units; As permitted by the VCCV, capacity can be transferred from the office category and effects of this transfer is addressed in other sections of the environment and the project narrative.

10. Aesthetics

a. *What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?*

The tallest structure proposed on the site (building at Block C) is anticipated to be approximately 120 to 130 feet in height above the surrounding grade. The principal materials that will be used on the exterior of the building have yet to be determined. Design standards proposed for the project would prohibit plastic laminates, glossy or large expanses of acrylic or plexiglass, pegboard, mirror, highly polished or plated metals (except as trim), mirrored glass, vinyl, fabric or paper wall coverings, plywood or particle board, sheet or modular vinyl, shingles, shakes, and rustic siding.

b. *What views in the immediate vicinity would be altered or obstructed?*

The VCCV FSEIS identified view corridors to significant buildings (such as the courthouse), to take a step back approach for areas surrounding Esther Short Park and buffer residential areas north of downtown. The project will not modify any of these views as the project is not located in or between these areas or in existing land uses that have views of these areas.

From the project site, the existing rail berm obstructs ground level views looking north toward downtown Vancouver. From downtown, the berm similarly obstructs ground level views looking south. The views of occupants of higher floors in downtown buildings could be modified by the construction of buildings on the site. These views have not been identified for protection under City plans or development standards.

c. *Proposed measures to reduce or control aesthetic impacts, if any:*

Consistent with the mitigation measures identified in Chapter 7 Land Use of the VCCV FSEIS, and planned action ordinance mitigation measures, the proposed project will implement the following mitigation measures:

- To assure cohesive redevelopment, design and connectivity of the waterfront in the Columbia West Renaissance District require a master development plan, which incorporates a public access element, grid-street pattern, connections to the City Center and Renaissance Trail, extends the principles of the Downtown Plan District, and addresses the relationship between the east and west adjacent properties and uses.
- Development within the subarea shall comply with Building Lines (VMC 20.630.020); Rain Protection (VMC 20.630.030); Blank Walls (VMC 20.630.040); Maximum Building Heights (VMC 20.630.050; and Parking Control (VMC 20.630.060) as expanded or amended.

- All development within the expanded Design Review Boundary (VMC 20.265-1) shall comply with the adopted Downtown Design Guidelines.
- The selection of tree species and the layouts of trees on different streets are related to both the operation and desired character of a particular street. All redevelopment or new development within the VCCV Subarea Plan boundaries shall include street trees to emphasize neighborhood character and connectivity and desired character of a particular street. Species selection and tree spacing is to be coordinated with the city's Urban Forestry Division.
- All development within the expanded design review boundary shall comply with the Street Lighting Framework Plan.
- Lighting improvements shall be designed to limit glare.
- All development within the Subarea's Columbia West Renaissance District waterfront area as described in VMC Figure 20.630-7 shall comply with the provisions of VMC 20.630.080, City Center Waterfront Design Standards.
- Improvements to the public rights-of-way shall be required to comply with proposed street classification, Street Lighting Framework Plan, and appropriate street tree selection and spacing.

The project is being submitted in form of a Concept Development Plan for City approval. Project elements have been designed to conform with the listed mitigation measures.

The project provides for an expansion of new street and trail infrastructure including an extension of the existing Waterfront Renaissance Trail through the project site and connecting with the existing trail to the east and the trail that is currently under construction to the west. This extended trail will provide publicly accessible views of the river along the entire site boundary, which currently does not exist. The proposed street and pedestrian systems connects with Esther Street, Columbia Street, and Columbia Way and continues the grid system established within Downtown Vancouver. New streets and pedestrian circulation routes (Access Way 5, Daniels Way, pedestrian alley east of Daniels way) have been designed to lie perpendicular to the river, which will also create public access and allow for views of the shoreline from the upland portion of the project site.

The project will be implemented consistent with the VCCV subarea plan, VCCV FSEIS and corresponding mitigation measures outlined in the planned action ordinance and, compared to its current condition, will improve the aesthetic appeal of the site.

11. Light and glare

a. *What type of light or glare will the proposal produce? What time of day would it mainly occur?*

The proposed project will include building lighting, street lighting, and pedestrian lighting along the planned waterfront trail and open space. Street and pedestrian lighting will be in operation generally between dusk and dawn throughout the year. The time of use of building lighting will depend on the needs of owners and tenants. As required by the Federal Aviation Administration, buildings may include lighted warning beacons for aircraft approaching Pearson Field Airport or Portland International Airport, as required.

b. *Could light or glare from the finished project be a safety hazard or interfere with views?*

It is not anticipated that lighting of the proposed project would be a safety hazard or interfere with views. Building heights will be consistent with the development standards of the VCCV subarea plan, which established height restrictions for the site and plan district to comply with federal regulations (49 CFR Part 77). Some night-time views will be altered by the presence of building lighting, however, the proposed project site is currently developed with urban uses, and is in the urban core of downtown Vancouver adjacent to the Interstate-5 bridge where night-time lighting is already present.

c. *What existing off-site sources of light or glare may affect your proposal?*

The site is in the downtown Vancouver urban core and adjacent to the Interstate-5 bridge which results in off-site sources of light and glare at the site. However, because the project proposes similar urban uses, these known off-site sources of light or glare are not anticipated to affect this proposal.

d. *Proposed measures to reduce or control light and glare impacts, if any:*

Lighting on the proposed site will be designed to ensure compliance with VMC 20.935.030.D, which prohibits off-site glare impacts from direct or reflected light sources. Additionally, the VCCV planned action ordinance establishes a number of lighting mitigation measures which the project will comply with and/or implement. These mitigation measures include the following:

- All development within the expanded design review boundary shall comply with the Street Lighting Framework Plan.
- Improvements to the public rights-of-way shall be required to comply with proposed street classification, Street Lighting Framework Plan, and appropriate street tree selection and spacing.

As stated previously, lighting used along streets and pedestrian ways will conform with the characteristics of the existing lighting currently installed along Columbia Way. The project specific design standards require project lighting to be carefully selected for scale, appropriate light output, and consideration of light pollution reduction and to not create hazards for birds or other wildlife.

12. Recreation

a. *What designated and informal recreational opportunities are in the immediate vicinity?*

Existing designated recreational activities within the immediate vicinity of the project site include Vancouver Landing (on the project site); Esther Short Park, located approximately 950 feet to the north; and the Waterfront Renaissance Trail, currently located east of the project site. In addition, the new City Waterfront Park and a west extension of the Waterfront Renaissance Trail are under construction to the west of the site. The Columbia River, which lies directly south of the project site, supports a variety of recreational activities such as boating, fishing, and other passive and active water-related activities.

Vancouver Landing consists of an over-water amphitheater and floating dock that was constructed to allow pubic access to the Columbia River. The Port owns and maintains the facility.

b. *Would the proposed project displace any existing recreational uses? If so, describe.*

The proposed project would not permanently displace any existing recreational uses. During construction, the existing amphitheater which is incorporated into the Terminal 1 pier structure and the adjoining dock used for small boat moorage may be temporarily inaccessible for safety reasons. However, the project includes increased recreational opportunities as described below.

c. *Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or Applicant, if any:*

Impacts to public parks, open space, and recreation resulting from the proposed alternative are specified in Chapter 9 of the VCCV FSEIS Ordinance M-3833 as follows:

- In planning for and accommodating additional growth and re-development in the VCCV Subarea Plan area, the City of Vancouver should consider promoting a variety of special recreation and open space facilities, as indicated in the adopted Vancouver Urban Parks, Recreation and Open Space Plan. This should include consideration of water access facilities along the Columbia Riverfront, off-leash dog facilities to serve residents of the proposed mixed use high-density multifamily housing units, skate parks to accommodate youth activities and draw enthusiasts away from unlawful street skating, environmental education opportunities along the Columbia River, historic interpretation throughout the planning area, and development of facilities and systems to promote bicycle and pedestrian community and healthy lifestyle choices.
- The Vancouver Clark Parks and Recreation Department shall continue to work closely with the City Transportation Department to plan and create user-friendly pedestrian and bicycle systems, increase connectivity, improve overall streetscape, enhance visual attractions to the downtown area, ensure public safety, and provide attractive greenways leading to the waterfront trail and park, as well as the Fort Vancouver National Historic Reserve and other existing recreation and open space amenities located on the east side of I-5.
- The City of Vancouver should adjust the park impact fees to reflect the cost of land acquisition and park development within the high density and intense urban environment of the city center through special impact fees.

Consistent with the mitigation required in the waterfront area established by City Ordinance M-3833, a master plan has been submitted to the City that addresses pedestrian environments, design connectivity, and connectivity to the existing City Center and recreational amenities. This master plan includes specific plans for a trail along the project's shoreline which will provide the public with physical and visual access to the Columbia River. Further, the proposed project has been designed to comply with the provisions of VMC 20.630.080 City Center Waterfront Design and Development Standards, which include standards for pathways, open space, and pedestrian connections within the proposed project.

As stated earlier, the project has proposed to develop 105 more residential units than which is available in the remaining VCCV subarea capacity. Therefore, it is likely that impacts to recreation and park areas in the VCCV plan area will be slightly greater than what was identified in the VCCV FSEIS. However, the additional park and recreation impacts caused by developing 105 residential units over the planned VCCV subarea capacity will be mitigated through on-site open space and recreation opportunities, as well as the additional park impact fees that will be generated by the project.

13. Historic and cultural preservation

a. *Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.*

The existing Terminal 1 building (Red Lion Inn at the Quay) located on the pier structure on the project site is older than 45 years. However, the building was determined to be not eligible for listing by the Washington State Department of Archeology and Historic Preservation on February 2, 2016. Historic structures, land, and buildings in the vicinity of the project site include the BNSF rail lines and the BNSF rail bridge (north and west, respectively); Esther Short Park (directly to the north); and the I-5 Bridge and Fort Vancouver (east of the site).

b. *Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.*

The project site was assessed in an archaeological predetermination study for cultural and historic resources by Archaeological Investigations Northwest, Inc. (AINW) in March 2016. No evidence of a pre-contact or historic-period archaeological site was observed during the pedestrian survey or during monitoring of geotechnical bore holes within the project area.

c. *Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.*

AINW completed an archaeological survey of the project area in March 2016.

d. *Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.*

If any unknown archaeological or historic materials are encountered during project activities, work in the immediate area of the discovery will be halted and the following actions taken: 1) implement reasonable measures to protect the discovery site, including any appropriate stabilization or covering; 2) take reasonable steps to ensure the confidentiality of the discovery site; and, 3) take reasonable steps to restrict access to the site of discovery. Any actions taken will be done in a manner consistent with RCW 27.53.060 (Archaeological Sites and Resources) and RCW 27.44.020 (Indian Graves and Records) and all applicable DAHP regulations.

Should a discovery occur, a professional archaeologist will be called in to assess the significance of the find, and DAHP and concerned tribes will be notified so that a course of action can be implemented.

14. Transportation

a. *Identify public streets and highways serving the site* or affected geographic area *and describe proposed access to the existing street system. Show on site plans, if any.*

The site is currently accessed via Columbia Way, which extends westward from Columbia Street. The project will be served by this existing access street and by new streets completed by the project.

b. *Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?*

Public transit does not directly serve the site. The closest route to the site is C-TRAN Route 39, VA/Rose Village. At its closest to the project, the route follows 6th Street at approximately hourly intervals between 7 AM and 7 PM. The closest stop is located on west side of Columbia Street just north of 6th Street (Esther Short Park). Numerous other routes serve the downtown Vancouver area. In addition, a bus rapid transit line, the Vine, that will link downtown Vancouver with the Fourth Plain Boulevard corridor is under construction. Once operational in early 2017, service is anticipated at a frequency of 10 minutes during peak hours and 15 minutes during non-peak periods. The Vine stop location closest to the Port property is anticipated to be located on W 7th Street near Main Street (falling within the 1/3 mile station walking distance identified by C-TRAN as supporting bus rapid transit).

c. *How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?*

The project plans to provide a minimum of approximately 809 permanent parking spaces based on the amount required by city standards and based on the full build out of the facility. Actual amounts may be greater. All parking will be in structured parking garages, except for interim spaces and an ADA parking/loading area for access to the existing Terminal No.1 building. On-street parking will be provided for on Columbia Way and Access Way 5. Approximately 238 existing parking spaces will be removed to accommodate the new development. A majority of the spaces which will be removed will be used as interim parking during project construction.

The project also proposes to utilize existing and expanded surface parking during build out of the project. This temporary parking would be available for public use until the development of the project. Approximately 238 spaces are currently available. All existing spaces will be replaced at full build out.

d. *Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).*

The proposed project will include the continuation of the downtown street grid onto the site from the new Waterfront Development project located directly west of the project site. This proposed project will involve the construction of one new east-west local street (North Access Way), one new north-south street (Access Way 5), and two pedestrian-oriented access routes (Daniels Way and pedestrian alley). These streets will be designed as follows:

- **North Access Way** – A local road with a 22-foot curb-to-curb width, extending from Columbia Street westward to the new Esther Street extension. This road will contain an 8-foot wide sidewalk on the southern side.

- **Access Way 5** – A local road with 12-foot-wide travel lanes. The road will feature on-street parking on both sides of the road and 12-foot-wide sidewalks, and street trees spaced every 30-feet.

- **Daniels Way** – A north-south pedestrian-oriented access route (woonerf) which bisects the project site. Daniels Way ranges in width, but will be no less than approximately 26 feet at its narrowest point. The pavers that will be featured along this route will help the visual separation of vehicle and pedestrian spaces.

- **Pedestrian Alley** – This pedestrian only alley is a north-south running alley which will be located between Block B and the development space directly to the west. Special paving will be utilized to differentiate that alley as a pedestrian oriented thoroughfare.

e. *Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.*

The project site includes the Columbia River, a navigable waterway used for shipping goods by barge as well as passenger vessels and recreational watercraft. The project site is also within the vicinity of the BNSF Fallbridge Subdivision and the main rail access to the Port, both of which are adjacent to the project site to the north. Pearson Field (a general aviation airport with no scheduled commercial passenger service) is approximately 3,000 feet east of the project site, and Portland International Airport is approximately 3 miles southeast. The project will accommodate boats used for water transportation via the existing dock that connects to the Terminal No.1 pier structure which will be retained. Additionally, river cruise ships will continue to utilize the pier as a loading/unloading area for passengers.

f. *How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur* and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

It is estimated that the total project will generate approximately 6,826 net new vehicular trips per day at full buildout. Peak volumes would occur during the PM peak hour, generally from 4 PM to 6 PM.

g. *Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.*

There is no farm or forest land in the vicinity of the project. Therefore, the project will not interfere with the movement of agricultural or forest products.

h. *Proposed measures to reduce or control transportation impacts, if any:*

Mitigation for impacts to Transportation are specified in Chapter 9 of the Final VCCV FSEIS and Ordinance M-3833.That document states that compliance with the existing regulations, goals, and standards that apply to new developments in the subarea will mitigate transportation impacts resulting from development. These regulations, goals, and standards include:

- Zoning Ordinance (VMC Title 20)

- Street Standards
- Transportation Concurrency Ordinance (VMC 11.70)
- Comprehensive Plan (2011–2030)
- Transportation System Plan (May 2004)
- VCCV FSEIS Chapter 10

As demonstrated in the Transportation Compliance Letter, published by Kittelson & Associates, Inc., as well as the CDP Narrative, the project as proposed complies with the above regulations as the project's projected PM peak hour trips fall within the remaining VCCV trip allocation, and the study area intersections have been forecasted to operate acceptably through the year 2035 without generating the need for any capacity-based mitigations.

15. Public Services

a. *Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.*

The proposed project is consistent with the land uses and capacities that were anticipated in the VCCV subarea plan FSEIS and planned action ordinance, which provide mitigation measures to address the anticipated increased need for fire and police protection, health care, and school services required by the buildout of the proposed project and other uses in the VCCV subarea.

The project is proposing to construct additional residential and commercial buildings. Increased fire and police protection, health care, public transit and schools will be required to accommodate the increase in population and work force in the VCCV subarea. With an increase of residents and workforce it is anticipated that emergency calls for fire and police service will increase in the VCCV subarea, as well as the school, health care, and public health care demand.

b. *Proposed measures to reduce or control direct impacts on public services, if any.*

The proposed project includes development that is within the capacity of the alternative assessed in Chapter 12 the VCCV FSEIS and planned action ordinance mitigation document. The following paragraphs discuss the anticipated impacts addressed in the VCCV FSEIS and the mitigation prescribed for them.

- **Fire service** - The VCCV FSEIS identifies that the proposed alternative will increase residential units by approximately 4,551, increase the number of residents in the project area by approximately 7,281, and increase the number of employees by 9,305. The VCCV FSEIS identifies that this increase in population will result in an increase in emergency calls from the subarea, but that it will also result in increased revenues from the subarea to offset the impacts created by development within the VCCV. Because the number of new residences anticipated within the proposed project (355) are within the scope of the impacts identified above, the impacts of the proposed project are consistent with those addressed for the VCCV subarea in the VCCV FSEIS. As such, mitigation for impacts to fire service will be consistent with those addressed in Chapter 12 of the planned action ordinance mitigation document which are as follows:

    1. When the population increases by 29,153 and 1,218 businesses are added, the Fire Marshal's Office will need an additional Deputy Fire Marshal to maintain current service levels.

2. One firefighter would be required for every 1,311-person population increase.

Increases in fire service will be dictated by the increase in population within the overall project area. As the project will establish 355 new MFR homes, with the average MFR home containing 2.2 residents, the project could add up to 781 new residents to the project area. According to the VCCV FSEIS, one firefighter will be required for every 1,311-person population increase. Therefore, the addition of 781 more people in the project area would necessitate an increase of 0.59 additional firefighters to the overall project area. These mitigation measures are the responsibility of the City.

Additionally, as identified in the mitigation document, development within the project area will be required to comply with all International Building, Fire, and Mechanical codes, as well as VMC Titles 16 (Fire); 11 (Streets and Sidewalks); 14 (Water and Sewers); 17 (Buildings and Construction); and 20 (Land Use and Development).

- **Police-** Because the number of new residents anticipated in the proposed project site falls within the scope identified in the VCCV FSEIS, the impacts to police services of the proposed project are within the scope of impacts addressed in the VCCV FSEIS. Consistent with the mitigation proposed in Chapter 12 of the planned action ordinance mitigation document, the impacts of the proposed project will be mitigated as follows:

  1. To improve site security and prevent crime in the area, building designs must include adequate lighting and other safety features.

  2. The City anticipates hiring 1.3 officers and 0.4 civilian employees per 1,000 new residents within the district, as identified in the VCCV VSEIS.

  As stated above, it is anticipated that at full buildout of the project, and at no vacancy for the proposed MFR development, 781 new residents will be introduced to the VCCV plan area. Therefore, approximately 1.01 additional police officers will be required, and 0.31 civilian employees will be required to accommodate the new residential development. These mitigation measures are the responsibility of the City.

  The design standards address the first mitigation measure which seeks to improve security through building design and adequate lighting. Some of the increased revenues to the City from increases in property tax values and sales taxes are intended to mitigate the increased costs of supplying additional police services to the VCCV plan area.

- **Schools-** The VCCV FSEIS estimates that approximately 14.5 percent of MFR households will include an elementary school student, 5.9 percent will include a middle-school student, and 6.6 percent will include a high school student. As such, at full buildout of the project (355 residential units), approximately 51 elementary school students, 21 middle-school students, and 24 high school students will reside in the proposed project. Based on the maximum number of residential units anticipated by the VCCV this represents an increase of 15 elementary school students, 6 middle school students and 7 high school students than what was discussed in the VCCV FSEIS.

The VCCV FSEIS states that the proposed alternative will result in the addition of 2,600 residential units more than the number of units that would be developed in the VCCV subarea under the no action alternative or under the City's comprehensive plan, which anticipated 1,930 residential units in the district at the time of the planned action ordinance's adoption. Thus, in total, 4,530 new residential units are addressed in the school impact analysis of the proposed alternative in the VCCV FSEIS.

The VCCV FSEIS and the planned action ordinance mitigation document include measures for cooperative City/School District work to identify innovative approaches that could provide additional school capacity within the VCCV subarea and that the school district can accommodate additional students in existing classroom space, with portable classrooms, adjusting school attendance boundaries or building additional school volumes. In addition, the residential portions of the project will generate school impact fees based on the time of the development.
While the shift from office to residential uses will increase the anticipated students within the VCCV the amount of additional students is minor in comparison with the anticipated overall increase anticipated in the VCCV and does not increase students by an amount that would require additional mitigation beyond that already identified in the VCCV

Health Care- No significant adverse impacts to health care services are anticipated to result from the proposed project and development project. As health care services are privately managed and market-driven, it is anticipated that additional health services capacity will be added as the proposed project and future growth in the VCCV subarea add to the population growth in the area.

16. Utilities

b. *Circle utilities currently available at the site:*
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

The project area is served by electricity, water, sewer, and storm sewer via existing utility corridors within Columbia Way and Columbia Street, and utility lines which serve the former Red Lion Inn at the Quay. The project area also has garbage service, phone service, and other franchise utilities available.

b. *Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.*

The following services will be provided to the proposed project:

Water – The City will provide domestic water to the site from the City's existing system. According to the VCCV FSEIS it is the City of Vancouver's responsibility to maintain the existing water lines. When a portion of the subarea and redevelopment project is constructed and includes street construction, where necessary, the City will replace all adjacent substandard water pipe with engineered ductile iron pipe, and replace all substandard fire hydrants with new hydrants that meet City standards. Any development proposal that requires fire flow in excess of 3,000 gpm will require additional review by the City of Vancouver and potential additional facilities may be required to be installed by the developer.

Fire flow values are for street elevation; multistory proposals will require additional developer installed fire protection systems in compliance with City requirements (e.g., automatic sprinkler systems) to provide the necessary fire protection and water pressure increase to supply the upper floors of the buildings.

Sewer – The City will provide sanitary sewer service to the site. According to the VCCV FSEIS it is the City of Vancouver's responsibility to maintain existing sewer pipes, and provide capacity at the treatment facility. When a portion of the area is redeveloped and includes street construction, the City will evaluate the condition of the existing sewer in the street and replace any deteriorated pipes with new pipes or line them as deemed appropriate. Funding for the replacement pipes will come from the City of Vancouver's Capital Improvement Program. The Westside Water Reclamation Facility has adequate capacity to serve the VCCV plan area.

Stormwater – The project will maintain the amount of impervious area on the project site but will add treatment for water quality per the VMC. Currently, the site consists of mostly impervious surfaces such as asphalt concrete, packed gravel, and structures. Stormwater is collected in permitted catch basins that are connected to one of three existing outfalls along the Columbia River.

Storm runoff from the proposed street improvements will be treated by a mechanical vault treatment, such as cartridge catch basin units that will be sized to treat and handle the contributing basin area. Private stormwater will be treated on site in accordance with City Minimum Requirements, if any pollutant-generating surfaces (PGS) are included in the design. At this time, however, no PGS is anticipated for the private developments, and therefore no treatment is anticipated for the private stormwater runoff before its discharge to the public storm main. The project will use all three of the existing outfalls and no new discharge points will be introduced. Quantity control will not be included at these discharge points because the Columbia River is a flow controlled-exempt water body.

The stormwater collection and treatment system will be designed to meet the requirements of Ecology's 2012 Stormwater Management Manual for Western Washington (amended in December 2014) and VMC Chapter 14.25.

Electricity – The Port of Vancouver, USA will work with Clark Public Utilities to provide adequate electrical power to the site. The VCCV FSEIS did not analyze the impacts to electricity in the VCCV subarea because no potential adverse impacts were anticipated.

Natural Gas – Northwest Natural and the Port of Vancouver, USA are working to provide gas to accommodate the project's needs. The VCCV FSEIS did not analyze the impacts to natural gas in the VCCV subarea because no potential adverse impacts were anticipated.

Refuse Service – Waste Connections or other authorized solid waste handlers will serve individual buildings. The VCCV FSEIS did not analyze the impacts on solid waste from the VCCV subarea plan.

Phone Service – Multiple providers are available to service the site. Service providers are privately operated and will increase availability of service as demand increases in the VCCV plan area; therefore, impacts to phone service were not analyzed in the VCCV FSEIS.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Matt Harding

Name of signee: Matt Harding

Position and Agency/Organization: Environmental Project Manager, Port of Vancouver USA

Date Submitted: 12/23/16

CULTURAL RESOURCES REPORT COVER SHEET

Authors: Kristen Fuld and Nicholas Smits

Title of Report: Port of Vancouver Waterfront Development Master Plan Predetermination

Date of Report: December 2, 2016

County: Clark Section: 27 Township: 2 North Range: 1 East

Quad: *Vancouver, WA-OR,* 7.5 minute, 1990 Acres: 10

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:

CITY OF VANCOUVER
ARCHAEOLOGICAL PREDETERMINATION REPORT

Property Owner: Port of Vancouver Telephone: 360-693-3611
Mailing Address: 3103 NW Lower River Road
Vancouver, Washington 98660

Applicant: Matt Harding Telephone: 360-992-1138
Port of Vancouver, Environmental Project Manager
3103 NW Lower River Road
Vancouver, Washington 98660

Mailing Address: Same

Relationship to Owner: Same

Property Address: 100 Columbia Street, Parcel No. 50225000
110 Columbia Street, Parcel No. 502245000
200 Columbia Street, Parcel No. 48844000
501 W Columbia Way, Parcel No. 502240000
No address for Parcel Nos. 48841000, 48843000, and 502246000
All Parcels Vancouver, Washington, 98660

Legal description: Section 27, Township 2 North, Range 1 East, Willamette Meridian.

Parcel Acreage: Approximately 10 acres Disturbance Area Acreage: Approximately 10 acres

A map showing property location is attached.

General Physical Description of Site, including current uses: The Port of Vancouver's Waterfront Development Master Plan project area is located in the southern portion of downtown Vancouver along the Columbia River shoreline, approximately 30 meters (m) (98 feet [ft]) west of the Interstate 5 (I-5) Bridge and approximately 45 m (148 ft) south of the Burlington Northern Santa Fe (BNSF) railway (Figures 1 and 2). In this location, the downtown Vancouver commercial area (to the north) meets Port of Vancouver (Port) industrial lands (to the west) and grassy waterfront parks (to the east). Currently, the project area consists of the former Red Lion Hotel Vancouver at the Quay complex, the Columbia Shores building, paved parking lots, a segment of SE Columbia Way, an outdoor amphitheater, a pier, a proposed trail easement, and public areas (Photos 1 through 7). At the northern end of the project area is an artificial berm for the BNSF railway. Columbia Street forms the eastern boundary of the project area, and the Columbia River forms the southern boundary. To the west of the project area are a paved parking lot and vacant lots slated for later development as part of separate projects.

Description of proposed activity: The Port's Waterfront Development Master Plan envisions redevelopment of a portion of the Vancouver waterfront into a mixed-use district that will include office, retail, hotel, and residential spaces, parking lots, bike and pedestrian paths, rain gardens, pedestrian bridges, a public marketplace and plazas, and public open space. The existing Terminal 1 building (part of the former Red Lion Hotel complex) is proposed for re-use. In the short term, demolition is planned for the Columbia Shores building and for portions of the former Red Lion Hotel complex, including the north wing, the west wing, the glass-enclosed breezeway, the porte cochere, and the swimming pool. In the long term, proposed redevelopments for the master plan may require shoreline modifications, renovation of the pier, demolition of the south wing, grading for erosion control, trenching for water, sewer, storm drainage, and natural gas utilities, excavation for underground parking, and construction of new buildings.

Predetermination Trigger:

- [x] Any portion of disturbance area within Predictive Model Probability Level A
- [ ] 5 acre or greater disturbance area wholly within Predictive Model Probability Level B.
- [x] Disturbance area within ¼ mile of known archaeological site
- [ ] Director option
- [ ] Discovery principle

BACKGROUND RESEARCH

Detail all background research: Historically, much of the project area was underwater beneath the surface of the Columbia River. Historical maps show that the modern Columbia River shoreline within the project area is approximately 90 m (295 ft) south of where it was in the late nineteenth century (Figures 3 through 5) (Sanborn Map & Publishing Company 1884, 1892, 1928, 1949). The modern shoreline in this location was created through repeated deposition of fill material consisting of sand, silt, and gravels dredged from the Columbia River. These fill deposits raised the landform approximately 4.6 m (15 ft) from its original height (Chapman et al. 2006). Early maps of Vancouver show a slough extending through the eastern portion of the project area in the 1880s (Sanborn Map and Publishing Company 1884, 1888, 1890). The slough was filled by 1890, a levee was constructed, and the shoreline in the vicinity was gradually expanded to the south until it reached its current configuration by the early 1950s.

The 1854 General Land Office (GLO) map for Township 2 North, Range 1 East shows what would later become downtown Vancouver, including the project area, on land claimed by the Hudson's Bay Company (HBC) (GLO 1854). In 1825, the HBC established Fort Vancouver approximately 0.8 km (0.5 mi) east of the project area. Fort Vancouver was a British fur-trade post and was the first permanent Euroamerican settlement in the Vancouver area. The Fort became a destination for travelers on the Oregon Trail in the 1830s (Jollota 2004).

The 1862 GLO map of the township shows the project area within the Donation Land Claim (DLC) of Amos Short (DLC No. 51) and within the original boundary of the St. James Catholic Mission (GLO 1862). The St. James Catholic Mission building was then to the northeast of the current project area. The circa 1880 St. James Catholic Church was moved to its present location 0.8 km (0.5 mi) north of the project area.

Amos Short and his wife, Esther Short, arrived at Fort Vancouver in 1845 and constructed a log cabin in what is now downtown Vancouver. HBC officials tried to evict the Shorts, since Americans could not legally make claims on British-held lands. The Shorts filed their DLC in 1853, and some of it was platted as part of the townsite of Vancouver, including the northern portion of the current project area. After Amos Short's death in 1853, Esther Short became a successful businesswoman in Vancouver. She set aside a block for a public square—present-day Esther Short Park—approximately 0.3 km (0.2 mi) north of the project area; the park is one of the oldest parks in the Northwest (Chapman et al. 2004; Jollota 2004).

Some of the first commercial businesses in Vancouver were built along the lower ends of Main and Washington Streets near a steamship landing to the east of the project area. Main Street was built on one of the earliest wagon roads in the area; it was a military road for some time, and by the 1920s became the route of U.S. Highway 99 (Chapman et al. 2006). The original Interstate Bridge (the current bridge for the north-bound lanes of I-5) was constructed in 1917, providing the first

automobile bridge connecting Vancouver and Portland (Van Ardsol 1986). Interstate 5 was completed through Vancouver in 1954, and a parallel bridge (the current bridge for the south-bound lanes of I-5) was built in 1958 (Holstine and Hobbs 2005). Today, the I-5 interchange leading towards the Interstate Bridge occupies much of the original Vancouver commercial district.

Sanborn fire insurance maps from 1884, 1888, and 1890, depict a slough extending northeast from the Columbia River through the eastern portion of the project area to between 3rd and 4th Streets (Sanborn Map & Publishing Company 1884, 1888, 1890). The project area is beyond the platted blocks of the city on the 1884 and 1888 maps, and it is first shown on the 1890 map. By 1890, a public levee had been constructed south of the city blocks, and the Vancouver, Klickitat, and Yakima Railway had built a line through the project area parallel to the Columbia River (Sanborn Map & Publishing Company 1890, 1892). Before the levee was constructed, the project area was likely underwater during annual Columbia River flood events as well as large floods that occurred in 1894, 1933, and 1948 (Van Arsdol 1986).

The Vancouver Klickitat and Yakima Railroad changed ownership to the Portland, Vancouver & Yakima Railway Co. in 1897, and then to the Northern Pacific Railroad in 1903 (Chapman et al. 2006; Robertson 1995). A U.S. Coast and Geodetic Survey (USCGS) map from 1890 shows one building in the northwest corner of the project area and two rail spurs extending east through the northern portion of the project area parallel to the Columbia River and terminating before Columbia Street (USCGS 1890). The 1907 Sanborn map (Figure 4) shows that the east-to-west oriented main line for the Northern Pacific split into four spurs where it reached the depot and loading dock within the project area. In addition to the Northern Pacific Railway depot and dock (which had a double deck), the 1907 map shows several warehouses, a coal chute, platforms, and walkways, many of which were elevated above the water on pilings. The northern section of the dock is labeled "Planked On Po[sts] 10' Abv Grd Level Within Upper Dock" (Sanborn Map & Publishing Company 1907).

After the Port of Vancouver was created in 1912, it began exporting prunes and other locally grown commodities (Port of Vancouver USA 2015; Van Arsdol 1986). In 1918, the Port entered into a contract with G.M. Standifer Construction Company to build wooden and steel ships during World War I (Port of Vancouver USA 2015). The Standifer shipyard was located just west of the Interstate Bridge and included the current project area. A 1918 photograph of Standifer shipyard shows the main office within the project area and ships under construction along the Columbia River shoreline just west of the project area (Figure 6).

By the early 1920s, the project area was owned by the City of Vancouver, and a municipal dock was constructed (Port of Vancouver USA 2015). The dock and pilings that support the existing Terminal 1 building were constructed circa 1921 and 1922 and operated as the Vancouver Municipal Dock at that time. The Port of Vancouver obtained ownership of the Vancouver Municipal Dock in 1925 and extended it. The Terminal 1 building was constructed on the dock circa 1926 (Chapman and O'Brien 2015).

The 1928 Sanborn map (Figure 5) shows two planked drives leading to the dock and Terminal 1 building, one at the foot of Columbia Street just east of the project area, and another within the project area crossing the "tidal flats" between solid ground to the north and the dock and Terminal 1 building to the south. The 1928 map also shows a welding works building and an asphalt plant in the northeast corner of the project area. At the western end of the project area was a lumber shed, office, and lumber yard that extended into the project area. The 1928 map shows several rail spurs extending into the project area, parallel to the river and terminating at the dock. Several utilities are also shown on the map (Sanborn Map & Publishing Company 1928). A photograph from 1930 (Figure 7) corresponds with the 1928 Sanborn map and shows the "tidal flat" within the project area covered with water, presumably during high tide. The rear of the welding works building and the planked roads and walkways are shown elevated on pilings.

In 1934, the Port leased property to the Spokane, Portland, & Seattle railway for a grain facility. The Port's involvement with grain exports prompted improvements to port facilities, including construction of rail tracks and dredging the river. During World War II, the Kaiser Shipbuilding Company leased lands from the port east of the current project area (Port of Vancouver USA 2015). The Columbia River was deepened by dredging to accommodate shipping traffic, and dredge fill was deposited within the project to fill in the "tidal flats" in the 1930s and 1940s (Van Arsdol 1986).

An aerial photo from 1956 (Figure 8) shows Columbia Street in its current configuration, oriented north-to-south adjacent to the project area and curving to the east at the Columbia River, passing beneath the Interstate Bridge. Old pilings from the planked road and dock are visible along the Columbia River shoreline, while the remainder of the project area was filled in by 1950. Several buildings, numerous shipping containers, stacks of lumber, and rail spurs are shown in the project area.

The Red Lion Vancouver Hotel at the Quay restaurant/hotel complex was originally constructed between 1959 and 1973, incorporating the Terminal 1 building into its design. In 1959, the Terminal 1 warehouse building was remodeled into the Quay Restaurant and Bar, one of the most upscale restaurants in Vancouver (Dake and Oliver 2015). By 1962, a meeting area known as the Quay Annex was constructed adjacent to the restaurant in the Terminal 1 building. When the motel was expanded in the mid-1960s, it became known as the Inn at the Quay (Chapman and O'Brien 2015). An aerial photo from 1967 shows the hotel complex and parking lots were in the eastern portion of the project area, and shipping containers were in the western portion. The nearby Columbia Shores building was built in 1968.

The Red Lion Hotel complex was remodeled and expanded in the early 1970s and purchased by Clark County business owners, who became founders of the Red Lion Hotels (Dake and Oliver 2015). The hotel and restaurant complex then became the Red Lion Vancouver Hotel at the Quay, a landmark in the area. The hotel complex closed in October of 2015.

An aerial photograph from 1974 (Figure 9) shows the Inn at the Quay after one of the motel expansions. The photograph also shows streetcar tracks (which have been recorded as archaeological site 45CL444) along Columbia Street, curving southwest into the project area after crossing beneath the BNSF railway. Aerial photographs from Google Earth show that the access road and roundabout within the project area were installed circa 2000 (Google Earth 2000).

The area west of the project area was home to lumber mills and later the Boise Cascade paper mill. In the 1880s, the Michigan Lumber Company mill, W.J. Ross Saw and Planning Mill, and the Dubois Brothers' Saw and Planning Mill operated along the Columbia River at the end of Harney and Jefferson Streets. Over time, other lumber and paper companies moved into the area, such as the Pittock-Leadbetter Lumber Company, the Columbia River Paper Mills, and the Boise Cascade mill (Chapman et al. 2006). The buildings and structures associated with the former lumber and paper industries were removed from the waterfront area circa 2006 (Windler et al. 2013).

Previous Archaeological Investigations

Records available online from the Washington Information System for Architectural and Archaeological Records Data database and from the AINW library were reviewed to determine if archaeological resources have been previously recorded in the project area and to determine if cultural resource surveys had been conducted in and near the project area. Numerous archaeological surveys and predetermination studies have been conducted in downtown Vancouver, and approximately 50 archaeological sites are located within a 0.8-km (0.5-mi) radius of the project area. Four previous archaeological studies overlap portions of the project area (Freed 2001; Minor and Kramer 2015; Roulette and Becker 2014a, 2014b; Windler et al. 2013). The closest sites to the project area, including 45CL444, 45CL646, 45CL687, 45CL924, 45CL990, and 45CL1082, are historic-period

archaeological sites that reflect nineteenth- and twentieth-century development of downtown Vancouver.

The northern portion of the project area overlaps with a predetermination study conducted in 2001 (Freed 2001). The study consisted of a literature review, a pedestrian survey, and mechanical excavation of four trenches. Trench excavation revealed fill deposits of gravels and sand extending to 1.5 m (5 ft) below the surface overlying clay deposits. No artifacts were found. The project area was interpreted as having been disturbed by construction of the existing BNSF railway, and no further archaeological work was recommended (Freed 2001).

The northern portion of the project area overlaps a study conducted in 2014 for the construction of Columbia Way and other nearby roadways and utilities (Roulette and Becker 2014a, 2014b). The study consisted of background research and a pedestrian survey. No artifacts or evidence of an archaeological site was found during the project; however, five areas considered likely to contain archaeological resources, called high probability areas (HPAs), were identified based on historical maps. Portions of the current project area overlap with one of these high probability areas, HPA-1. HPA-1 follows Columbia Way (which had not been constructed at the time of the 2014 survey) from the intersection with Columbia Street to Esther Street (Roulette and Becker 2014a). This area was designated as an archaeological HPA because it paralleled the original Columbia River shoreline and intersected the filled-in slough located near the foot of Columbia Street; both the former shoreline and slough are locations where buried pre-contact and historic-period archaeological deposits are considered likely. Additional archaeological work was recommended within the defined HPAs, including a backhoe-assisted survey, resulting in the identification of remnants of a railroad spur recorded as site 45CL1082, described below (Roulette and Becker 2014a, 2014b).

In 2015, a cultural resource assessment was completed for the Vancouver Waterfront Redevelopment, which included the current project area (Minor and Kramer 2015). The assessment consisted of a background review of historical documents and archaeological data. Minor and Kramer (2015) concluded that there is a high likelihood that the current project area contains archaeological resources. Due to prior development and uses of the project area, archaeological resources are likely to be from the historic period and industrial in nature rather than intact, pre-contact archaeological deposits.

Two cultural resource studies were conducted along the waterfront immediately west of the project area that inform on the possible conditions of the waterfront within the Port's Waterfront Development. A predetermination study conducted in 2005 for the former Boise White Paper company found that parts of the property were filled and capped with upwards of 9 m (30 ft) of sand and silt dredged from the river (Roulette and Finley 2005). A cultural resource survey conducted along the Vancouver waterfront immediately west of the project area noted fill material extending to 4 m (13 ft) below the surface in backhoe pits (Windler et al. 2013). The 2013 study area overlaps the western end of the current project area (Windler et al. 2013). No archaeological materials were found during either study.

Previously Recorded Archaeological Resources

The nearest recorded archaeological resources in the vicinity of the current project area are sites 45CL444, 45CL924, 45CL990, and 45CL1082, as shown on Figure 2. These are all historic-period archaeological sites.

Archaeological site 45CL444 is located within the right-of-way for Columbia Street along the eastern boundary of the project area. The site consists of streetcar tracks that once ran north-to-south along Columbia Street between W. 7th Street and W. 3rd Street (Robbins 1996; Smits and Fuld 2015). The tracks were associated with the Vancouver Traction Company streetcar line, which was in operation by 1912. The recorded location of site 45CL444 is within Columbia Street; however, historical maps and aerial photographs indicate that the streetcar line turned west and continued into the current project

area and what is now the parking lot for the former Red Lion Hotel complex (Figures 8 and 9). Segments of streetcar tracks were visible in Columbia Street when the site was recorded in 1996 (Robbins 1996). Buried streetcar tracks may be present beneath the pavement within the current project area; alternatively, the tracks may have since been removed.

AINW conducted archaeological monitoring at site 45CL444 during excavations for utility installation beneath Columbia Street for the Vancouver Waterfront Development project (Smits and Fuld 2015). No evidence of the streetcar tracks was identified in 2015, indicating that at least some of the streetcar tracks have been removed since 1996. Historic-period items (including several metal fragments, colorless and aqua glass fragments, undecorated whiteware vessel sherds, the neck from a stoneware ale bottle, and brick fragments) were identified in redeposited dredge fill sediments during monitoring at site 45CL444. Several partial timber pilings were also identified in the dredge fill beneath Columbia Street. The ends of the pilings were sawn or broken, and the orientation of the pilings (askew rather than vertical) indicated that they were not intact features but were jumbled in secondary context. Site 45CL444 was recommended to be not eligible for listing in the National Register of Historic Places (NRHP).

Located on the east side of Columbia Street, site 45CL924 was originally identified in 2008 during archaeological studies for the I-5 Columbia River Crossing bridge project (Minor and Carlisle 2009; Minor and Peterson 2013:7-53 – 7-58). Ground-penetrating radar reconnaissance in 2008 indicated that deep fill deposits cover the entire surface of the site (Minor and Peterson 2013:7-55). Later archaeological and geoarchaeological investigations indicated that the slough in this location was filled with dredge sand and gravels sometime after 1892, and later with concrete and asphalt rubble in some locations (Minor and Carlisle 2009; Minor and Peterson 2013). Beneath the deep fill deposits, which extend to depths between about 4.8 and 5.5 m (16 and 18 ft) below the surface, a small number of historic-period artifacts were encountered from the slough mud in 2012. These artifacts were interpreted to represent a secondary refuse deposit of items discarded in the slough before it was filled. The site is among those determined eligible for listing in the NRHP as part of the proposed bridge project.

In 2015, AINW monitored the excavation of two trenches for the installation of sanitary sewer lines through site 45CL924 for the Vancouver Waterfront Development project (Smits and Fuld 2015). Historic-period items identified in the upper fill deposit consisted of several ferrous metal fragments and brick fragments. Jumbled timber pilings were also identified in secondary contexts among the redeposited dredge materials. No evidence of native slough sediments was identified during the monitoring at site 45CL924 in 2015. Although site 45CL924 was previously determined eligible for listing in the NRHP, AINW recommended that the deep fill deposits encountered during monitoring do not contribute to the NRHP eligibility of the site. Historical maps show that the slough may have extended slightly into the eastern portion of the current project area before it was filled sometime after 1892.

Archaeological site 45CL990 is a submerged site discovered during a marine archaeology survey of the north bank of the Columbia River (Marcotte and Marken 2011). It was documented during the I-5 Columbia River Crossing bridge project and was determined eligible for listing in the NRHP. The site is located on a submerged shelf in the water beneath the I-5 bridge and adjacent to the foot of Columbia Street. Glass bottles, ceramic sherds, and bricks were found in shallow water approximately 3 to 5 m (10 to 15 ft) below the water surface. The remains of dolphins (clusters of pilings) were also recorded east of the I-5 bridge. Two raised landforms identified on the bottom of the river at site 45CL990 were interpreted to be evidence of cultural modification to the shoreline during the twentieth century (Marcotte and Marken 2011).

Archaeological site 45CL1082 is recorded approximately 40 m (131 ft) west of the current project area underneath the newly constructed Columbia Way. The site is a 41-m (135-ft) long segment of a railroad spur and includes the metal rail, railroad ties, and crushed rock forming the railroad ballast, concrete walls on both sides of the alignment, and eight wood pilings associated with the walls and

tracks (Roulette and Finley 2005). The site was identified 1.5 m (5 ft) below the surface in the profile of mechanically excavated trenches. Fill was found to extend below the tracks to 3 m (11 ft) below the surface. The railroad tracks are interpreted to be a spur of the main line used to access a loading dock. The tracks line-up with a spur shown on the 1907 Sanborn map (Becker and Finley 2014). Railroad cars and tracks are visible in this location on photographs taken in 1956 and 1959 (see Figure 8); these photographs show that several spur lines extended east into the current project area. Portions of these spur lines may be present beneath the pavement.

The former Red Lion Hotel at the Quay complex and the nearby Columbia Shores building were evaluated for NRHP eligibility in 2016 (Chapman and O'Brien 2016). Chapman and O'Brien (2016) recommended the complex to be eligible for listing in the NRHP; however, both buildings were determined by the Washington Department of Archaeology and Historic Preservation to be not eligible for listing in the NRHP.

In summary, several archaeological studies have been conducted in and near the current project area, and several historic-period archaeological resources have been recorded in the vicinity. Historical maps and photographs indicate that the southern portion of the project area was underwater beneath the Columbia River until the modern shoreline was created by about 1950 through repeated deposition of dredge fill material in this location. A slough, now filled, was present to the east and extended into the eastern portion of the project area. At nearby site 45CL924, on the east side of Columbia Street, historic-period artifacts have been found in slough mud beneath approximately 4.8 to 5.5 m (16 to 18 ft) of fill material, which was used to fill in the slough sometime after 1892. It is possible that other archaeological deposits are present in the slough beneath the pavement in the eastern portion of the current project area. Studies conducted on lands adjacent to the current project have shown fill deposits that extend as deep as 9 m (30 ft) below the modern ground surface.

Late nineteenth- and early twentieth-century developments within the project area included a streetcar line, a railroad depot, rail spurs, warehouses, and a loading dock, some which were connected by planked drives and walkways supported on pilings. After 1918, the Port entered into a contract with G.M. Standifer Construction Company to build wooden and steel ships in and near this location; the company's office was within the project area. By the early 1920s, the project area was owned by the City of Vancouver, and a municipal dock was constructed. The Port of Vancouver built the Terminal 1 building on the dock circa 1926. A welding works also operated in the northern portion of the project area in the late 1920s, and dredge fill was deposited within the project area between about 1930 and 1950, when the modern shoreline reached its current configuration.

The former Red Lion Inn Vancouver at the Quay restaurant/hotel complex was constructed and expanded from 1959 to 1973, incorporating the Terminal 1 building into its design. In 1959, the Terminal 1 warehouse building was remodeled into the Quay Restaurant and Bar. The hotel and restaurant complex remained in operation until October 2015, when the Red Lion Hotel at the Quay complex closed. A restaurant called WareHouse '23 opened in July 2016 in the former restaurant area. To the north of the restaurant is Columbia Way, which was constructed in 2015 and bisects the project area east to west.

Given the extensive fill and historical development, it is likely that no pre-contact archaeological site is within project. Historic-period archaeological resources, including pilings and structural features, may be present, although many would be under substantial fill. Significant resources are not likely, except in the southeast edge of the project.

SURFACE INSPECTION

Date of inspection: November 30, 2015 and December 1, 2015 Time of Day: Afternoon

Weather conditions at time of inspection: Rainy and cold.

Describe soil visibility: ☐ over 50% visible ☒ less than 50% visible

Description of proposed project's locational characteristics: The project area is along the Columbia River waterfront in downtown Vancouver where the former Red Lion Hotel at the Quay complex is currently located. It is approximately 30 m (98 ft) east of the I-5 bridge and approximately 0.3 km (0.2 mi) south of Esther Short Park. The project area is relatively flat, sloping slightly down toward the river. The project lies at an elevation of 6 to 11 m (20 ft to 35 ft) above mean sea level, with lowest elevation areas along the shoreline and highest elevation areas in the northeast corner.

The project area consists of the former Red Lion Hotel at the Quay complex, the Columbia Shores building, a segment of SE Columbia Way, and an outdoor amphitheater, as well as associated parking lots, pier, and public areas. The majority of the project area is paved. Manicured lawns and Douglas-fir, birch, and ornamental trees surround buildings and parking lots.

The former Red Lion Hotel at the Quay complex consists of the Port of Vancouver's 1926 Terminal 1 building and hotel wings, a courtyard, a swimming pool, a breezeway, and a porte cochre near the hotel entrance. Much of the Terminal 1 building extends above the Columbia River on a pier and piling substructure constructed circa 1921 and 1922. Paved parking lots are north, west, and east of the hotel complex and extend to Columbia Street. A small concrete viewing area is immediately east of the hotel overlooking the river shore and I-5 bridge. The Columbia Shores building is located west of the hotel complex. A parking lot, pier, outdoor amphitheater, and public areas are to the south of the Columbia Shores building. Another parking lot and a traffic circle is west of the Columbia Shores building. Newly constructed Columbia Way, oriented east-to-west, bisects the project area. A vacant lot and parking lots are north of the road. The berm forming the base for the BNSF railway tracks is to the north of the project limits.

The U.S. Department of Agriculture Natural Conservation Service Soil Survey maps the soils within the project area as fill. To the east of the project area, within and near sites 45CL444 and 45CL924, loose, mottled, sandy and gravelly fill materials were observed to depths of 6.1 m (20 ft) and 6.7 m (22 ft) below the ground surface (Minor and Peterson 2013; Smits and Fuld 2015). To the west of the project area, fill was noted up to 4 m (13 ft) below the surface (Windler et al. 2013), and sand and silt dredged from the river were noted as extending deeper than 9 m (30 ft) below the surface (Roulette and Finley 2005).

Describe surface investigation procedures: On November 30 and December 1, 2015, AINW archaeologist Kristen A. Fuld, M.A., R.P.A., performed a reconnaissance and pedestrian survey of the project area. The project area was surveyed by driving through the paved parking lots and along each street as well as walking the project area perimeter, around buildings, and in places with potential mineral soil exposure, such as vegetated and landscaped areas. All areas of exposed mineral soils were inspected. Mineral soil visibility was low, approximately 10%. Soil exposures were limited to tree bases and bare patches within landscaped areas. Exposed soils were brown loam and grayish brown sands that appeared to be dredge fill material. To the south and west of the western end of the project area, portions of the undeveloped shoreline were observed to be armored with riprap. Wooden pilings were also observed in the river to the south and west of the project area. The pilings in the river will not be impacted by the proposed project.

Describe any artifacts found: No pre-contact or historic-period artifacts or features were observed within the project area during the reconnaissance or pedestrian surface inspection.

SUBSURFACE INSPECTION

Describe and quantify amount of subsurface probing and manual surface exposing activities that were carried out, if any: No shovel tests were excavated as nearly all of the project area is paved, and nearby investigations have shown that the landform was created through deposition of fill that may extend as deep as 9 m (30 ft).

AINW archaeologist Kristen Fuld monitored the excavation of three geotechnical bore holes, B1, B2, and B3 (Figure 2). The bore holes were excavated by Geotechnical Resources, Inc. to collect soil samples. Bore hole B1 was located in the north-central portion of the project area, within a paved parking lot. Bore hole B2 was located in the western portion of the project area, within a lawn on the south side of the Columbia Shores building (Photo 3). Bore hole B3 was located in the eastern portion of the project area, adjacent to the hotel entrance, in a paved parking lot (Photo 7). Piezometers were placed in two of the bore holes, B1 and B3. A 12.7-centimeter (cm) (5-inch [in]) diameter drill using a tricone drill bit and split spoon sampler was used. Samples were collected at 0.76-m (2.5-ft) intervals in the upper 4.6 m (15 ft) of sediment. Below a depth of 4.6 m (15 ft), samples were collected at 1.5-m (5-ft) intervals. The bore holes were terminated when gravels were reached; bore hole B1 was terminated at 9 m (30 ft) below surface, and bore holes B2 and B3 were terminated at 15.2 m (50 ft) below surface.

Table 1 describes the soil observed in each split spoon sample at each interval. Generally, soils consisted of a surface layer of brown silt overlaying grayish brown silt and sand interpreted to be fill material. In bore hole B1, soils became clay-rich at 2.3 to 3 m (7.5 to 10 ft) below the surface, and gravels were encountered at approximately 7.3 m (24 ft) below the surface. In bore hole B3, grayish brown silty sand with iron nodules was encountered from 4.6 to 6.1 m (15 to 20 ft) below the surface. Gray sand was encountered at 7.6 to 9.1 m (25 to 30 ft) in bore holes B2 and B3. The gray sand capped layers of dark gray sands and silts until gravels were encountered at 12.5 m (41 ft) (B2) and 14 m (46 ft) (B3). Gravels were encountered approximately 7.6 m (25 ft) in B1, 14.0 m (46 ft) in B2, and 12.5 m (41 ft) in B3.

No pre-contact artifacts were observed in the split spoon samples. A segment of twisted metal wire was found in bore hole B2 at 7.6 m (25 ft) below the surface within the bottom of the fill deposit (Photo 8). The wire was less than 1 cm (0.4 in) in diameter, pliable, and was not rusted; it is considered to be modern.

Grassy debris representing possible former ground surfaces was found among grayish brown and dark gray silt in bore holes B1 and B2. In bore hole B1, located in the northern portion of the project area, grassy debris was observed at approximately 1.5 to 3 m (5 to 7.5 ft) below the surface. In bore hole B2, located in the southern portion of the project area closer to the Columbia River, grassy debris was observed at 4.6 to 6.1 m (15 to 20 ft) below the surface. Grassy debris was encountered at a shallower depth in the northern portion of the project area (B1) and at a deeper depth in the southern portion (B2) because the original landform sloped down to the south towards the Columbia River.

The results of the bore hole excavations suggest that fill extends to approximately 2.3 to 3 m (7.5 to 10 ft) below the surface in the northern portion of the project area (bore hole B1) and to 7.6 to 9.1 m (25 to 30 ft) below the surface in the southern portion of the project area (bore holes B2 and B3). Grassy debris found in two of the bore holes indicate a former surface was present in the northern portion of the project area (bore hole B1) at 1.5 to 3 m (5 to 7.5 ft) below the surface and in the southern portion of the project area (bore hole B2) at 4.6 to 6.1 m (15 to 20 ft) below the surface.

Although buried slough deposits are present at nearby site 45CL924, no slough deposits were observed during bore hole excavations for the current project.

FINDINGS AND CONCLUSIONS

State findings and conclusions: No evidence of a pre-contact or historic-period archaeological site was observed during the pedestrian survey or during monitoring of geotechnical bore holes within the project area. One segment of twisted metal wire was observed in dredge fill material in bore hole B2 at 7.6 m (25 ft) below the surface. The age of the wire is not known, and it is not considered to be a historic-period archaeological artifact.

Archaeological monitoring of bore holes within the project indicate that the depth of fill material capping the project area varies by location and extends to depths of at least 2.3 to 3 m (7.5 to 10 ft) below the surface and up to 7.6 to 9.1 m (25 to 30 ft) below the surface. Other studies in the vicinity have noted fill deposits to similar depths.

No archaeological resources have been recorded within the current project area. However, several historic-period sites have been identified nearby, suggesting that similar materials may be present within the project area.

- Archaeological site 45CL444, consisting of the remains of a former streetcar alignment, is located in Columbia Street immediately to the east of the project. Although the boundary of site 45CL444 does not extend into the current project area, historical photographs show that the streetcar line turned west from Columbia Street into the project area (Figures 8 and 9). Remnants of the streetcar line may be present beneath the paved parking lot for the Red Lion Hotel complex, unless they had been removed previously.

- Approximately 40 m (131 ft) west of the project area, site 45CL1082 consists of a segment of a railroad spur including rails, railroad ties, crushed rock forming the railroad ballast, concrete walls on either side of the railroad, and eight wood pilings (Roulette and Finley 2005). The site was identified 1.5 m (5 ft) below the surface. Portions of this spur and perhaps other spur lines leading to the dock may be present beneath the paved parking lot.

- At nearby site 45CL924, on the east side of Columbia Street, historic-period artifacts were found in slough mud beneath approximately 4.8 to 5.5 m (16 to 18 ft) of fill material that was used to fill in the slough sometime after 1892. Evidence of the buried slough deposit and archaeological materials discarded in the slough may be present beneath the pavement in the eastern portion of the current project area. There is limited possibility the remains of a pre-contact site is within the project.

- Historical maps and photographs indicate that the landform along this portion of the waterfront was created through deposition of dredge fill material between the late nineteenth century and about 1950. Borings monitored for this project and nearby projects indicate that the fill extends to depths of at least 2.3 to 3 m (7.5 to 10 ft) below the surface and up to 7.6 to 9.1 m (25 to 30 ft) below the surface. It is possible that pre-contact archaeological deposits are present along the buried former shoreline beneath the fill; however, later historic-period developments within the project area likely would have impacted the integrity of pre-contact archaeological deposits, if any were present.

- Although no archaeological resources were identified during this predetermination study, background research indicates that the project area has a high potential for containing historic-period archaeological resources beneath the fill deposits that cap the project area. Historic-period archaeological deposits and features associated with the railroad depot, the

Standifer shipyard, municipal dock, and other developments may be present within the project area. Specifically, remnants of railroad spurs, building foundations, and cut-off pilings may be present within the fill deposits and beneath the fill. Scattered artifacts may be present within the fill material, and accumulations of artifacts may be present on buried former land surfaces or in subsurface archaeological features such as wells, privies, or refuse pits that may be present beneath the fill.

In the short term, the Port plans to demolish portions of the Red Lion Hotel complex and the nearby Columbia Shores building. The north and west wings of the hotel complex and the Columbia Shores building were constructed on thick deposits of fill material, while the south wing of the hotel was constructed on pilings over the water. (The Terminal 1 building is planned to remain in place.) Demolition of these buildings is not expected to require ground disturbance deeper than the existing foundations, and therefore **archaeological monitoring is not recommended during demolition of these buildings**.

In the long term, proposed redevelopments for the Port of Vancouver Waterfront Development Master Plan may require shoreline modifications, renovation of the pier, grading for erosion control, trenching for water, sewer, storm drainage, and natural gas utility lines, excavation for underground parking, and construction of new buildings. **A project-specific archaeological monitoring plan(s) should be developed when the nature and extent of specific ground-disturbing activities have been identified for the master plan or subsequent designs. The monitoring plan(s) will address when and where archaeological monitoring should occur as well as where monitoring is not needed during construction.**

RECOMMENDATION

Recommendation:

- ☐ An archaeological resource survey is necessary.
- ☐ An archaeological resource survey is not necessary.
- ☒ Monitor during construction --- to address future construction impacts.

CERTIFICATION AND SIGNATURE

I certify that I am a:

☐ qualified archaeologist, as defined by RCW 27.53.030(9).

☒ professional archaeologist, as defined by RCW 27.53.030(8) and WAC 25-48 020(4).

Signature of Archaeologist: Date: March 7, 2016

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TABLE 1

SOIL DESCRIPTIONS FOR BORE HOLES MONITORED BY AINW

DEPTH BELOW THE SURFACE	B1	B2	B3
0-2.5 ft	Brown Silt	Brown Silty Sand	Brown Silty Sand
2.5-5 ft	Grayish Brown Silt	Grayish Brown Silty Sand	Brown Silty Sand
5-7.5 ft	Grayish Brown Silt with Grassy Debris	Grayish Brown Silty Sand	Grayish Brown Silty Sand
7.5-10 ft	Grayish Brown Clayey Silt	Grayish Brown Silty Sand	Grayish Brown Silty Sand
10-12.5 ft	Gray Clayey Silt	Grayish Brown Silty Sand	Grayish Brown Silty Sand
12.5-15 ft	Gray Clay	Brown Silty Sand	Grayish Brown Silty Sand
15-20 ft	Gray Clay	Dark Gray Silt with Grassy Debris	Iron-Rich Grayish Brown Silty Sand
20-25 ft	Dark Gray Silty Sand; Gravels encountered at 24 ft	Brown Sand	Grayish Brown Silty Sand
25-30 ft	Gravels	Gray Sand	Gray Sand
30-35 ft	Not Excavated	Dark Gray Layered Sands and Silts	Dark Gray Layered Sands and Silts
35-40 ft	Not Excavated	Dark Gray Layered Sands and Silts	Dark Gray Layered Sands and Silts
40-45 ft	Not Excavated	Dark Gray Layered Sands and Silts	Dark Gray Layered Sands and Silts with Gravels encountered at 41 ft
45-50 ft	Not Excavated	Dark Gray Layered Sands and Silts Gravels encountered at 46 ft	Gravels

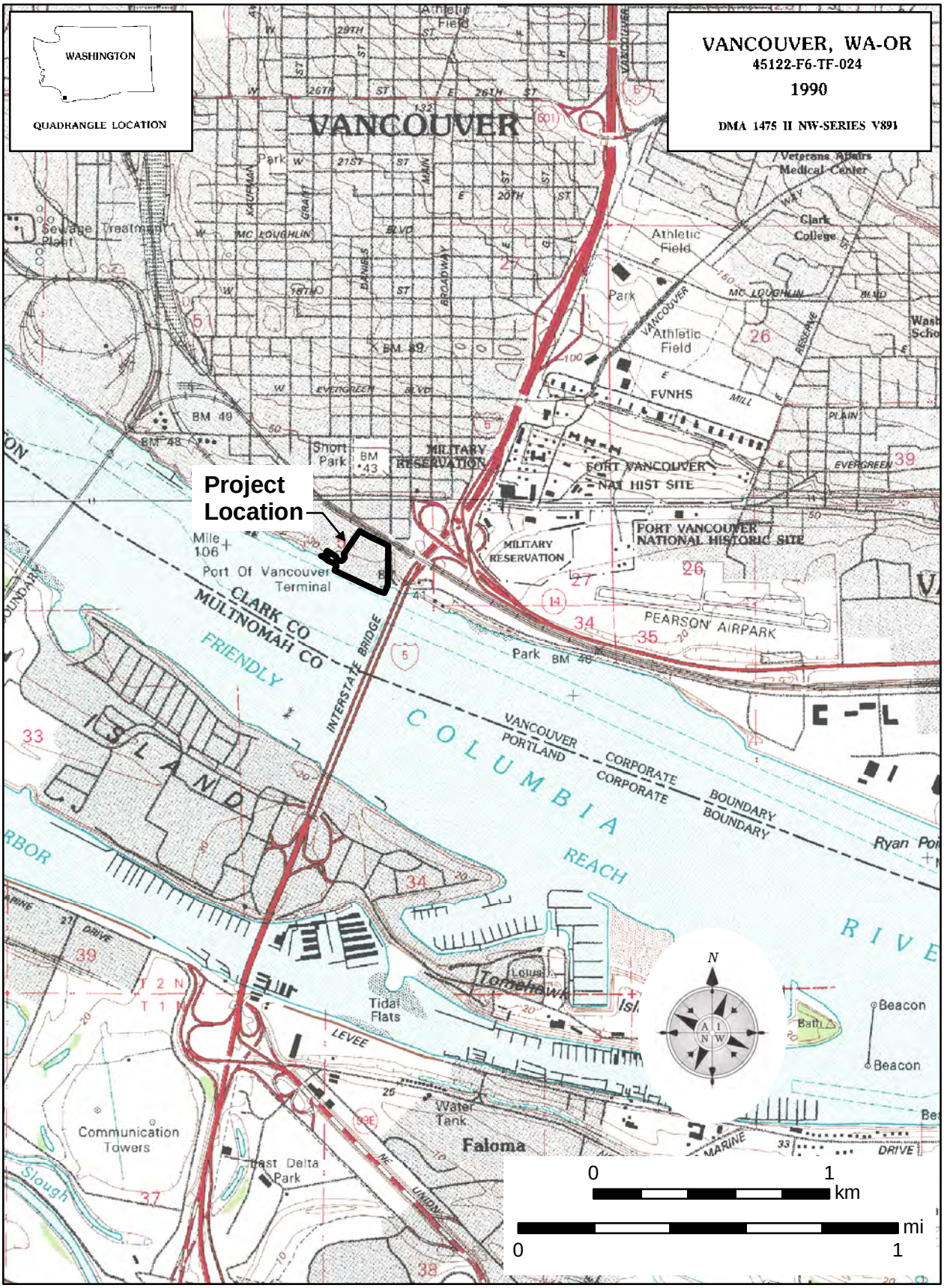

Figure 1. Location of the Waterfront Development Master Plan project in Vancouver.

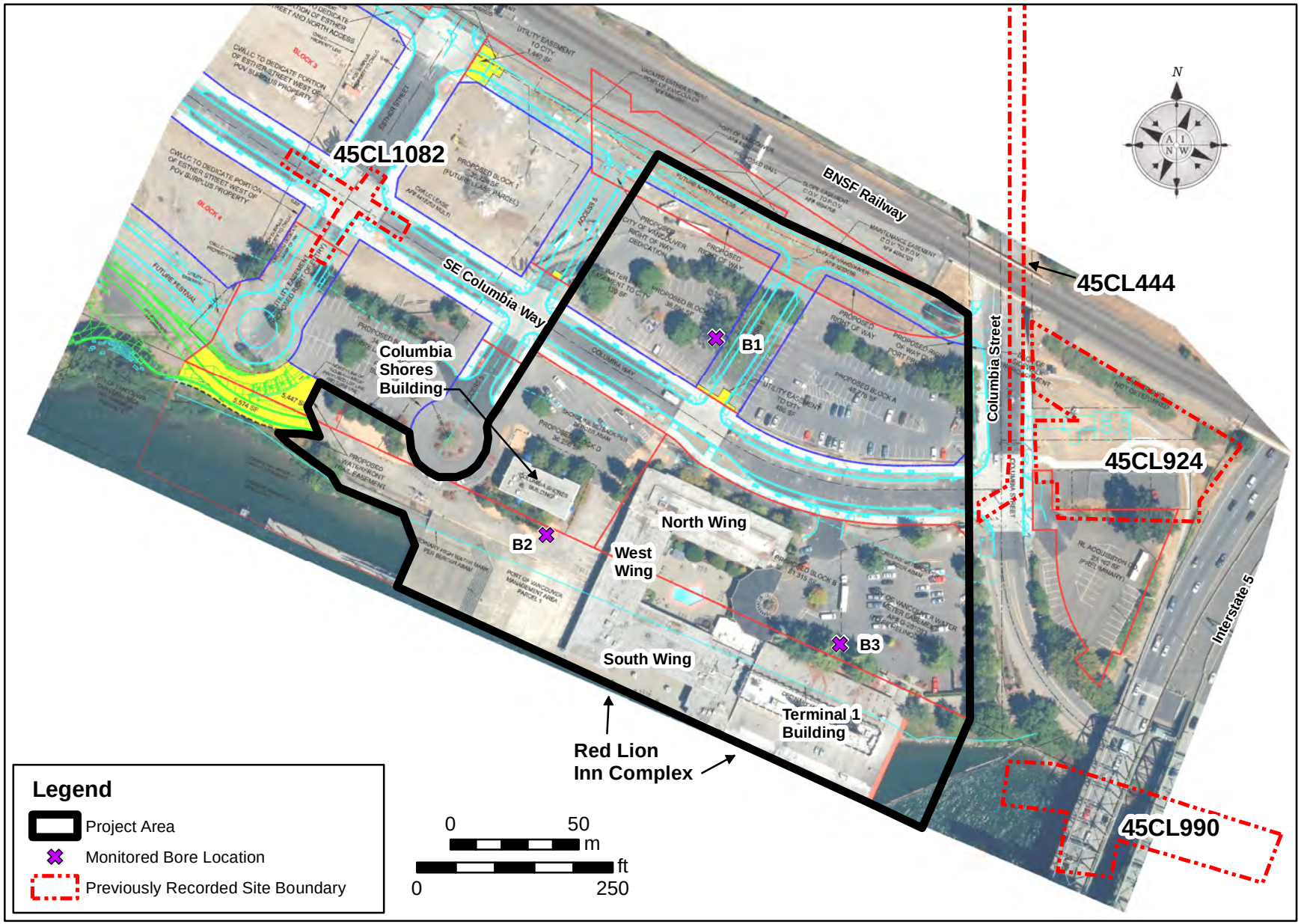

Figure 2. Aerial photograph showing the Waterfront Development Master Plan project area, bore hole locations monitored by AINW, and previously recorded archaeological sites nearby. Design plans outside of AINW's project area are part of separate projects and are not included in the study.

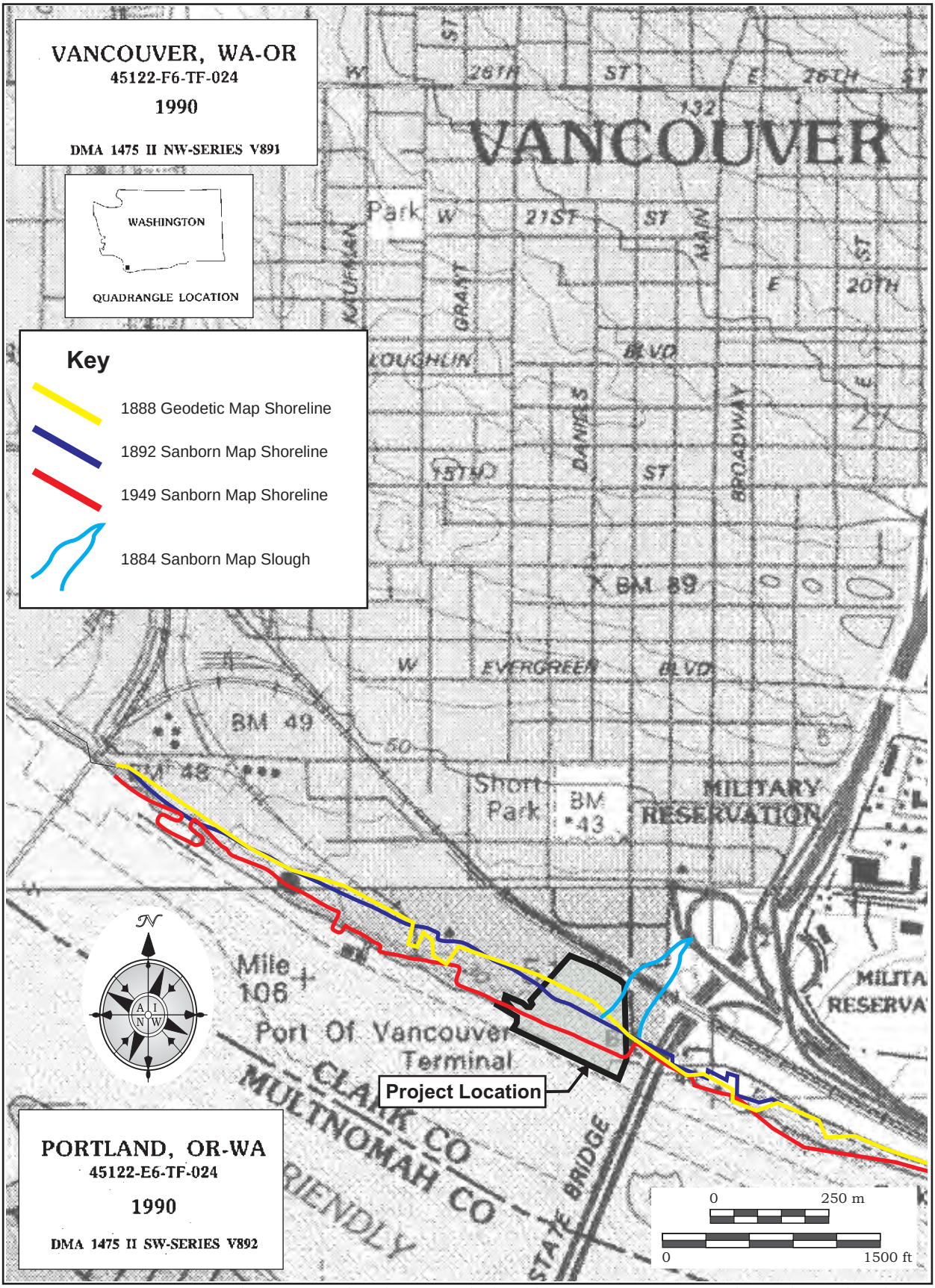

Figure 3. Map showing earlier historical shoreline configurations along the Columbia River (after Chapman et al. 2006).

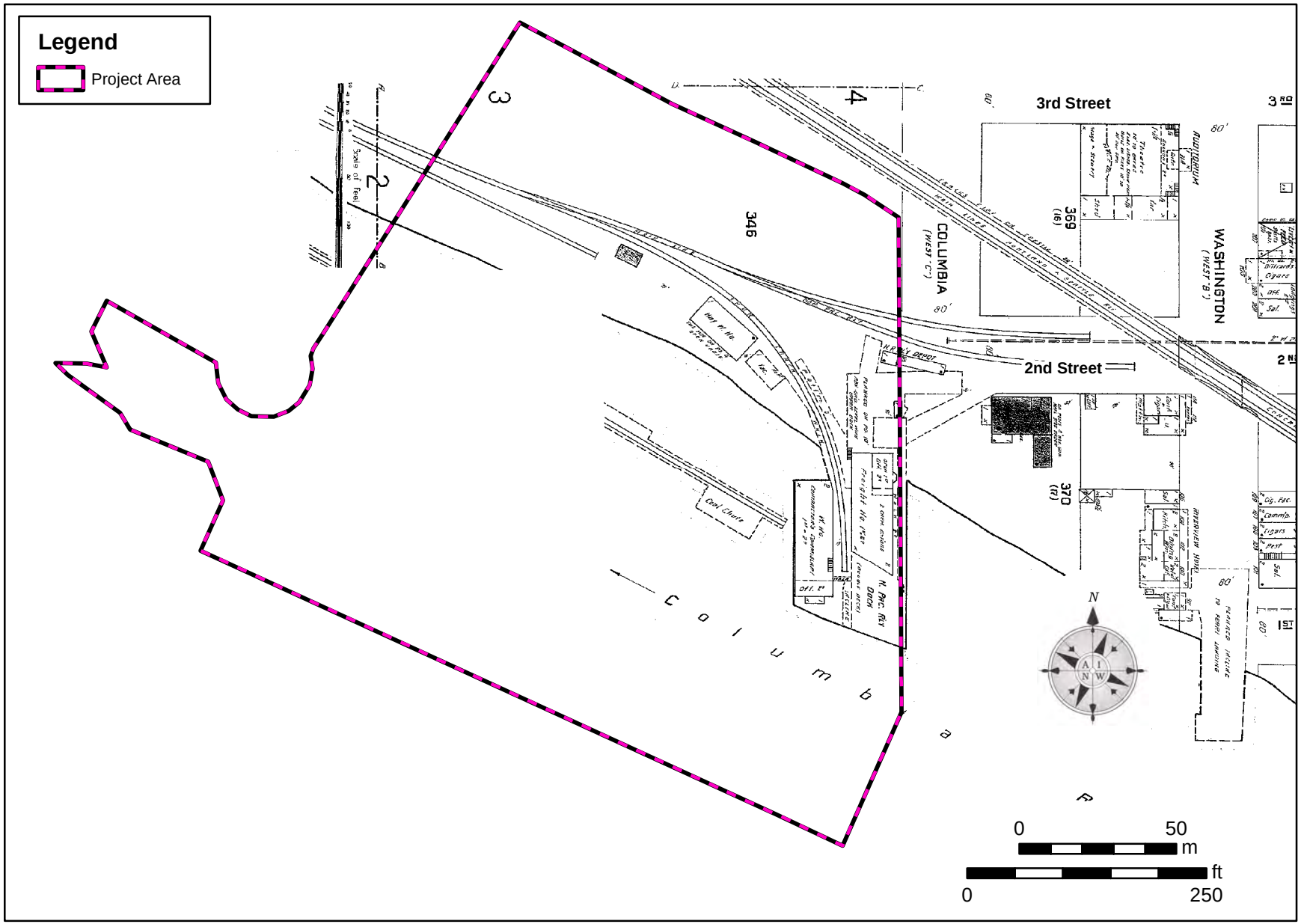

Figure 4. 1907 Sanborn fire insurance map showing the project area.

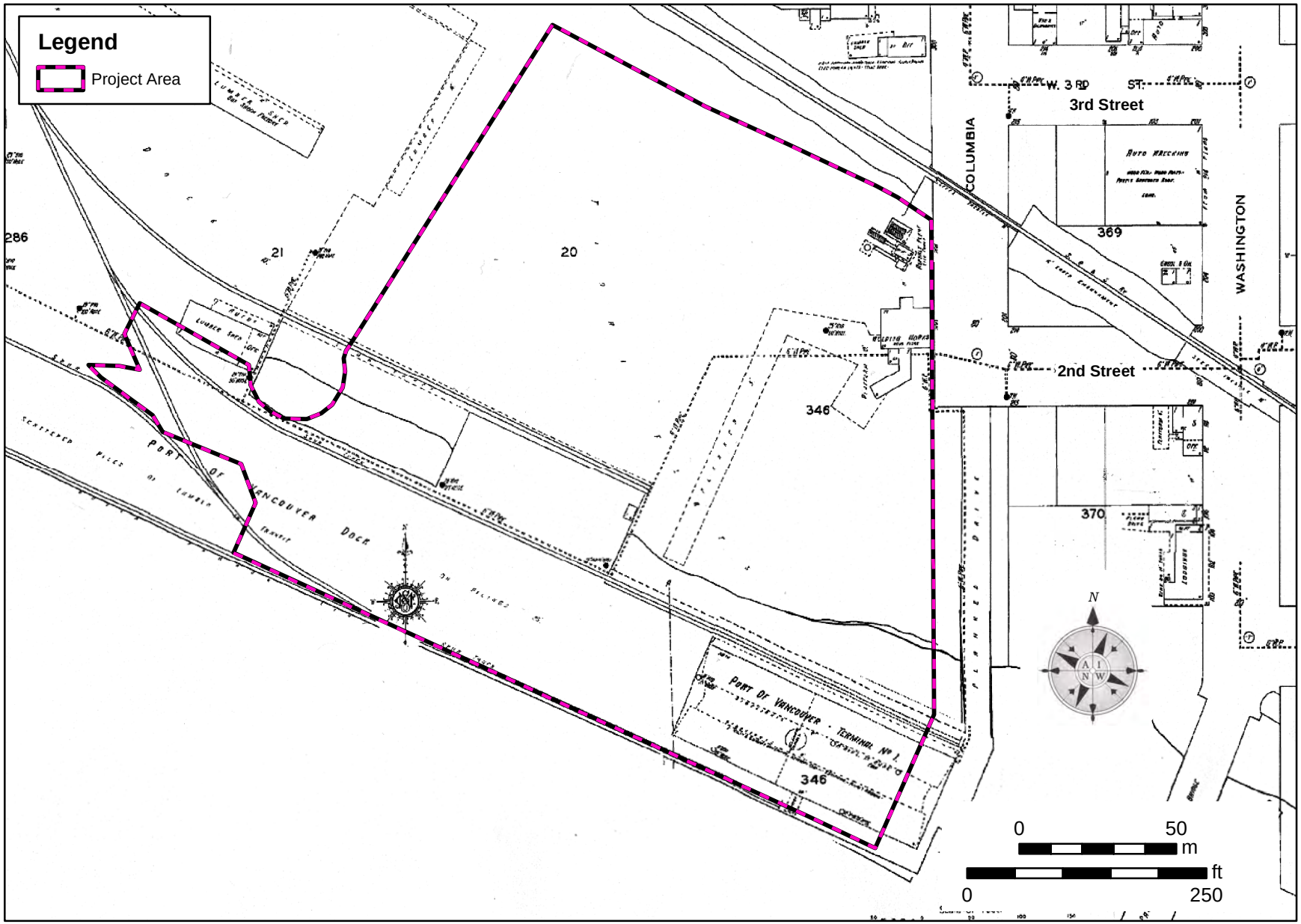

Figure 5. 1928 Sanborn fire insurance map showing the project area.

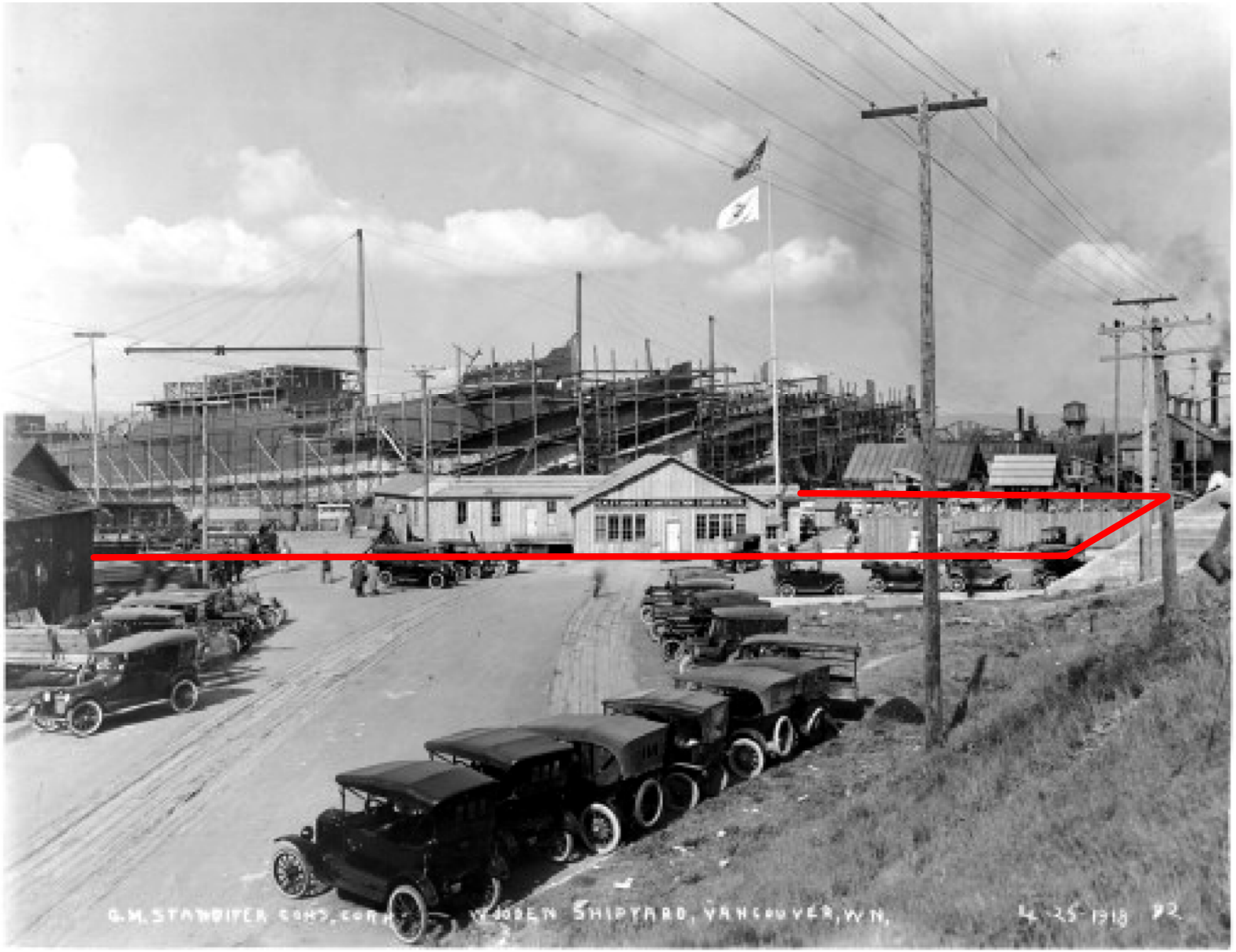

Figure 6. Overview of project area in April 1918, when the property was part of the Standifer shipyard. The view is towards the southwest from the BNSF railway overpass near Columbia Street. The red line marks the approximate boundary of the current project area.

Figure 7. Overview of project area circa 1930. The view is towards the southwest from the BNSF railway overpass over Washington Street. The red line marks the approximate boundary of the current project area.

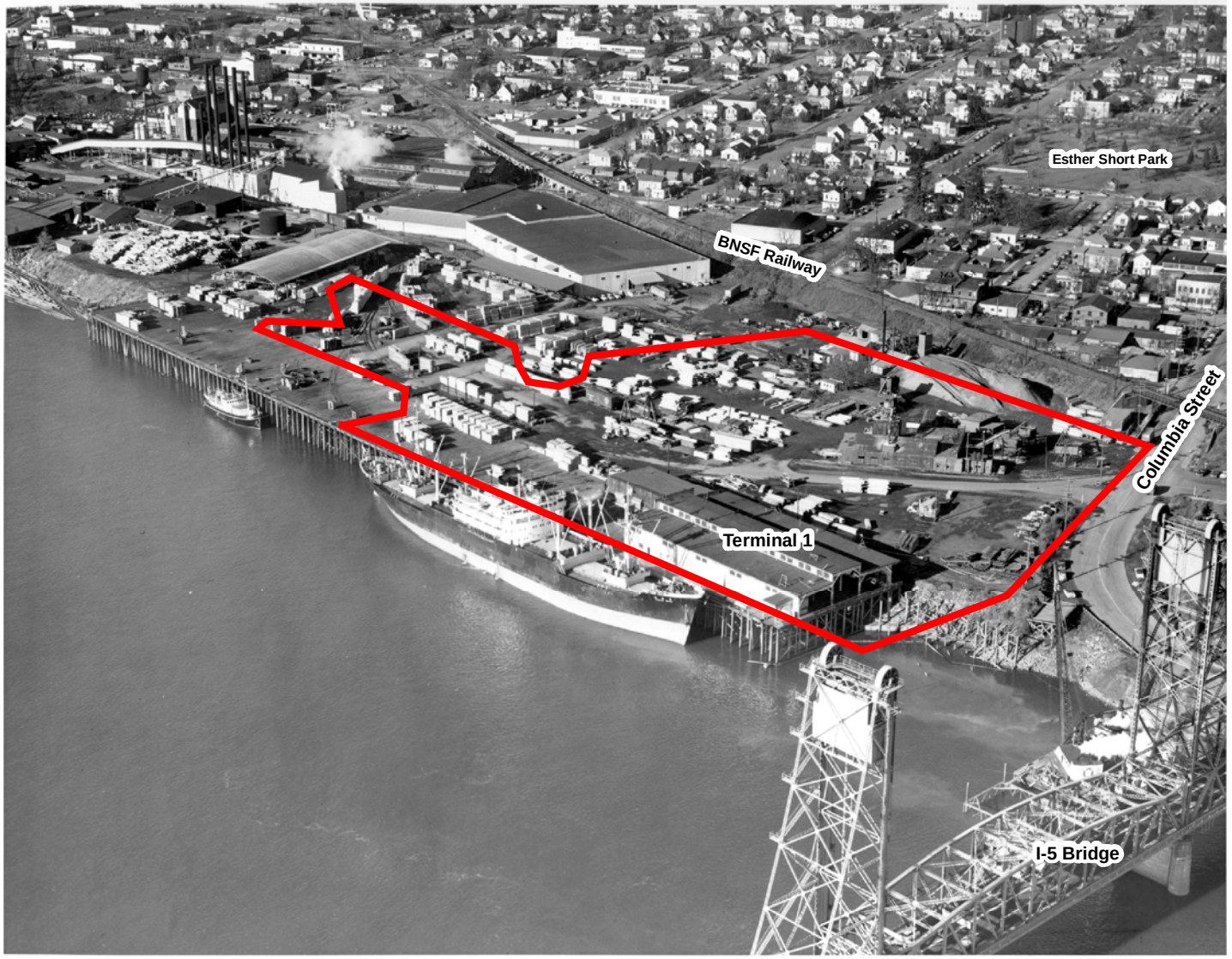

Figure 8. Oblique aerial photo taken in 1956. The view is towards the northwest. The red line marks the approximate boundary of the current project area.

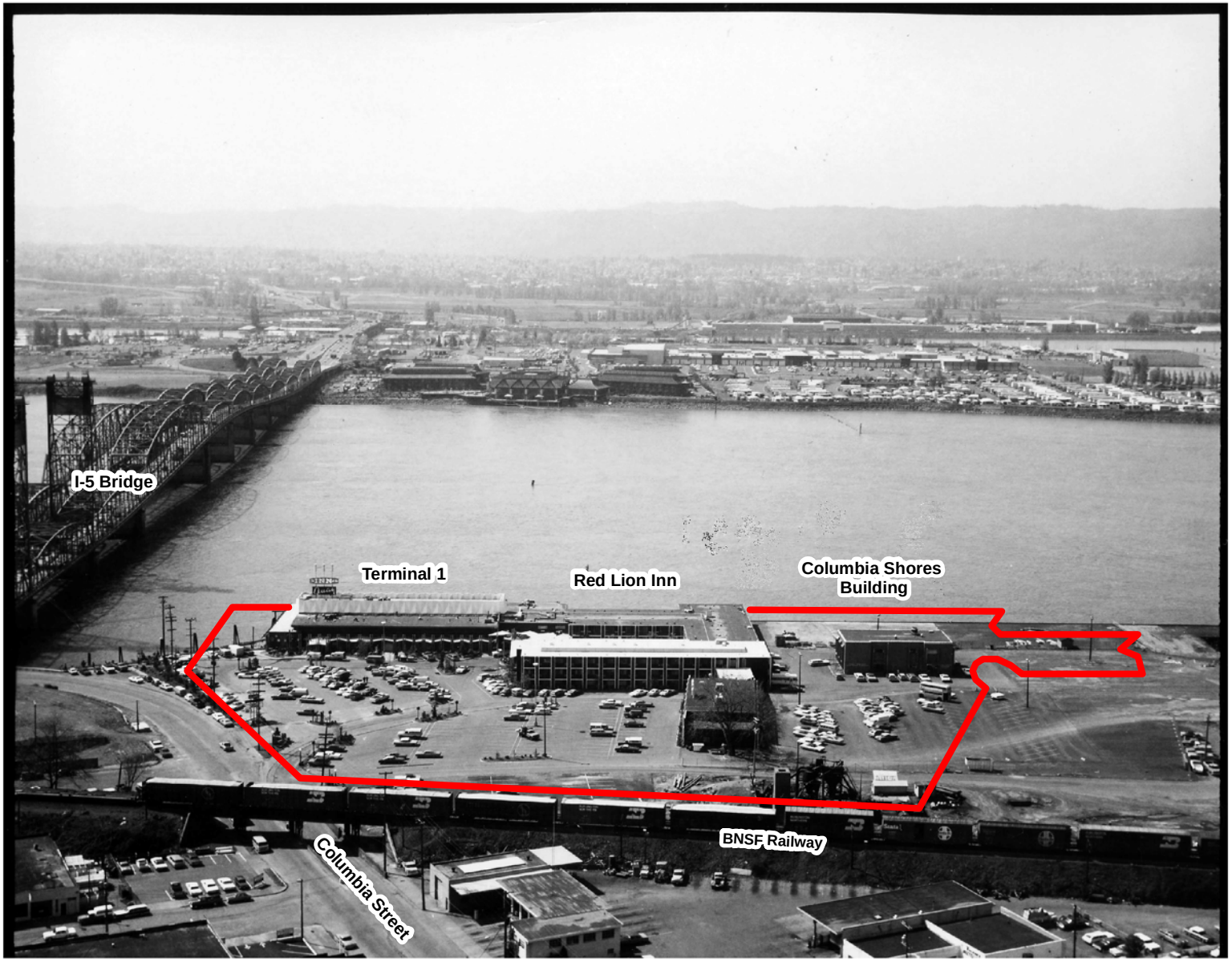

Figure 9. Oblique aerial photo taken in 1974 showing the Red Lion Inn at the Quay complex and Columbia Shores building. The red line marks the approximate boundary of the current project area.

Photo 1. Overview of the project area showing the Red Lion Hotel complex and supporting pier and pilings in the Columbia River. The view is towards the northwest.

Photo 2. The Red Lion Hotel occupies the former Terminal 1 building in the southern portion of the project area. The view is towards the southwest.

Photo 3. Overview of bore hole B2 excavated in front of the Columbia Shores building in the western portion of the project area. The view is towards the northwest.

Photo 4. Overview of the project area showing public areas and the outdoor amphitheater. The Red Lion Hotel and Interstate Bridge are in the background, and bore hole B2 is on the left side of the photo. The view is towards the east.

Photo 5. A traffic circle is located along the western boundary of the project area, next to the Columbia Shores building. The view is towards the southeast.

Photo 6. Overview of the paved parking lot in the northern portion of the project area. The Red Lion Hotel complex is located in the upper right of the photo. The view is towards the southeast.

Photo 7. Overview of bore hole B3 in the eastern portion of the project area in front of the Red Lion Hotel. The view is towards the northwest.

Photo 8. Twisted wire found in bore hole B2 at 7.6 m (25 ft) below the surface.

BergerABAM

SHORELINE CRITICAL AREAS REPORT

Terminal 1 Development

Prepared for:
Port of Vancouver USA
Vancouver, Washington

A16.0262.01

December 2016

Shoreline Critical Areas Report

Terminal 1 Development

Prepared for:
Port of Vancouver USA
3103 NW Lower River Road
Vancouver, Washington 98660

Submitted to:
City of Vancouver
Vancouver, Washington 98660

December 2016

Submitted by:

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Vancouver, Washington, 98660

Job No. A16.0262.01

SHORELINES CRITICAL AREAS REPORT

Terminal 1 Development

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1.0 INTRODUCTION

1.1 Project Overview

The Port of Vancouver USA (port) is developing a conceptual master plan (plan) for a master-planned waterfront development (the project) at Terminal 1, which is located along the Columbia River in downtown Vancouver, Washington. The project is located at 100 Columbia Street in Vancouver, Washington (Figure 1; all figures are included as Appendix A). The project is located within tax parcels 502250-000, 502246-000, 502240-000, 502245-000,48841-000, 48844-000, and 48843-000 (Figure 2).

The plan includes up to approximately 355 residential units, 62,000 square feet of retail space, 200,000 square feet of commercial office space, 160 hotel rooms, and the reuse of 36,000 square feet of "marketplace" on the approximately 10-acre site. In addition to these elements, the plan includes significant public amenities, including an extension of the Waterfront Renaissance Trail, the enhancement of the existing Terminal 1 pier to add additional public amenities, and other public improvements.

The project will require maintenance and modifications to the existing Terminal 1 pier, which could affect critical areas that are subject to regulation under the City of Vancouver's (City) critical areas protection ordinance (Vancouver Municipal Code [VMC] Section 20.740), and Chapter 5A of the City's Shoreline Master Program (SMP).

Details about the proposed project and its potential impacts and documentation of compliance with approval criteria are discussed below.

1.2 Methods

This critical areas report has been prepared consistent with the submittal requirements explained in Section 20.740.050 of the critical areas protection ordinance section of the City's SMP. This report was prepared by BergerABAM biologists Dan Gunderson and Allison Kinney. Dan has over 13 years of experience as a practicing natural resources professional, including natural resource inventory and characterization and the preparation of technical documentation. Dan is also a certified professional wetland scientist through the Society of Wetland Scientists. Allison is an environmental scientist with over 5 years of professional experience, including a wide range of scientific and biological monitoring experience.

Brian Carrico, a senior planner and BergerABAM Natural Resources Team lead, provided senior technical review and oversight. Brian has provided professional

planning services for over 17 years, and is certified through the American Institute of Certified Planners.

BergerABAM biologists conducted a site visit on 16 September 2016 to document the site's baseline environmental conditions, including the condition and extent of existing riparian habitats and existing impervious surfaces and built environment, and to identify and document trees present within the project site. (Figures 8 and 9 include photos of existing conditions taken on the day of the site visit.)

Resources used during the investigation of critical areas included:

- Clark County (County) MapsOnline GIS online database
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Clark County, Washington, Community Panel #53011C0481D
- Port of Vancouver USA Waterfront Development Master Plan – No-Rise Analysis – Draft, HDR Inc., Dated Monday 17 October 2016 (HDR 2016)
- National Wetland Inventory (NWI) Map, Vancouver Quadrangle, U.S. Department of the Interior, 1981
- U.S. Geological Survey (USGS), Vancouver Quadrangle Topographic Map, USGS Denver Colorado, 1978
- NOAA Fisheries Endangered Species Act (ESA) List of West Coast Salmon and Steelhead
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database for Clark County
- U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC) database
- Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) data; available at http://wdfw.wa.gov/mapping/phs/.
- Washington Department of Natural Resources (DNR) Natural Heritage Program (NHP) Natural Heritage Features database

Washington State Department of Ecology (Ecology) Watershed Assessment Water Resource Inventory Area 28: Salmon, Washougal, Wildrick, Linton, publication 98-002

1.3 Regulated Activities and Required Permits

The project proposes development within and/or adjacent to critical areas and their associated buffers that are regulated under the critical areas protection section (Chapter 20.740) of the City code and Chapter 5A of its SMP. The Applicant is applying for a critical areas permit, and this report addresses compliance with VMC Chapter 20.740 for critical areas on the entire project site. Similarly, the Applicant is applying for a shoreline permit as part of the City application package; therefore,

this report also addresses the provisions of Chapter 5A of the City's SMP relative to the critical areas that exist within the regulated shoreline portion of the project site.

The site includes areas mapped as geologic hazard areas, frequently flooded areas, and fish and wildlife conservation areas. Geologic hazard areas are regulated under VMC 20.740.130 and Chapter 5A of the SMP. Areas at the project site mapped as geologic hazards include areas both within and outside of shoreline jurisdiction. Fish and wildlife habitat conservation areas are regulated under VMC 20.740.110 and Chapter 5A of the SMP. All fish and wildlife habitat conservation areas present at the site are within shoreline jurisdiction; these areas are discussed individually in Section 3.1 below. Development within frequently flooded areas is regulated under VMC 20.740.120, and Chapter 5A of the SMP. All frequently flooded areas at the project site are within shoreline jurisdiction. Geologic hazard areas are regulated under VMC 20.740.130 and Chapter 5A of the SMP. Areas at the project site mapped as geologic hazards include areas both within and outside of shoreline jurisdiction.

2.0 EXISTING CONDITIONS

2.1 Location

The project site is located at approximately Columbia River Mile 106.5 at the site of the existing (but closed) Red Lion Hotel at Terminal 1, in the southwest 1/4 of Section 27, T02N, R01E, W.M. The project site is located along approximately 1,000 feet of Columbia River shoreline immediately downstream (west) of the Interstate 5 (I-5) Bridge. The project site is bound to the east by Columbia Street and the I-5 Bridge, and to the north by the BNSF railroad tracks.

The project site is located immediately south of downtown Vancouver. This area exists in a highly developed condition with limited amounts of open space and natural vegetation. High-density residential buildings and retail and commercial development consistent with an urban setting, along with large-scale industrial uses and attendant shipping operations at the port, dominate existing land uses in the general vicinity.

2.2 Existing Structures and Topography

Existing structures at the project site include the Terminal 1 pier and amphitheater, and an associated dock. The former Red Lion Hotel is located on the pier, with parking lots and landscaping features positioned adjacent to the hotel buildings on the upland side. A concrete bulkhead extends beyond the length of the pier and reinforces the shoreline. Downstream of the pier, there is a group of more than 100 relic timber pile stubs in shallow water habitats near the shoreline. A chain-link fence has been installed at the top of the bank downstream of the pier and extends to the western property boundary.

With the exception of the riverbank, the topography of the site is generally flat. Most of the site is at an elevation between 26 and 33 feet (NGVD 29) and largely consists of

impervious surfaces such as building foundations and asphalt concrete with only small areas of landscaping and a strip of vegetated land along the shoreline outside the existing pier (Figure 3).

2.3 Aquatic Habitat Conditions

Conditions below the ordinary high water mark (OHWM) of the Columbia River at the project site are typical of those associated with an urbanized and industrial reach of the Columbia River. The navigation channel of the river in this area is maintained artificially to a depth of 35 feet, and the nearshore habitat drops off rapidly with little shallow water habitat or transition zone. In addition, the shoreline along the entire site is armored with riprap installed as a shoreline and slope reinforcement measure. The riprap extends from below the OHWM to the top of the bank.

The existing Terminal 1 pier extends approximately 100 feet waterward of the OHWM along nearly the entire length of the shoreline at the project site. The Terminal 1 pier, originally built in the 1920s, has been repaired and reconstructed in various stages since its initial construction. In its current state, there are three distinct zones within the dock. The easternmost (upstream) third of the pier (Zone 1) consists of the original wood-framed structure supported by wood piles. The middle third of the pier (Zone 2) consists of the original wood-framed structure supported by wood piles with a new concrete deck. The downstream third of the pier (Zone 3) is the newest structure and consists of a concrete deck supported by steel framing and steel piles with a sunken amphitheater and seating.

This reach of the Columbia River is within the Lower Columbia River Basin, which extends from Bonneville Dam to the Pacific Ocean. Bonneville Dam, along with others, have altered the Columbia River and its natural physical and biological functions, including hydrogeomorphic processes and the ability to support anadromous fish populations. The dams have disconnected the river from its historic floodplain, interrupted the transport of sediment downstream, prevented the movement of large woody debris downstream, caused the loss of shallow nearshore habitat, and hindered the seasonal movements of anadromous fish.

Within the immediate vicinity of the project site, the river bears little resemblance to its original condition prior to European settlement because of the construction of Bonneville Dam, the changes in its flow regime, and the rise of commercial and residential development along its banks. The observed water levels adjacent to the project site now largely depend on the water flow management of Bonneville Dam as opposed to traditional precipitation and seasonal stream flow patterns.

The Columbia River is a known migratory corridor for several species of anadromous salmonids including several ESA-listed populations of Pacific salmon, steelhead, and bull trout. The river is also habitat for the ESA-listed Pacific eulachon and green sturgeon. Pacific salmon rely on this reach of the river to varying degrees

for adult migration upstream to spawning habitats and for outmigration of juveniles. Nearshore, shallow water habitats are thought to be particularly important for juvenile outmigration. Pacific eulachon and green sturgeon also use this reach of the river, although they are less dependent on shallow water, nearshore habitats.

Aquatic habitat along this section of shoreline is of limited quality and quantity. The disturbed and armored nature of the streambank, the lack of native riparian vegetation, and the relative lack of structural complexity limit the suitability of aquatic habitat. In addition, the existing pier and associated overwater structures create a large area of nearshore overwater shading, further reducing the aquatic habitat function. From conditions observable during the site visit, the bathymetry at the site appears to drop off rapidly to deep water, with a narrow shallow-water transition area (Figure 3).

At minimum, the aquatic habitat adjacent to the project site provides a suitable migratory corridor for juvenile salmonids and other aquatic species, but it has only limited suitability for foraging, rearing, or other long-term presence or use. Similar riparian and aquatic conditions upstream and downstream of this site further limit the suitability of aquatic habitat in the surrounding area.

2.4 Terrestrial Habitat Conditions

The terrestrial portion of the site extends from the top of bank north to the extent of the project limits. This area is flat and is almost exclusively covered by impervious surfaces. Upland vegetation is primarily limited to lawn and landscape plantings, including a combination of native and non-native tree and shrub species. It is likely that all of these species were planted as ornamental fixtures around buildings and within parking areas. Many are street trees, planted in association with the recent construction of Columbia Way Boulevard and consist mainly of ornamental maples *(Acer sp.)* and gingkos (*Gingko biloba).* Recently planted, these trees are generally small and range from 1 to 3.5 inches diameter at breast height (DBH). Other terrestrial tree species at the site include bigleaf maple (*Acer macrophyllum*), true cedar (*Cedrus sp.)*, ornamental plum/cherry (*Prunus spp.*), black walnut (*Juglans nigra)*, American linden (*Tilia americana*), Douglas fir *(Pseudotsuga menziesii),* mountain ash (*Sorbus americana*), juniper (*Juniperus sp.)*, and lodgepole pine *(Pinus contorta).*

The extent of riparian habitat within the project site is very limited, as the pier restricts vegetation to two areas of shoreline up and downstream. The steep riverbank is armored with riprap, and contains almost exclusively Himalayan blackberry (*Rubus armeniacus*) and false indigo bush (*Amorpha fruticosa L.*), both non-native, invasive species. A few Oregon ash (*Fraxinus latifolia*) trees have become established amongst the blackberry, and downstream of the site, there is a stand of black cottonwood (*Populus trichocarpa*). The site lacks continuous structural and native plant complexity and diversity.

The terrestrial portion of the riparian buffer most likely provides some small amount of habitat for wildlife species that have adapted to a wide range of habitat conditions and are adapted to living in urban environments (e.g., ground squirrels, rabbits, opossum, raccoons, coyote, and common mice and rat species). In addition to these terrestrial mammals, the riparian buffer likely provides a small amount of seasonal foraging habitat for resident and migratory songbirds and shorebirds as well as raptors.

2.5 Ordinary High Water Mark Determination

Ecology (Washington Administrative Code [WAC] 173-22-030 (11)) and the City (VMC 20.150.040) define the state OHWM by physical and biological (soil and vegetation) features on the landscape influenced by the presence and action of water. The OHWM is defined in RCW 90.58.030(c) as:

> *'Ordinary high water mark' on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland….*

The OHWM is typically identifiable by visible biological and topographic indicators including scour lines, debris wrack, topographical breaks, and changes in vegetation composition.

In October 2015, BergerABAM scientists conducted a field determination of the OHWM for the port from Terminal 1 to Terminal 5 (BergerABAM 2015). The OHWM was delineated according to guidance in Ecology's *Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale 2010).

During fieldwork, BergerABAM staff observed the effects of high water on the riverbank and the associated vegetation communities and documented field indicators of the OHWM. The OHWM was located where field indicators were present using professional judgment and experience. The OHWM at the site is generally identified by a defined gradient between vegetation species, where false-indigo falls below and at the boundary, and Himalayan blackberry falls at and above it.

3.0 REGULATED CRITICAL AREAS

Based on a review of existing available information, project reports, and site visits, the site contains three critical areas that are subject to regulation by the City: These are fish and wildlife habitat conservation areas, including riparian management areas (RMA) and riparian buffers (RB) (VMC 20.740.110); frequently flooded areas (VMC 20.740.120); and geological hazard areas (VMC 20.740.130). These are discussed further below. No wetlands are present on or near the limits of the proposed construction at the site and wetlands are not addressed in this report.

3.1 Fish and Wildlife Conservation Areas

Fish and wildlife habitat conservation areas are defined in VMC Section 20.740.110(A)(1) and in Chapter 5A of the City's SMP as:

- habitat used by any life stage of federally designated endangered, threatened, or sensitive species;
- priority habitats and areas associated with priority species as defined by the WDFW;
- waterbodies, including lakes, streams, rivers, and naturally occurring ponds;
- habitats of local importance—areas designated by the City to be of local significance that are not designated as state priority habitats; and
- RMA and RB buffers established to protect fish and wildlife habitat functions.

3.1.1 Threatened and Endangered Species and Priority Habitat & Species

The Columbia River, a Type S shoreline of the state, is known to support resident and anadromous fish species, marine mammals, and a variety of bird species. The portion of the Columbia River that is within the project site is also designated by WDFW as riparian priority habitat under its PHS program (WDFW 2016).

Federally listed, proposed listed, and/or WDFW priority-designated fish that occur in the Columbia River adjacent to the site include Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), and sockeye salmon (*O. nerka*); Pacific eulachon/smelt (*Thaleichthys pacificus*); resident/sea-run cutthroat trout (*O. clarkii clarkii*); bull trout (*Salvelinus confluentus*); steelhead trout (*O. mykiss*); white (*Acipenser transmontanus*) and green sturgeon (*A. medirostris*); and Pacific (*Lampetra tridentata*) and river lamprey (*L. ayresi*). The river is also designated as critical habitat for several species/populations of salmon, steelhead, bull trout, and eulachon listed under the ESA, and provides migration and foraging habitat for outmigrant juvenile salmonids.

Marine mammals that occur in the river include Steller sea lions (*Eumatopius jubatus*), California sea lions (*Zalophus californianus*), and harbor seals (*Phoca vitulina*). However, there are no documented marine mammal haulout locations in the project area (Jeffries *et al.* 2000).

No priority species are mapped as occurring on the upland portions of the site by WDFW.

3.1.2 Water Bodies

The project site includes the Columbia River, a waterbody of statewide significance.

3.1.3 Habitats of Local Importance

There are no designated habitats of local importance on the project site (City of Vancouver 2016).

3.1.4 Riparian Management Areas and Riparian Buffers

VMC 20.740.110 defines the RMA as land 100 feet from the OHWM; the RB extends an additional 75 feet landward from the RMA, for a combined protective buffer of 175 feet along the Columbia River. Footnote (A) to Table 20.740.110-1 in the ordinance states:

> *When impervious surfaces from previous development completely functionally isolate the Riparian Management Area or the Riparian Buffer from the waterbody, the regulated riparian area shall extend from the OHWM to the impervious surfaces. If the waterbody is not completely physically isolated, but is completely functionally isolated, the Planning Official may adjust the regulated riparian area to reflect site conditions and sound science.*

Additionally, VMC 20.740.030.B.1. (b) indicates that:

> *Development activity on the portions of sites with existing structures or impervious surfaces which does not increase the impervious surface area within the Riparian Management Area or Riparian Buffer and which is not otherwise exempt under VMC 20.740.030(B), shall be exempt from the provisions of VMC 20.740.110 (Fish and Wildlife Habitat Conservation Areas).*

As indicated in section 2.0, past development activities have modified the riparian areas at the project site significantly. The regulated RMA and RB are reduced to the edge of the existing impervious surfaces. Impervious surfaces at the site are not considered fish and wildlife habitat conservation areas. The extent of the regulated RMA and RB on the project site is illustrated in Figure 4. The existing condition of the RMA and RB are discussed below.

The quality of the remaining riparian habitat at the project site is low. The entire RMA and RB have been manipulated by past development activities. Within the last 100+ years, the Columbia River shoreline in this area has been filled and paved for various developments.

The existing impervious surface at the project site has reduced the acreage of functional RMA at the site to approximately 4,223 square feet. There is no functional RB area at the site (Figure 4). Most of the RMA is located between the OHWM of the Columbia River and the top of slope. Waterward from the edge of the pavement, the RMA is characterized by very steep slopes, reinforced with riprap and vegetated with Himalayan blackberry and false-indigo. The RMA and RB areas at the site are largely isolated from other natural habitats. The I-5 bridge and associated armored streambanks and bulkheads are located immediately upstream of the site, while downstream of the project site is a former industrial site that is being converted to a mixed-use development and park, with additional industrial sites further downstream.

3.2 Frequently Flooded Areas

VMC 20.740.120 designates frequently flooded areas as those areas of a site that FEMA identifies as areas of special flood hazards, including the floodway and floodway fringe out to the edge of the 100-year floodplain (also referred to as the base flood elevation). According to FEMA's FIRM, the 100-year floodplain is located at elevation 32 feet NAVD88, which is equivalent to 37.28 feet CRD. The mapped floodway coincides closely with the OHWM elevation at the site. The floodway fringe extends from the edge of the floodway to the 100-year floodplain, which does not extend above the top of bank at the site, except at the eastern site boundary where the 100-year floodplain is mapped as extending approximately 250 feet inland of the shoreline within the roadbed of Columbia Street (Figure 5).

3.3 Geologic Hazard Areas

VMC 20.740.130 names landslide, seismic, and erosion hazard areas as geologic hazard areas. GRI was contracted to conduct a preliminary geotechnical investigation and geologic hazard/critical areas evaluation of geologic hazard areas within the project area. The purpose of the preliminary geotechnical investigation was to review available geotechnical data, investigate and evaluate subsurface conditions and develop preliminary recommendations for used in the planning study. The report is included as Appendix C of this report. Regarding the geologic hazard/critical areas evaluation, their work included review of published geologic literature and available geotechnical data for the vicinity; completion of a limited site reconnaissance to visually observe potential areas of landslides, slope stability, fault rupture, erosion, or other geologic hazards; and evaluation of geologic hazards at the site including landslides, seismic hazards and erosion. GRI has prepared a technical memorandum documenting potential geologic hazards with respect to reporting requirements of the Critical Areas Protection guidance provided in VMC 20.740.130, which is included as Appendix D of this report.

3.3.1 Landslide Hazard Areas

The ordinance defines landslide hazard areas as consisting of:

> *a. Slopes greater than 25% on the property and adjacent areas within 100 feet, except engineered slopes such as cut and fill slopes along transportation routes (including trails), railroad and other berms, or dikes; and*
>
> *b. Areas of historic or active landslides, potential instability, or older landslide debris identified on the 1975 map by Allen Fiksdal of the Washington State Department of Natural Resources entitled, Slope Stability: Clark County Washington as revised or superseded, or identified from other available data or in the field by a qualified professional and adjacent areas within 100 feet.*

The shoreline is the only slope on the site steeper than 25 percent, and it is stabilized with riprap and considered an engineered slope. According to the technical

memorandum completed by GRI, the site and surrounding area are not areas of past landslides, and no obvious indications of slope instability were observed (GRI 2016b). Improvements on or near the riverbank would be designed to meet code requirements outlined in VMC Title 17, Building and Construction for slope stability. There are no landslide hazard areas present at the project site.

3.3.2 Seismic Hazard Areas

The ordinance defines seismic hazard areas as: (1) liquefaction or dynamic settlement hazard areas; (2) ground shaking amplification hazard areas; and (3) fault rupture hazard areas.

3.3.2.1 Liquefaction or Dynamic Settlement Hazard Areas:

According to the ordinance, liquefaction or dynamic settlement hazard areas are:

> *a. Areas with Low to Moderate, Moderate, Moderate to High, or High liquefaction susceptibility or Peat Deposits as indicated on the Alternative Liquefaction Susceptibility Map of Clark County, Washington based on Swanson's Groundwater Model by Stephen P. Palmer, Sammantha L. Magsino, James L. Poelstra, and Rebecca A. Niggemann, September, 2004, as revised or superseded.*
>
> *b. Areas of fill (Fn) identified by the 1972 USDA Soil Conservation Service Soil Survey of Clark County Washington and by the Planning Official Shoreline Administrator, based on other reliable evidence.*

The site is mapped as having a Moderate to High potential for liquefaction (Palmer *et al.* 2004; Clark County 2016) (Figure 6). The entirety of the site is therefore considered a liquefaction or dynamic settlement hazard area. Liquefaction on the site could be initiated through seismic events. A preliminary geotechnical report (GRI 2016a; Appendix C) has been prepared for the project. VMC 20.740.130(C)(2) requires that construction comply with applicable building codes intended to ensure that structures are designed and constructed to withstand the potential ground shaking and liquefaction that can occur in these areas. It is the opinion of GRI that proposed site improvements would not directly impact the potential for liquefaction (GRI 2016b). Improvements will be designed to satisfy the intent of the requirements outlined in VMC Title 17, Building and Construction, related to liquefaction-induced settlement.

3.3.2.2 Ground Shaking Amplification Hazard Areas

The ordinance designates the following ground shaking amplification hazard areas:

> a. *Site Classes C to D, D, D to E, E and F as indicated on the Site Class Map of Clark County, Washington by Stephen P. Palmer, Sammantha L. Magsino, James L. Poelstra, and Rebecca A. Niggemann, September, 2004 as revised or superseded.*

The site is located within a seismic hazard area and has been mapped within the National Earthquake Hazard Reduction Program site class C (Figure 6), which is not considered to be a Ground Shaking Amplification Hazard Area. However, the geotechnical report, prepared for the project indicates that the soil profile at the site is representative of Site Class D or D to E (GRI 2016a). It is the opinion of GRI that proposed site improvements would not directly impact the potential for seismic shaking (GRI 2016b). Improvements will be designed to satisfy the intent of the requirements outlined in VMC Title 17, Building and Construction, related to ground shaking amplification.

3.3.2.3 Fault Rupture Hazard Areas.

The ordinance defines fault rupture hazard areas as:

> *a. Faults identified on geological maps prepared and maintained by the Washington Department of Natural Resources (DNR), U.S. Geological Survey (USGS), Oregon Department of Geology and Mineral Industries (DOGAMI), Clark County, Washington, or identified from other available data or in the field by a qualified professional; and*
>
> *b. adjacent areas within 100 feet.*

The nearest faults are over four miles away. Oregon Department of Geology and Mineral Industries identifies a series of faults to the southwest in Portland approximately 4.5 miles south of the project site, and DNR identifies a fault approximately 12 miles east of the project site (WDNR 2016). The technical memorandum confirms that applicable maps do not show active or potential active faults that could be capable of inducing ground surface rupture at the site (GRI 2016b). No fault rupture hazards are therefore present on the project site.

3.3.3 Erosion Hazard Areas

According to the ordinance, erosion hazard areas consist of soil erosion areas and bank erosion areas.

Soil erosion areas have soils identified by USDA-NRCS as having a severe erosion hazard. The soil types mapped at the project site are fill land (FN) and Lauren gravelly loam, 0 to 8 percent slopes (LgB). Neither soil type is identified in the soil survey as having a severe erosion hazard, and therefore no soil erosion areas are present at the project site. The technical memorandum prepared by GRI indicates that the dredged sand fill is characterized as moderately erosive and would not be considered an erosion hazard (GRI 2016b)

Bank erosion hazard areas are areas along lakes, streams, and rivers that are subject to regression or retreat due to lacustrine or fluvial processes and adjacent land within 100 feet. While the project site includes a reach of Columbia River shoreline that is subject to fluvial processes, the entirety of this shoreline is armored with

riprap installed to stabilize the bank. For this reason, the Columbia River shoreline at the site is subject to neither regression nor retreat due to lacustrine or fluvial processes and is not considered a bank erosion hazard area. The technical memorandum prepared by GRI states that "based on the available project information, the project does not appear to increase the risk of bank erosion beyond pre-development conditions" (GRI 2016b).

New improvements on or near the riverbank would be designed to meet code requirements outlined in VMC Title 17, Building and Construction.

4.0 RIPARIAN HABITAT FUNCTIONAL ASSESSMENT

The City's critical areas ordinance requires that a critical areas report for an RMA or RB include an evaluation of the habitat functions using the Clark County Habitat Conservation Ordinance riparian habitat field rating form or another habitat evaluation tool approved by WDFW. The County's form was used for this report and is included as Appendix E. However, according to the professionals who created the rating form (Dave Howe, formerly the County habitat biologist, and Steve Manlow, formerly the WDFW regional biologist), the assessment methodology is not designed to assess the fish habitat of the Columbia River (personal comm., Dave Howe, WDFW, Habitat Program Manager). Because the County assessment methodology does not accurately evaluate fish habitat function on the mainstem Columbia River, this section of the report describes only the relevant terrestrial riparian portion of the assessment. Aquatic habitat condition and function are described qualitatively in section 2.3.

Within the project area in general, the riparian habitat is limited to a narrow band (approximately 50 to 75 feet wide), and the vegetation is disturbed and invasive in nature. This riparian habitat exerts very little influence on fish habitat or to the characteristics of the Columbia River, such as stream temperature and dissolved oxygen, flood attenuation, stream flow and food web contributions, control of sedimentation and pollution, and structural stream diversity.

The riparian area scored 5 out of 23 possible points for terrestrial wildlife habitat function, suggesting that the buffer area provides only a minimal amount of riparian function (Table 1).

Table 1 - Riparian Habitat Functional Assessment

Functional Groups	Specific Functions	Possible Points	Score
Wildlife Habitat Functions			
Structural Complexity	Native woody plant species	3	1
	Multiple canopy layers	3	1
	Snags	3	0
	Downed logs	3	1
	Non-native plant species	1	-4

Connectivity	Connection to other PHS	2	2
Abundant Food Sources	Native woody plant species	3	1
Available Water	Hydrological characteristics	3	3
Moist & Mild Microclimate	Temperature/microclimate maintenance	2	0
Wildlife Function Total	(All of above)	23	5

The results of this habitat assessment show the low level of wildlife habitat function in the riparian area at the site. The low rating results from a lack of complex habitat structures (large woody debris and snags), vegetation dominated by non-native and invasive species, and isolation from other terrestrial habitats. The presence of a diverse vegetation community is a critical component in a fully functioning buffer (Johnson and O'Neil 2001). The lack of this necessary diverse plant community resulted in the assignment of the lowest possible values to six of the nine terrestrial functions evaluated.

It should be noted, however, that although the functional assessment does not address a project area's position in the overall landscape and how it relates to the amount of wildlife habitat, the project site is subject to regular disturbance in the form of human visitation, traffic noise, river activity, and landscape maintenance activities. These factors diminish the quality of available wildlife habitat in a manner that is not addressed by the functional assessment methodology. Each separate functional group that was assessed under the terrestrial wildlife habitat sections is discussed below.

4.1 Terrestrial Wildlife Habitat Functions

Riparian habitats are essential for terrestrial wildlife as "approximately 85% of Washington's terrestrial vertebrate species use riparian habitat for essential life activities" (Knutson and Naef 1997). Diverse habitats in riparian areas support highly diverse wildlife species, and the four main attributes of riparian areas that contribute to this diversity of wildlife are: (1) structural complexity; (2) connectivity with other ecosystems; (3) abundant food source and available water; and (4) moist and moderate microclimate. The following sections discuss the functions provided by the riparian area as they relate to terrestrial wildlife habitat functions.

4.1.1 Structural Complexity

Structural complexity in the form of vegetative and physical features promotes a diversity of habitats that can support a variety of wildlife species. The four main types of structural diversity are plant species diversity, multiple canopy layers, snags and downed woody debris, and edge habitat (Knutson and Naef 1997).

The riparian area scored 3 out of 12 for this function. There is little plant diversity present within the riparian area and most of the vegetation consists of invasive, non-native species. The riparian area lacks a diverse, multi-storied plant community that would encourage highly complex structure. Although several cottonwood and ash

trees provide some isolated pockets of shade, they are not dense enough to be classified as a canopy. In addition to the lack of a tree canopy, the number of other structural components such as large woody debris or snags is fewer than 1 per acre.

4.1.2 Connectivity

Riparian areas can function as vital wildlife travel corridors. Many species that use both aquatic and upland habitats use riparian areas to travel between them. The need for riparian areas as travel corridors is amplified in developed or fragmented landscapes because the overland travel routes often are unavailable or discontinuous. In these circumstances, riparian areas often provide connections between isolated natural areas (Knutson and Naef 1997).

The riparian area scored 2 out of 2 for this function. The Columbia River priority habitat is connected to other riparian systems and provides connectivity for aquatic species. However, as discussed above, the project site is located in a heavily developed industrial area, and this site is discontinuous with the open riparian landward of the project site. Therefore, this stretch does not offer an opportunity for wildlife travel.

4.1.3 Abundant Food Sources

While the habitat needs of many wildlife species can be met in upland areas, most species nest and forage in riparian areas because of the abundance of food and water (Knutson and Naef 1997).

The riparian area scored 1 out of 3 for the function of abundant food sources. Native woody plant species, a criterion of the rating form, are largely absent, and the area contains just one species of native woody shrubs/trees. It should be noted that the non-native Himalayan blackberry is abundant and likely is a food source in the summer and fall for small mammals as well as resident and migratory bird species.

4.1.4 Moist and Mild Microclimate

Because of the presence of surface water, subsurface water, topographic features, and abundant vegetation in riparian systems, riparian areas generally have a moister and milder microclimate than surrounding areas (Knutson and Naef 1997). This microclimate is largely due to the diverse and multilayered vegetation communities that are typical of healthy riparian systems. The canopy in these systems provides protection from high temperatures in the summer and attenuates heat loss to the atmosphere in the winter. A microclimate is often identified by the presence of plants suitable for growth in moist cool areas such as ferns and mosses. These moist, high-humidity areas also provide important habitat for amphibians, which are very sensitive to high temperatures and dry conditions.

The riparian impact site scored 0 out of 2 for this function. The trees present on the site provide only a sparse canopy because of patchy tree distribution. Although a

slight temperature difference under each individual tree is possible, the overall amount of shade is not sufficient to create and maintain a microclimate.

4.2 Summary

As described above, riparian habitats at the site are limited in size and provide limited terrestrial wildlife habitat function. Lack of functions and values is largely attributed to the current and historic alteration of the landscape, previous upland development at the site, and the presence of non-native and invasive species.

It is likely that terrestrial wildlife habitats at the site provide a small amount of habitat for animal species adapted to highly disturbed and urban environments, including ground squirrels, rabbits, raccoons, and rodent species. Additionally, the site likely provides habitat for resident and migratory songbirds, with habitat provided by scattered trees and Himalayan blackberry shrubs. The limited mature trees along the shoreline have potential use as perching locations for raptors and other birds.

5.0 PROPOSED PROJECT

The master plan for the project includes a range of uses distributed over four development blocks and a public use area on the renovated existing pier structure. The proposed project will include a number of the elements described in the master plan. The development blocks and the uses proposed for them are listed below.

- Block A – mixed-use development, including office, retail, residential, and parking.
- Block B – multipurpose uses, including public/community gathering, makers work space, office, live/work, workforce apartment, retail and parking.
- Block C – mixed uses, including residential, retail, and parking.
- Block D – hospitality uses as hotel, event, restaurant, and retail spaces and parking.
- Existing Pier (encompassing the overwater pier structure and waterfront shoreline area) – multiple programmed spaces and activities with a focus on providing public access to the waterfront. The activities proposed on the existing pier include an adaptive reuse of the existing Terminal 1 building as a marketplace with water-related uses, retail and office space, and a visitors' center. Open areas on the pier will provide outdoor civic and entertainment spaces, landscape areas, access improvements to an existing floating dock, connections to the Waterfront Renaissance Trail and Waterfront Park, and access for emergency services.
  The work proposed for the existing pier has been divided into three different zones (see Figure 3 and Figure 7).

5.1 Zone 1

That portion of the existing pier supporting the existing Terminal No.1 restaurant, conference center, and hotel lobby is referred to as Zone 1 (Figure 3 and Figure 7). This portion of the pier will undergo a series of maintenance activities to improve

the pier structure in an effort to extend the life of the existing timber pier by 10 years or more. The following activities are planned:

- Pile repair involving cutting piles at an elevation where no pile deterioration is present and adding a new sub-cap with posts above or splicing new posts above using concrete filled steel collars. Where the pile is cut near or below the mudline, the pile will require a spliced collar connection to avoid a buried wood connection.
- Post repair consisting of the removal of the deteriorated sections of the post and filling them with new sub-cap and spacing corbels. Alternatively, remove and replace post to below bent cap above.
- Removing and replacing the sub-cap and corbels with new connecting steel straps and through bolts.
- Removing and replacing deteriorated sections of bracing with new members or splicing new members with new connections.
- Adding horizontal and longitudinal cross-bracing.
- Providing new bold and hardware with possible splices to new member pieces.

The remaining portion of the wood pier extending west to the more recent concrete structure will be rebuilt with a modern code-compliant structure in phases, taking place over a number of years, within a 10-year time period. The likely method of replacement would be to install new steel or concrete pipe piles through the deck surface of the existing timber wharf. The deck structure would be constructed with concrete pile caps, precast concrete deck panels, and concrete topping slab or a full-depth cast-in-place deck. Surface features including the plaza and lawn would be installed on the finished deck surface. As the structure is rebuilt, the original timber members would be removed with the timber piles pulled or cut below the mudline. The area of the pier and deck elevation would remain the same as the existing structure. The expected number of new driven steel or concrete piles is less than the current number of piles.

5.2 Zone 2

The remaining portion of the wood pile-supported pier downstream from Zone 1 to the steel pile-supported pier is referred to as Zone 2 (Figure 3 and Figure 7). This zone will be rebuilt with a modern structure. This rebuild could take place over a number of years within an approximately 10-year period. The likely method of replacement would be to install new steel or concrete pipe piles through the deck surface of the existing timber pier. Concrete pile caps would be installed with a precast concrete deck panels with a concrete topping slab or a full-depth cast-in-place deck. Surface features including the plaza and lawn would then be completed on the deck surface. As the structure is rebuilt, the original timber members would be removed with the timber piles pulled or cut below the mudline. The overwater coverage and deck elevation would remain the same. The number of steel or concrete piles required would be significantly less than the current timber piles, resulting in a net reduction in the benthic habitat impact below OHWM at the site.

5.3 Zone 3

Zone 3 includes the steel pile-supported portion of the pier and amphitheater at the downstream end of the project site (Figure 3 and Figure 7). The existing deck surface in Zone 3 would be removed and replaced with concrete pile caps and precast concrete deck panels with a concrete topping slab or a full-depth cast-in-place deck. Additional steel pipe piles will be necessary for structural support and would be installed after the existing deck surface is removed. An existing floating dock would remain and a new ramp would be installed to the new deck surface. Surface features would then be completed on the surface of the floating dock.

The footprint of the existing pier within Zone 3 would be reconfigured, and would include the removal of a portion of an existing ramp in the northwest corner that leads to the current flag plaza and parking area. This would have the result of increasing the amount of RMA at the site. The shoreline would be enhanced through the removal of invasive species and the installation of native riparian plants.

Improvements could include the full redevelopment of the amphitheater and access ramp and other civic space improvements on the pier, such as the tree garden and open space. The deck will be reconfigured and the ramp that leads to the current flag plaza and parking area will be removed. The existing deck surface would be removed and replaced with concrete pile caps and precast concrete deck panels with a concrete topping slab or a full-depth cast-in-place deck. Surface features would then be completed. Additional steel pipe piles will be necessary for structural support and would be installed after the existing deck surface is removed. The existing moorage float would remain and a new ramp installed to the new deck surface. Additional flotation may be needed for the float to accommodate the heavier weight of a new ramp. The shoreline would be enhanced with plantings following removal of the concrete ramp to the flag plaza and parking area. Existing remnant piles within the area may be removed or cut off. The impact of the anticipated new piles would be off-set by the reduction in piles in other areas of the pier and the restoration of the shoreline.

6.0 IMPACTS

6.1 Avoidance and Minimization

The impact mitigation process includes avoidance and minimization of and compensation for impacts in accordance with the policies and regulations for mitigation sequencing in WAC 173-26-201(2)(e)(i). Projects are required to first avoid impacts to critical areas to the extent possible. Where avoidance is not possible, applicants are to employ best management practices (BMPs) to minimize the extent of any potential impacts.

The project largely avoids impacts to critical areas by conducting activities on a previously developed site where there are no wetlands and little functioning riparian habitat. The project minimizes impacts with design aspects that propose a net reduction in benthic habitat disturbance associated with pile footprints, as well as a design that results in a net gain of functional RMA buffer at the site. Further, the project will incorporate a comprehensive set of BMPs within the design (described in section 7.2.2), which will minimize the potential for incidental impacts during construction.

6.2 Impacts to Fish and Wildlife Conservation Areas

As discussed above, there is very little functional RMA buffer and no functional RB buffer present at the site because of the presence of existing impervious surfaces. A total of 4,223 square feet of functional RMA has been mapped at the project site, when existing impervious surfaces are factored in as functional barriers (Figure 4).

As described previously, the project does not propose any disturbance or impact within any of the existing RMA. In addition, the project will result in a net increase in the quantity of function RMA at the site as a result of the removal of an existing ramp at the eastern end of the existing pier. A total of approximately 8,674 square feet of new functional RMA will be added, which will more than double the quantity of functional RMA at the site. Both the existing and proposed new RMA areas will be enhanced through invasive species removal and installation of native plants.

As described previously, the project will result in a net reduction in the amount of benthic habitat impact below OHWM as a result of a net reduction in the number of piles supporting the pier in Zone 2. While the exact numbers of piles needed for the final design in Zones 2 and 3 are not known at this time, the project will remove an equal or greater number of piles than those proposed for removal, which will result in no net loss of benthic habitat function at the site. In addition, the proposed removal of creosote-treated timber piles will result in a water quality improvement at the site.

As described previously, the existing condition of the riparian habitat at the site is limited and highly degraded. The proposed project will result in enhancements to the overall size and condition of functional riparian buffer at the site, and will result in a net improvement of riparian habitat function.

Similarly, aquatic habitat conditions at the site are also of limited quality and quantity. The disturbed and armored nature of the streambank, the lack of native riparian vegetation, and the relative lack of structural complexity limit the suitability of aquatic habitat. In addition, the existing pier and associated overwater structures create a large area of nearshore overwater shading, further reducing the aquatic habitat function. The project will result in no net increase of benthic habitat impact,

will improve water quality and associated riparian habitat condition, and therefore will result in no net loss of aquatic habitat function.

6.3 Impacts to Frequently Flooded Areas

The project proposes the removal and replacement of existing impervious surfaces, including parking structures and existing buildings.

A no-net-rise analysis has been prepared for the project (HDR 2016), which documents that the project will result in no net rise in the flood profile of the Columbia River (see Appendix B for a copy of the analysis).

Proposed development at the site would be subject to, and would comply with the performance standards identified in Section 20.740.120(C).

6.4 Impacts to Geologic Hazard Areas

According to the preliminary geotechnical investigation and geologic hazard/critical areas evaluation prepared for the site (GRI 2016, Appendices C and D), the site is considered to be within a seismic hazard area for liquefaction.

VMC 2.740.130(C)(2)(a) and (b) stipulate that, for liquefaction hazard areas, all structures must comply with the requirements of VMC Title 17, Building and Construction. All structures proposed for the subject site therefore will require compliance with the applicable standards prior to construction.

6.5 Summary

As described above, the project has been designed to result in no net loss of critical area functions. Impacts to critical areas are minimal, and have been avoided and minimized to the extent practicable. Impacts to fish and wildlife conservation areas will be limited to minor temporary effects during construction, but the net result of the project will be a reduction in benthic habitat impacts, and a net gain in riparian habitat function. The project will result in no net rise in base flood elevations, and therefore will not impact frequently flooded areas. The project will also comply with the building and construction standards required for work within seismic hazard areas. For these reasons, the project is considered self-mitigating, and no additional compensatory mitigation measures are proposed.

7.0 COMPLIANCE WITH APPROVAL CRITERIA

Projects reviewed under the code are required to meet the approval criteria listed in Section 20.740.060. Each criterion is addressed below.

7.1 Avoid Impacts

VMC 20.740.060 requires projects to first seek to avoid activity that degrades the function and value of critical areas.

7.1.1 Fish and Wildlife Habitat Conservation Areas

The proposed project has attempted to avoid all impacts to fish and wildlife habitat conservation areas. As described in section 6.2, the project proposes to expand the amount of functional RMA that is present at the site through the removal of existing structures, removal of invasive species, and installation of native plant species. The project does not propose any expansion of overwater coverage.

The design also largely avoids impacts to aquatic habitats. No increases are proposed in the amount of overwater coverage or in benthic impacts associated with pile replacements. As described in section 6.2, while the exact numbers of piles needed for the final design in Zones 2 and 3 are not known at this time, the project will remove an equal or greater number of piles than those proposed for installation, which will result in no net loss of benthic habitat function at the site.

7.1.2 Frequently Flooded Areas

The project avoids impacts to frequently flooded areas because activities are conducted largely outside the 100-year floodplain. For those portions of the project that could affect frequently flooded areas below the 100-year floodplain, the no net rise analysis confirms that the project would not result in an increase in the base flood elevation at the site (see Appendix B).

7.1.3 Geologic Hazard Areas

The entire site is identified as a potential seismic hazard, as described above. Impacts as a result of this designation will be avoided, however, through the requirement in VMC 2.740.130(C)(2)(a) and (b) stipulating that all structures must comply with the requirements of VMC Title 17.

7.2 Minimize Impacts

VMC 20.740.060 requires that where avoidance is not possible, the project must minimize effects on critical area function and values. The following sections describe the impact minimization measures and BMPs planned to minimize the extent of potential effects to designated critical areas.

7.2.1 Minimization Measures

- The project will avoid in-water work when listed species are most likely to be present. The current published work window for this area is 1 November through 28 February annually, but this window may be changed during the federal/state permit approval processes.
- Project construction will be completed in compliance with state water quality standards (WAC 173-201A), including:
  - No petroleum products, fresh cement, lime, concrete, chemicals, or other toxic or deleterious materials will be allowed to enter surface waters.
  - No oil, fuels, or chemicals will be discharged to surface waters, or onto land where there is a potential for reentry into surface waters.

- Fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc., will be checked regularly for leaks, and materials will be maintained and stored properly to prevent spills.
- A spill prevention, control, and countermeasures (SPCC) plan will be developed for use during the construction and operation of the project. A copy of the plan with any updates will be maintained at the work site.
- The SPCC plan will outline BMPs, responsive actions in the event of a spill or release, and notification and reporting procedures. The SPCC plan will also outline management elements, such as personnel responsibilities, project site security, site inspections, and training.
- The SPCC plan will outline the measures to be taken to prevent the release or spread of hazardous materials, either found on site and encountered during construction but not identified in contract documents, or any hazardous material that is stored, used, or generated on the construction site during construction activities. These items include, but are not limited to, gasoline, oils, and chemicals.
- Applicable spill response equipment and material designated in the SPCC plan will be maintained at the job site.

7.2.2 Best Management Practices

7.2.2.1 General

The project also includes the following typical construction BMPs for working in, over, and near water; these BMPs include activities such as:

- Checking equipment for leaks and other problems that could result in the discharge of petroleum-based products or other material into the Columbia River.
- Taking corrective actions in the event of any discharge of oil, fuel, or chemicals into the water, including:
  - Beginning containment and cleanup efforts immediately and completing them expeditiously according to all local, state, and federal regulations, and ensuring they take precedence over ordinary work. Cleanup will include proper disposal of any spilled material and used cleanup material.
  - Ascertaining the cause of the spill and taking appropriate action to prevent further incidents or environmental damage.
  - Reporting spills to Ecology's Southwest Regional Spill Response Office at 360-407-6300.
- Not allowing work barges to ground out on the river bottom.
- Preventing the disposal or abandonment of excess or waste materials waterward of OHW or allowing these materials to enter waters of the state.
- Disposing of waste materials in an appropriate landfill.
- Storing demolition and construction materials where wave action or upland runoff cannot cause materials to enter surface waters.

Keeping oil-absorbent materials present on site for use in the event of a spill or if any oil product is observed in the water.

7.2.2.2 Pile Removal BMPs

- While creosote-treated piles are being removed, a containment boom will surround the work area to contain and collect any floating debris and sheen. Also, any debris will be retrieved and disposed of properly.
- The piles will be dislodged with a vibratory hammer, when possible, and will not be intentionally broken by twisting or bending.
- The piles will be removed in a single, slow, and continuous motion to minimize sediment disturbance and turbidity in the water column.
- If a pile breaks above or below the mudline, it will be cut or pushed in the sediment consistent with agency-approved BMPs.
- Removed piles, stubs, and associated sediments (if any) will be contained on a barge. If piles are placed directly on the barge and not in a container, the storage area will consist of a row of hay or straw bales, filter fabric, or similar material placed around the perimeter of the storage area.

  All creosote-treated material, pile stubs, and associated sediments (if any) will be disposed of in a landfill approved to accept those types of materials.

7.2.2.3 Installation

- A bubble curtain or other similar noise attenuation method (such as sound attenuation pile caps, increased hammer size, etc.) will be employed during impact driving of steel piles.
- If piles need to be excavated, appropriate methods will be put in place to minimize the loss of any material.

  Pile driving will occur during daylight hours only.

7.2.2.4 Overwater Concrete

- Wet concrete will not come in contact with surface waters.
- Forms for any concrete structure will be constructed to prevent leaching of wet concrete.

  Curing concrete will not be watered.

7.3 Mitigate Impacts

VMC 20.740.060(C) specifies that where impacts are unavoidable, compensatory mitigation must be provided to replace lost functions. As described above, the project has been designed to result in no net loss of critical area functions. Impacts to critical areas are minimal, and have been avoided and minimized to the extent practicable. Impacts to fish and wildlife conservation areas will be limited to minor temporary effects during construction, but the net result of the project will be a reduction in benthic habitat impacts, and a net gain in riparian habitat function. The project will result in no net rise in base flood elevations and, therefore, no impact to frequently flooded areas. The project will comply with the building and construction

standards required for work within seismic hazard areas; the project is therefore considered self-mitigating and no additional compensatory mitigation measures are proposed.

7.4 No Net Loss

VMC 20.740.060(D) requires that projects result in no net loss to critical area functions and values. For the proposed project, this criterion applies only to fish and wildlife conservation areas.

As described previously, the existing condition of the riparian habitat at the site is limited and highly degraded. The proposed project will result in enhancements to the overall size and condition of functional riparian buffer at the site and a net improvement of riparian habitat function. Similarly, the project will result in no net increase of benthic habitat impact at the site, will improve water quality and associated riparian habitat condition, and, therefore, will result in no not loss of aquatic habitat function.

Based on the anticipated increases in riparian area habitat functions that will result from the proposed enhancement measures, and the offset in benthic habitat impacts associated with pile removals, the project will not result in a net loss in fish and wildlife habitat conservation area functions and values.

7.5 Consistency with General Purposes

VMC 20.740.060(E) specifies that the proposed project must be consistent with the general purposes of VMC Chapter 20.740 and must not pose a significant threat to public health and safety. The general purpose of the ordinance, as stated in VMC 20.740.010, is to designate and protect ecologically sensitive and hazardous areas while allowing the reasonable use of property. As shown in this report, the project will protect ecologically sensitive areas that have been designated on the site through avoidance, minimization, and mitigation.

The proposed project has been designed to be consistent with the prevailing intent of the code and does not pose a significant threat to the public because the design will:

- comply with all the applicable sections of the ordinance (Section 20.740);
- provide for reasonable use of the property (based on the City of Vancouver Comprehensive Plan 2003–2023 and related state and federal regulations) by designing the project in accordance with existing zoning designations; and

  ensure no net loss of critical area functions and values.

7.6 Performance Standards

VMC 20.740.060(F) specifies that the project must meet the specific performance standards of the applicable critical areas.

7.6.1 Fish and Wildlife Habitat Conservation Areas

VMC 20.740.110(c)(1)(a) requires that development or clearing protect the functions of the habitat conservation areas on the site, and that the activity result in no net loss of functions. Protection can be provided by avoiding (the preferred protection) or minimizing and mitigating as described in the general critical areas approval criteria (VMC 20.740.060).

VMC 20.740.110(c)(1)(b) further requires the replacement of any lost functions, preferably by restoration, or if restoration is not possible, by enhancing other habitat functions, so long as the enhancement of the other functions provides no net loss in overall functions and maintains habitat connectivity.

The proposed pier maintenance and renovation activities will result in a net reduction in the amount of benthic habitat impact below the OHWM as a result of a net reduction in the number of piles supporting the pier in Zone 2. While the exact numbers of piles needed for the final design in Zones 2 and 3 are not known at this time, the project will remove an equal or greater number of piles than those proposed for installation, which will result in no net loss of benthic habitat function at the site. In addition, the proposed removal of creosote-treated timber piles will result in a water quality improvement at the site.

Specific to RMA buffers, the only proposed activities within the functional RMA will be temporary disturbance associated with the removal of existing structures, and with restoration actions, i.e., removal of invasive species and installation of native plants. Temporary and permanent signage will be provided along the perimeter of the RMA buffer at the site, per the requirements of VMC 20.740.110(c)(1)(d)

As described previously, the project has avoided and minimized impacts to fish and wildlife habitat conservation areas to the extent practicable, and will result in no net loss of function. The project will result in an increase in the square footage of functional RMA and in no net increase in benthic habitat impacts associated with pile replacements.

The project is therefore compliant with the performance standards outlined in VMC 20.740.110(c)

7.6.2 Frequently Flooded Areas

VMC 20.740.120(C) specifies that within frequently flooded areas with designated floodways, no development is authorized unless no increase in base flood elevation or flood velocity is certified. Appendix B includes an analysis of the effects of project construction within the floodplain and, consistent with the requirements of this section of the code, concludes that the project will not contribute to a net rise in base flood elevation. VMC 20.740.120(C)(11) describes design requirements for nonresidential construction, including a requirement that structures be elevated above the 100-year flood elevation, or be constructed to be flood-proof. The only

structure proposed or remaining within the floodplain is the existing pier. The first floor of any structures built within the floodplain will be elevated above the 100-year flood elevation or be flood-proofed in compliance with these standards. Compliance with the requirements for flood elevation or flood-proofing will be determined at the building permit stage.

7.6.3 Geologic Hazards

VMC 20.740.130(C)(2)(a) and (b) specifies that within liquefaction, dynamic settlement, and ground-shaking amplification hazard areas, all structures must comply with VMC Title 17, Buildings and Structures. Building permits will be obtained for all structures included with the project and they will comply with this standard.

8.0 CONCLUSIONS

This report documents the presence of three regulated critical areas on the project site—fish and wildlife habitat conservation areas, frequently flooded areas, and geologic hazard areas—and evaluates the project against adopted standards for development.

This report indicates that fish and wildlife habitat conservation areas within the project construction limits are limited to two narrow strips of RMA buffer landward of the biological OHWM and aquatic habitats below the existing pier. Impacts to these areas will be limited and will be fully offset by proposed pile removals and the proposed increase in the area of functional RMA at the site.

Impacts to frequently flooded areas are addressed in the no net rise analysis (Appendix B). The analysis finds that the project will result in no net rise in base flood elevation.

Development in geologic hazard areas will be minimized by adhering to the building and construction standards of VMC Title 17, as required by VMC 2.740.130(C)(2)(a) and (b).

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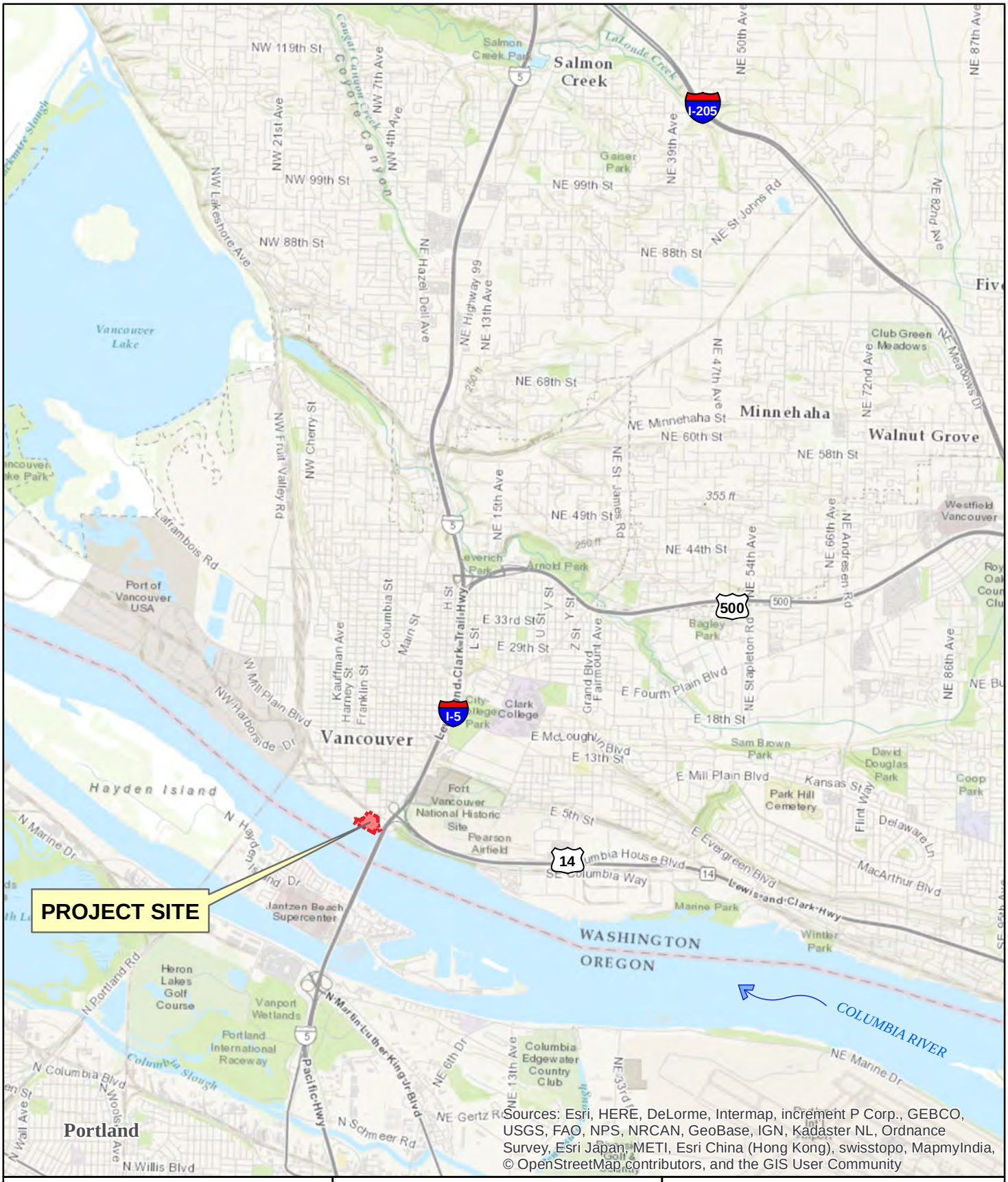
Appendix A
Figures



PURPOSE: REDEVELOPMENTOF THE PORT OF VANCOUVER'S TERMINAL NO. 1 SITE.

COUNTY OF: CLARK

STATE OF: WA

APPLICATION BY: PORT OF VANCOUVER, USA

TERMINAL NO. 1 PROJECT

PORT OF VANCOUVER U.S.A.

FIGURE 1: VICINITY MAP

0 2,250 4,500 9,000 Feet

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

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PURPOSE: REDEVELOPMENTOF THE PORT OF VANCOUVER'S TERMINAL NO. 1 SITE.

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STATE OF: WA

APPLICATION BY: PORT OF VANCOUVER, USA

TERMINAL NO. 1 PROJECT

PORT OF VANCOUVER U.S.A.

FIGURE 2: Parcel Map

0 62.5 125 250 Feet

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

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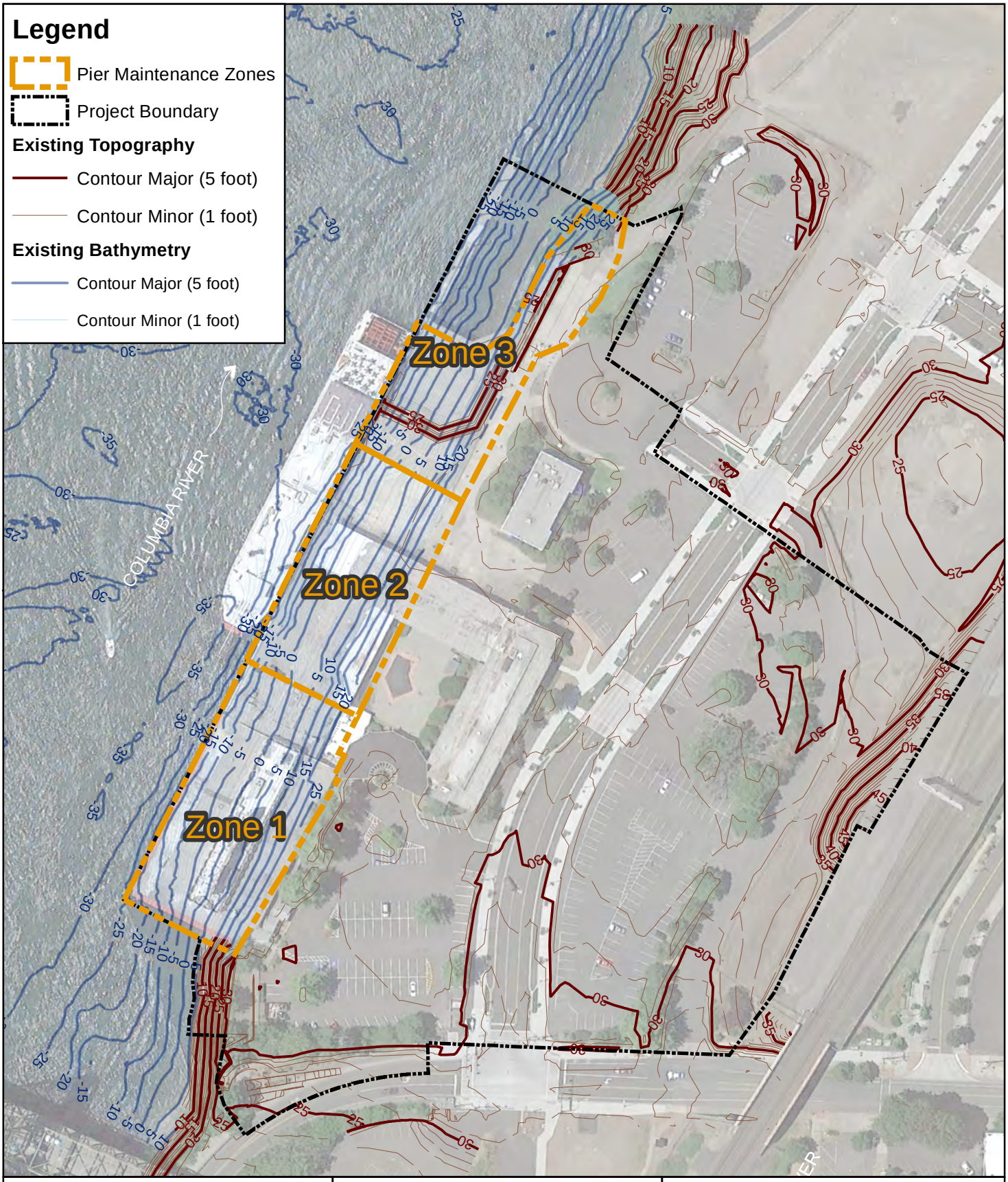

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FIGURE 3: Existing Conditions

0 55 110 220 Feet

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

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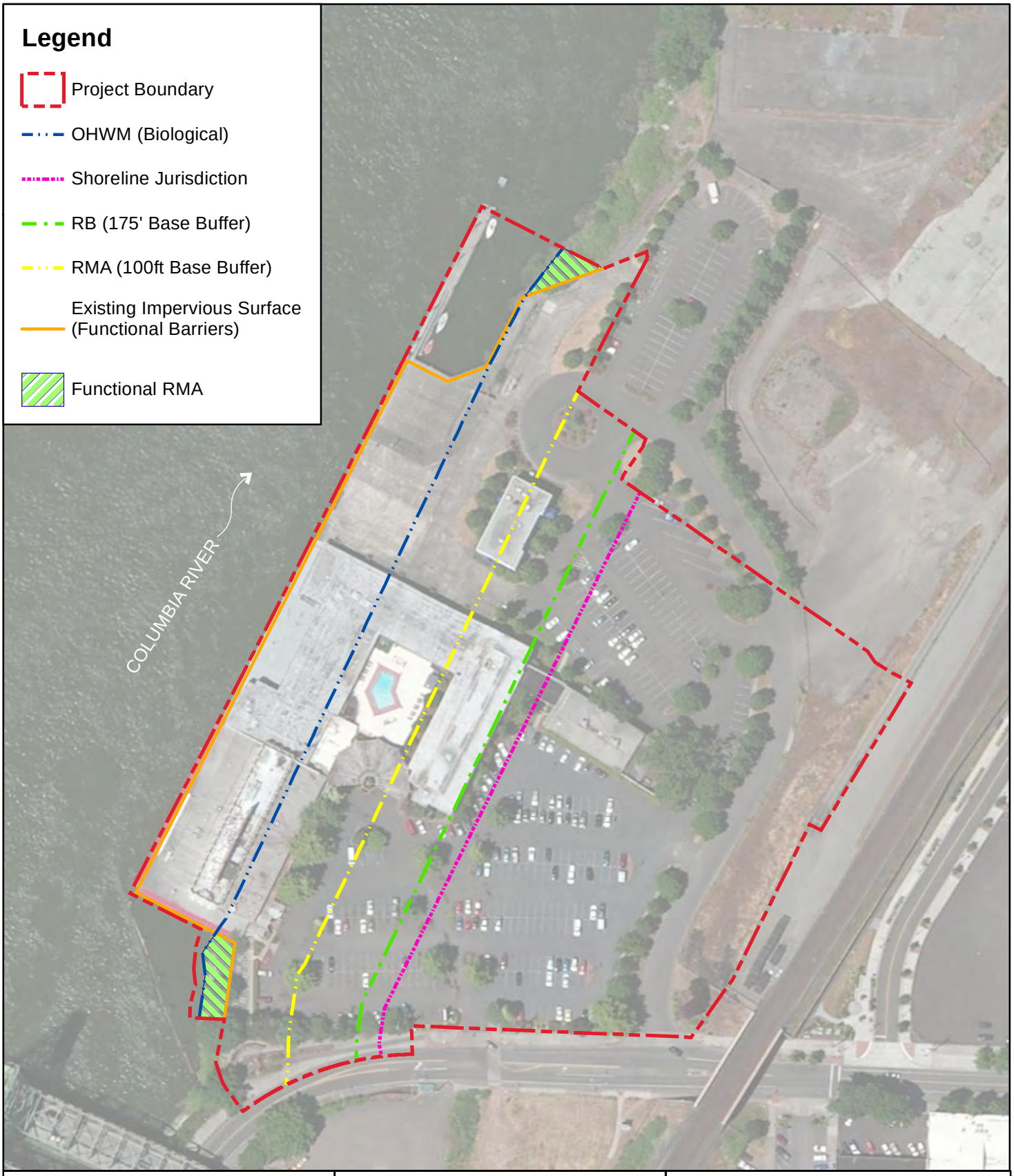

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FIGURE 4: FISH & WILDLIFE HABITAT CONSERVATION AREAS MAP

0 62.5 125 250

Feet

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

SHEET 4 OF 9

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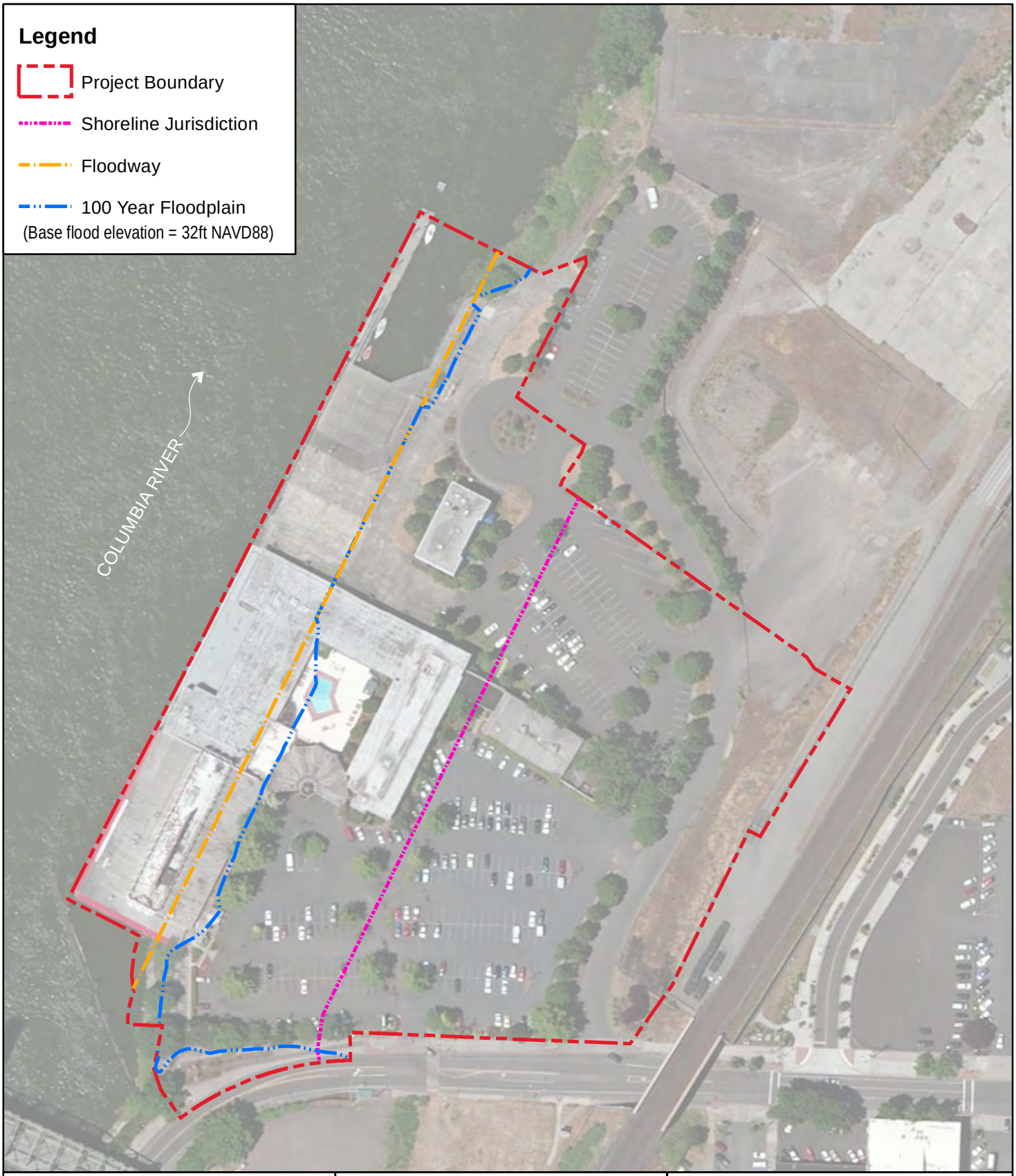

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FIGURE 5: Frequently Flooded Areas

0 62.5 125 250 Feet

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

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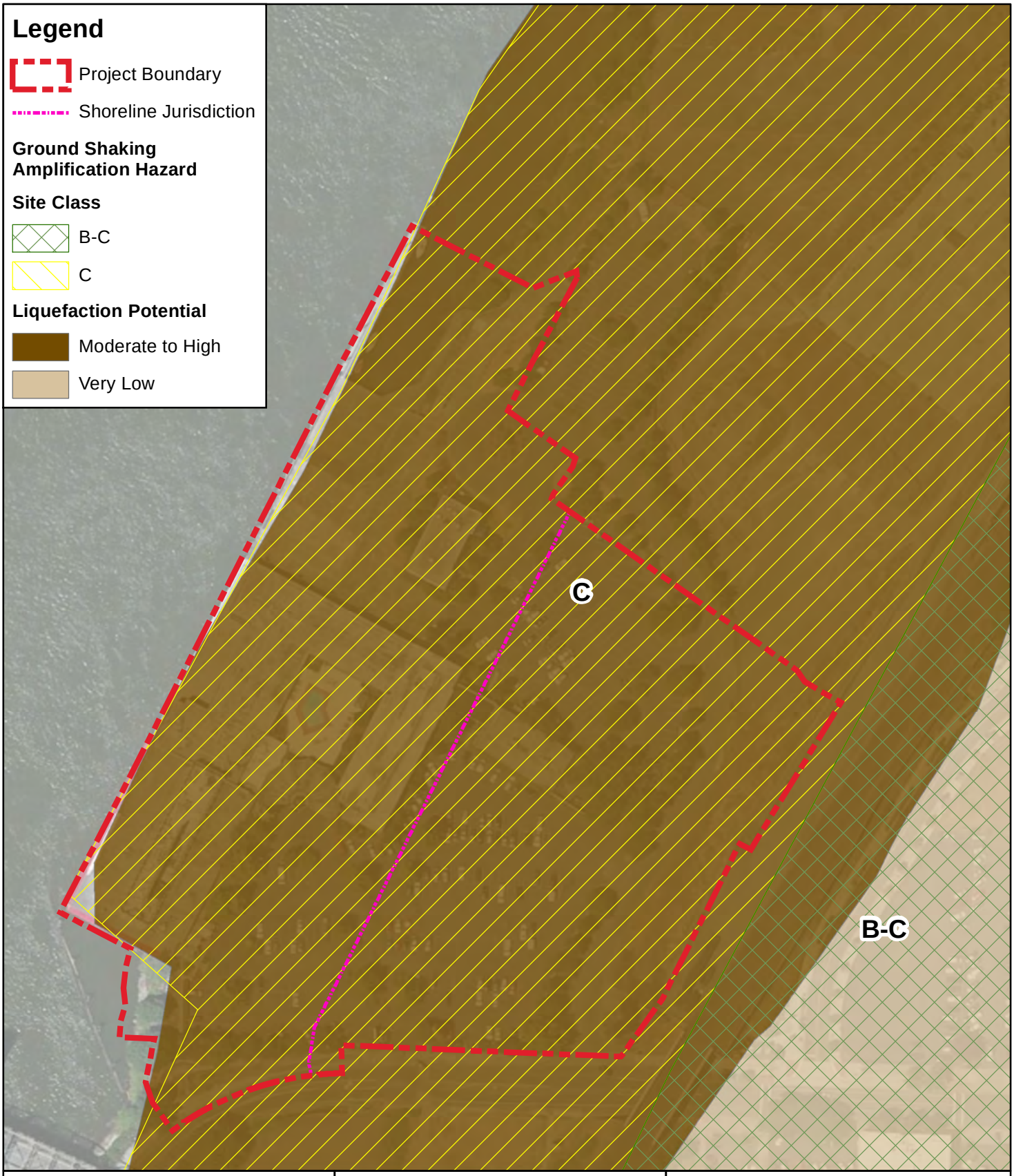

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FIGURE 6: Geological Hazards

0 62.5 125 250 Feet

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

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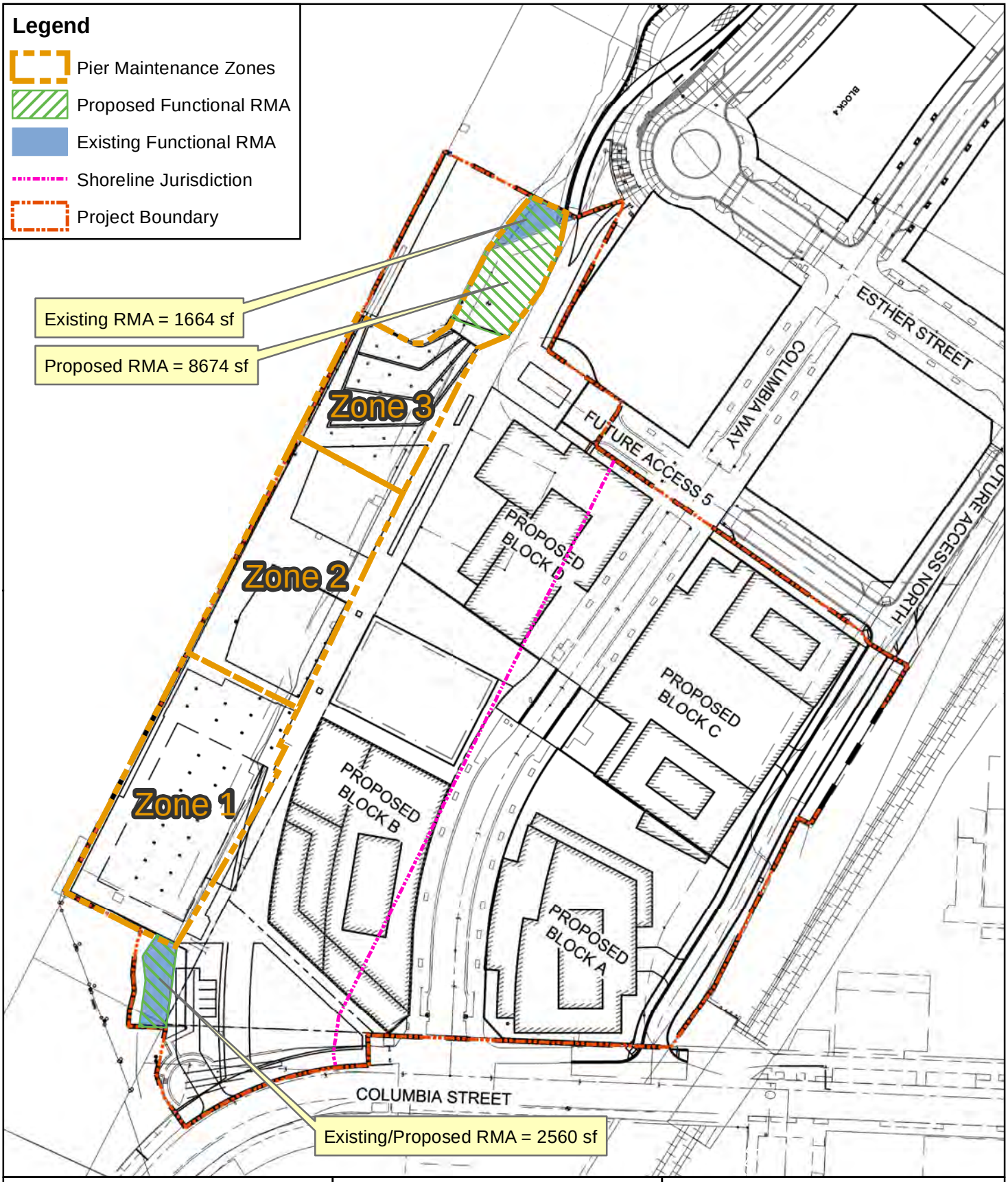

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FIGURE 7: Site Plan

0 55 110 220 Feet

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

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EXISTING RIPARIAN CONDITIONS DOWNSTREAM OF DOCK

EXISTING TIMBER PILINGS DOWNSTREAM

EXISTING SHORELINE DOWNSTREAM

RIPARIAN CONDITIONS UPSTREAM OF PIER

VIEW OF I-5 BRIDGE FROM HOTEL

VIEW UNDER PIER DOWNSTREAM

PURPOSE: REDEVELOPMENTOF THE PORT OF VANCOUVER'S TERMINAL NO. 1 SITE.

COUNTY OF: CLARK

STATE OF: WA

APPLICATION BY: PORT OF VANCOUVER, USA

TERMINAL NO. 1 PROJECT

PORT OF VANCOUVER U.S.A.

FIGURE 8: Photosheet 1

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

Path: Q:\Vancouver\2016\A16.0262\01\GIS\02_MXD\Critical Areas Report\Fig8_Photosheet1.mxd

SHORELINE DOWNSTREAM

EXISTING UPLAND SITE CONDITIONS (TYPICAL)

EXISTING SHORELINE DOWNSTREAM OF DOCK

EXISTING SHORELINE DOWNSTREAM OF DOCK

UPLAND SITE CONDITION AT DOWNSTREAM END OF PIER

PURPOSE: REDEVELOPMENTOF THE PORT OF VANCOUVER'S TERMINAL NO. 1 SITE.

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STATE OF: WA

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TERMINAL NO. 1 PROJECT

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FIGURE 9: Photosheet 2

LATITUDE: 45 37' 26.18" N
LONGITUDE: 122 40'51.192" W
DATUM: NGVD 29

OCTOBER 2016

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Appendix B
No-Rise Analysis (HDR 2016)

Memorandum

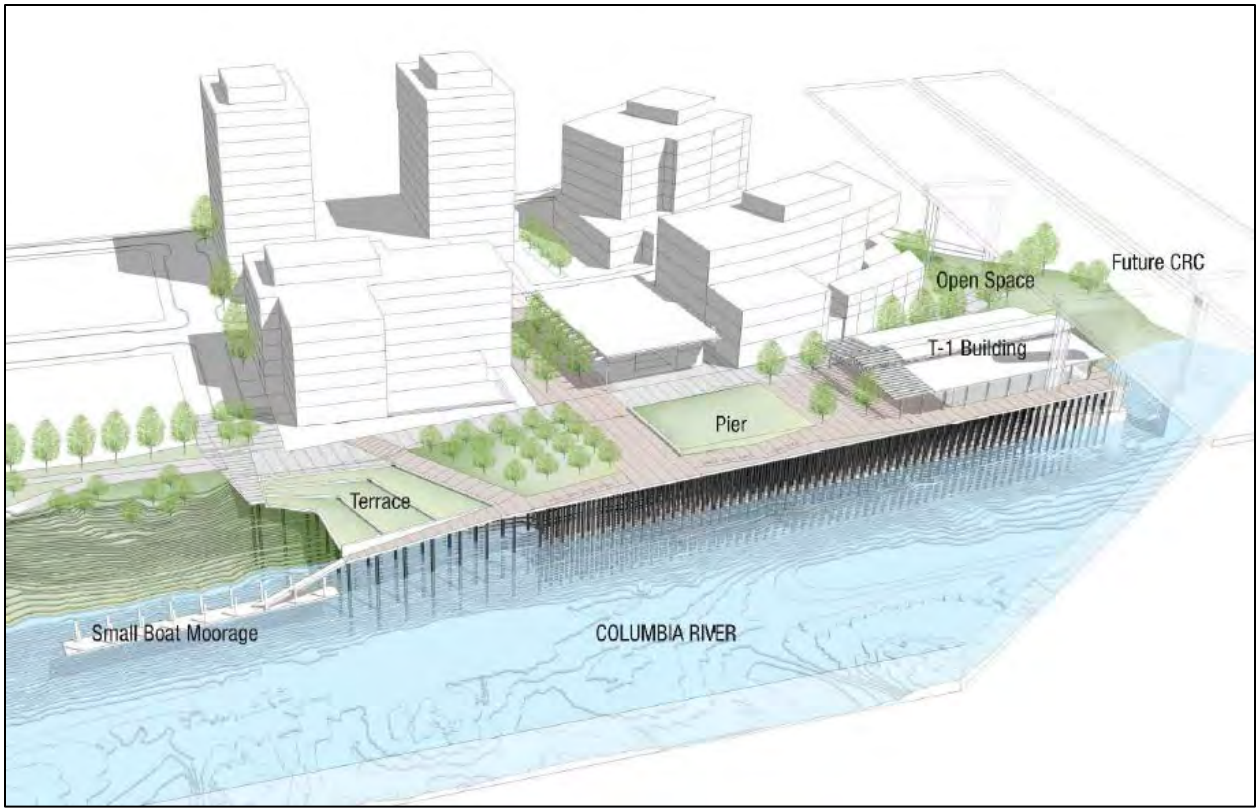
Date:	Monday, October 17, 2016
Project:	Port of Vancouver Waterfront Development Master Plan
To:	Keith Walzak, NBBJ
From:	Leandra Cleveland, PM
Subject:	No-rise Analysis - Draft

The Port of Vancouver (port) waterfront area is located on the north bank of the Columbia River and west of the Interstate 5 Bridge connecting Oregon and Washington. The port is currently in the concept development stage of a master plan for a mixed use development approximately between river mile (RM) 106.4 and RM 106.23. This area exists in what is currently a Zone AE Special Flood Hazard Area (SFHA). A portion of the proposed work for the conceptual master plan will occur along the waterfront and within the Columbia River.

Due to the projects proximity to the Columbia River floodplain and floodway a no-rise analysis was conducted. This memo documents the no-rise analysis conducted for the *Port of Vancouver Waterfront Development Master Plan, Phase II: Concept Development Plan* (CDP). The no-rise analysis assesses the potential of the proposed improvements to affect the Columbia River Floodplain.

Waterfront Concept Development Plan Proposed Improvements

Per the CDP, proposed improvements include, but are not limited to, removal of seawalls, re-grading the area behind existing seawalls, and construction of pedestrian paths. The site currently houses a hotel facility with limited river access through floating docks. The existing hotel is supported through a combination of at grade structures and other structures supported by a wharf and timber piles. The preferred site plan for the waterfront area (Terminal 1 and the Renaissance Trail) calls for continued use of the wharf structure. At this time, it is understood that existing concrete piers located on the west side of the project area will remain while the timber piles located on the east side of the project will be replaced by concrete piles. For the purposes of this report, pier rehabilitation is considered to be removal and replacement of piers. The figure below is a conceptual drawing of the project area at “full build-out.”



source: NBBJ Architecture

Figure 1: Project Rendering of the Conceptual Master Plan

Requirements

According to the National Flood Insurance Program (NFIP) and the Flood Insurance Rate Map (FIRM), the project site exists within the Zone AE SFHA. These designations are categorized for SFHAs subject to inundation by the one percent annual chance flood. An area with a Zone AE designation indicates that base flood elevations have been determined. These elevations, reported in the Flood Insurance Study (FIS), are used to establish the regulatory floodplain, floodway and help local communities with floodplain management. The FIS 2012 one percent annual chance flood water surface elevation is 31.4 feet North American Vertical Datum of 1988 at RM 106.42 directly downstream of the Interstate 5 Bridge. Figure 2 illustrates FIRM boundaries and cross-sections relevant for this project.

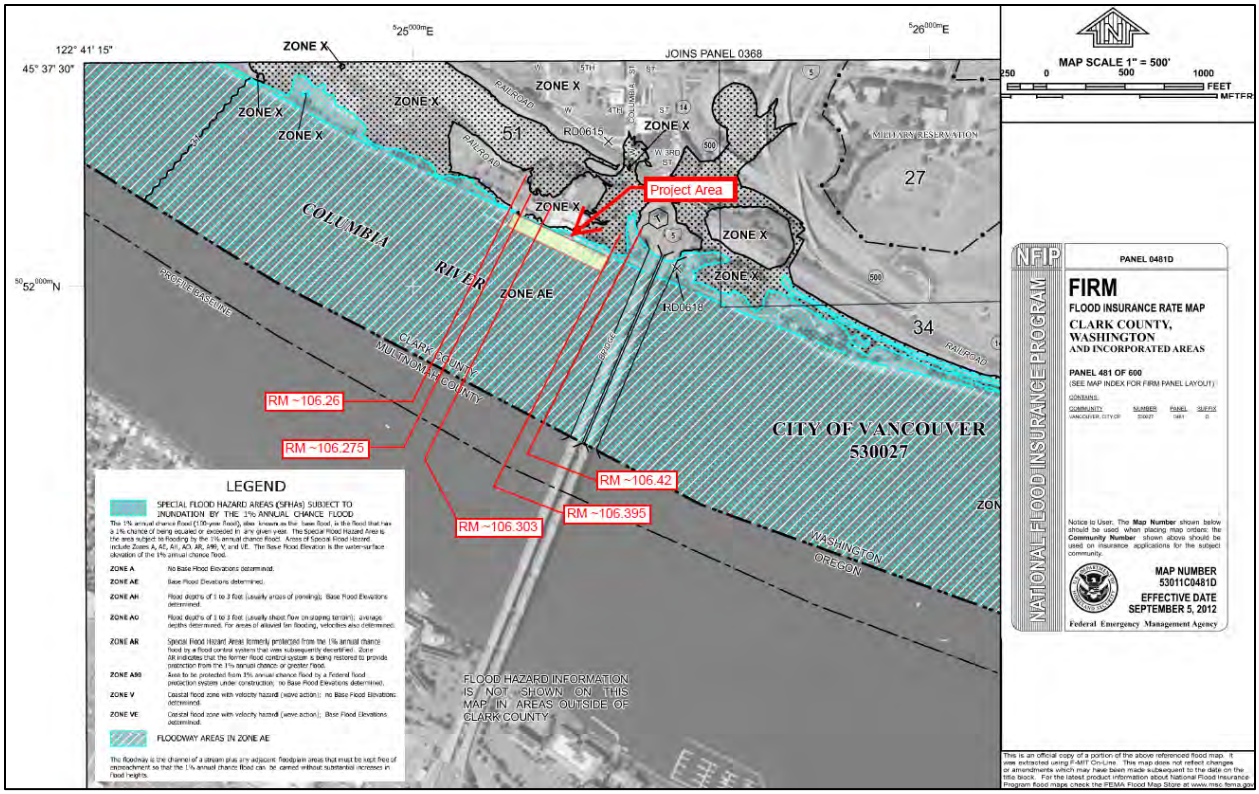


Figure 2: FEMA Flood Insurance Rate Map

Section 60.3 of the NFIP regulations outlines specific regulations for development within the floodway. More specifically, Section 60.3 (d) (3) prohibits all encroachments within the adopted regulatory floodway unless it has been demonstrated that the proposed encroachment would not result in any increase in the Base Flood Elevations (BFEs). For the purpose of this report this condition will be referred to as the “no-rise” condition.

Design Criteria

In order to comply with the no-rise condition, it must be demonstrated through hydraulic analysis that the proposed improvements do not result in a rise in BFEs.

Model Preparation

A hydraulic model was built using HEC-RAS in order to evaluate the change in water surface elevation associated with the proposed waterfront development and confirm a no-rise condition. Initial data used for cross-sections in the model was obtained from historic HEC-2 effective model data and updated to match recent survey data and the proposed conditions. For the FIS, stage-frequency curves are used as the basis for BFEs rather than a stage discharge relationship. As such, flow rates in the model are based on HEC-2 data. The sections below illustrate the step-by-step progression of the model from the effective FEMA model to the proposed conditions.

Step 1 - Effective Model

According to the FIS for Clark County (2012), the HEC-2 model was only used to establish the Columbia River floodway. Flood profiles were derived directly from gage data. Therefore, an effective model in HEC-2 of the floodplain is not available. For this project the HEC-2 model for the floodway was used to approximate the flood elevation. Appropriateness of this model was confirmed by comparing the most recent FIS for the City of Vancouver (September 2012) and the corresponding hard copy HEC-2 summary report from the FISFLDW5.dat file (April 1999). The cross-sections listed in Table 1 show HEC-2 cross-sections as they align with the FIS cross-sections in the project area. Note that the FIS vertical datum was converted from NAVD88 to NGVD29 to match the HEC-2 data. The conversion from the FIS is NAVD33 – 3.3 = NGVD29.

Table 1. Comparison of WSEL between the FIS and Effective (HEC-2) Model Data

Cross-Section (RM)	FIS WSEL* w/out FW*	EFF* WSEL w/out FW	Difference
109.490	28.60	28.64	-0.04
107.390	28.40	28.36	0.04
106.435	**Interstate 5 Bridge**		
106.420	28.10	28.10	0.00
105.630	28.00	28.00	0.00
105.625	**Rail Road Bridge**		
104.430	27.80	27.84	-0.04
102.180	27.60	27.58	0.02

** WSEL = water surface elevation; FW = floodway; EFF = Effective (HEC-2) Model data;*

Table 1 reflects the most recent data available and demonstrates the correlation between the two data sets. It is believed that the difference between the HEC-2 model without floodway and the FIS can be attributed to the difference in methodologies used to estimate floodplain elevations discussed above. Therefore, it is assumed that the HEC-2 data is sufficient to be used as the effective model.

Step 2 - Duplicate Effective Model

The duplicate effective model was created by importing the HEC-2 FISFLDW5.dat file into HEC-RAS and comparing the water surface elevation results. It should be noted that there are computational differences between HEC-2 and HEC-RAS including cross-section conveyance, critical depth, and bridge hydraulics. The following modifications were required in HEC-RAS in order for the HEC-2 file to run properly:

- In the Deck/Roadway Data Editor, the Distance was increased from 0 to 0.1 for all bridges.
- In the Deck/Roadway Data Editor, the Width was decreased by 0.2 for all bridges.

Figure 3 shows the Interstate 5 Bridge cross-section (RM 106.435) as imported from the HEC-2 FISFLDW5.dat file.

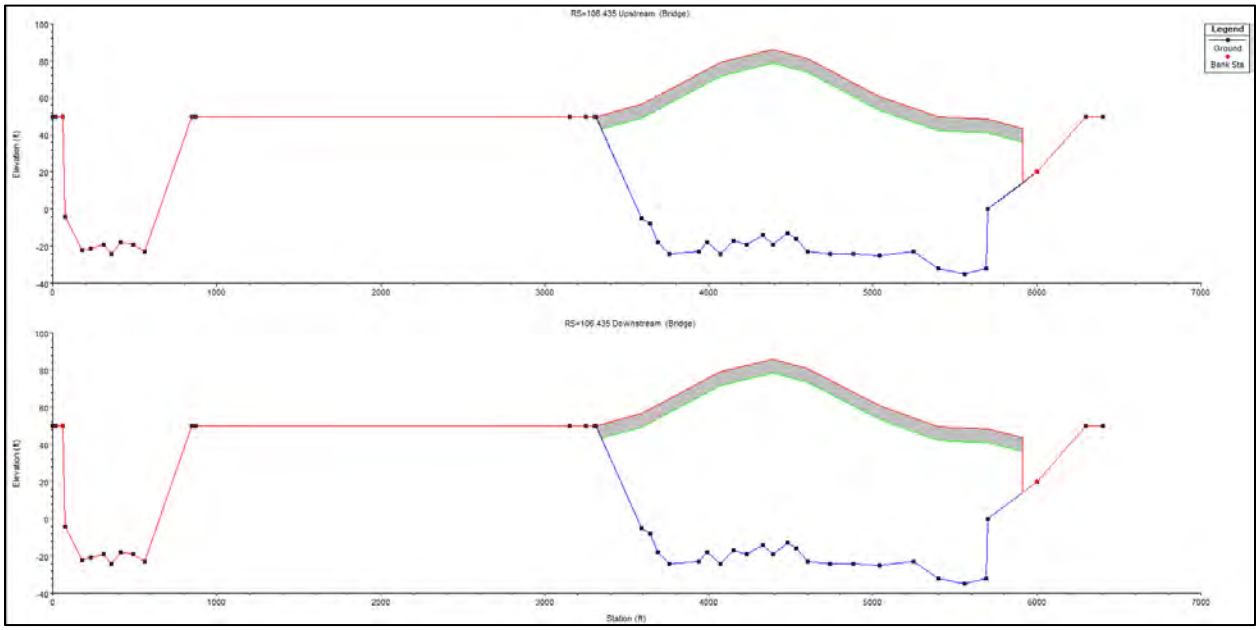


Figure 3: Cross-Section from Duplicate Effective Model

Table 2 shows the results from this conversion. Note that the cross-sections used in this table are focused closer to the project area.

Table 2. Comparison of WSEL between the Effective (HEC-2) and Duplicate Effective Model Data

Cross-Section (RM)	EFF* WSEL w/out FW	DUP-EFF* WSEL w/out FW	Difference
106.450	28.11	28.18	-0.07
106.435	**Interstate 5 Bridge**		
106.420	28.10	28.18	-0.08
106.340	28.14	28.21	-0.07
105.630	28.00	28.01	-0.01
105.625	**Rail Road Bridge**		
105.620	27.99	28.01	-0.02
105.540	27.99	28.01	-0.02

*DUP-EFF = duplicate effective model

Note that there is a 0.02 foot difference in the water surface elevation downstream of the railroad bridge. The more significant change in water surface elevation, which occurs upstream of both of the bridges, is attributed to the computational differences in bridge hydraulics between HEC-2 and HEC-RAS. These results were considered acceptable to continue using this model as the base.

Step 3 - Corrected Effective Model

The corrected effective model was developed by correcting errors and filling data gaps in the duplicate effective model. The following information was added during this step:

- Bridge piers were added to the rail bridge at RM 105.625.
- Bridge piers were added to the Interstate 5 Bridge at RM 106.435.

The size and configuration of piers for each of the above bridges was extracted from a previous model developed for the port's railroad trench structure and reflects estimated values from aerial photos. In the Bridge Modeling Approach Editor (HEC-RAS), for the Low Flow Methods, the selected option was to report the highest energy result from the energy, momentum, and Yarnell computation options. Figure 4 shows an example the physical changes within the corrected-effective model for each bridge at this step.

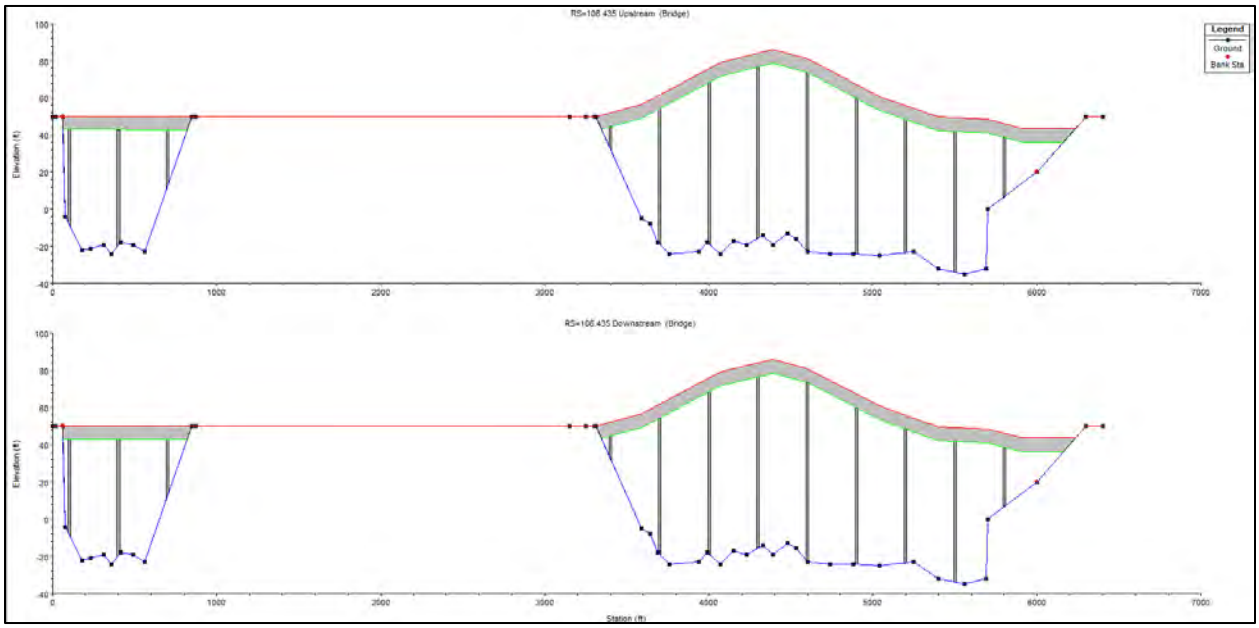


Figure 4: Cross-Section from Corrected Effective Model

Table 3 shows a comparison of the results at this step.

Table 3. Comparison of WSEL between the Duplicate Effective and Corrected Effective Model Data

Cross-Section (RM)	DUP-EFF* WSEL w/out FW	CORR-EFF* WSEL w/out FW	Difference
106.450	28.18	28.2	-0.02
106.435	**Interstate 5 Bridge**		
106.420	28.18	28.17	0.01
106.340	28.21	28.2	0.01
105.630	28.01	27.98	0.03
105.625	**Rail Road Bridge**		
105.620	28.01	27.95	0.06
105.540	28.01	27.95	0.06

** CORR-EFF = corrected effective model*

The slight difference in water surface elevations between the two models above RM 105.62 is attributed to the piers added at the previously mentioned locations that would be expected under these conditions. These results are considered similar enough for continued use.

Step 4 - Existing Model

The existing model builds on the corrected effective model by adding more current site specific information. This model represents the most up-to-date project information available for the no-rise analysis. The following modifications were made in this effort:

- Cross-sections were interpolated both upstream and downstream of the project site at RMs 106.395, 106.303, 106.275, 106.266, 106.248 and 106.229.
- Cross-sections between RM 106.42 and RM 106.229 were updated along the north (right side looking downstream) riverbank with current survey information.
- Two bridges were added to approximate the existing wharf and piers within the Columbia River:
    - Pier Layout #1 occurs between RM 106.395 and RM 106.303 and reflects a configuration of 16-inch-diameter timber piers spaced at 8 feet on center.
    - Pier Layout #2 occurs between RM 106.303 and RM 106.275 and reflects a configuration of 30-inch-diameter concrete piers spaced at 20 feet on center.
- The top chord of both bridge decks was set at an elevation of 32 feet to match the survey elevation of the top of the bulkhead.
- Based on conversations with the designers at BergerAbam and NBBJ, the bottom chord of both bridge decks was estimated at an elevation of 31 feet. Note that this elevation is only an estimate and has not been field verified.
- Manning's n values were adjusted accordingly at specific station locations for modified cross-sections to match the surveyed bank/bulkhead at the north riverbank.

- Manning's n values were not changed other than mentioned above.

Figure 5 shows an example of the modifications made to cross-sections where survey information was used to update the HEC-RAS profile data.

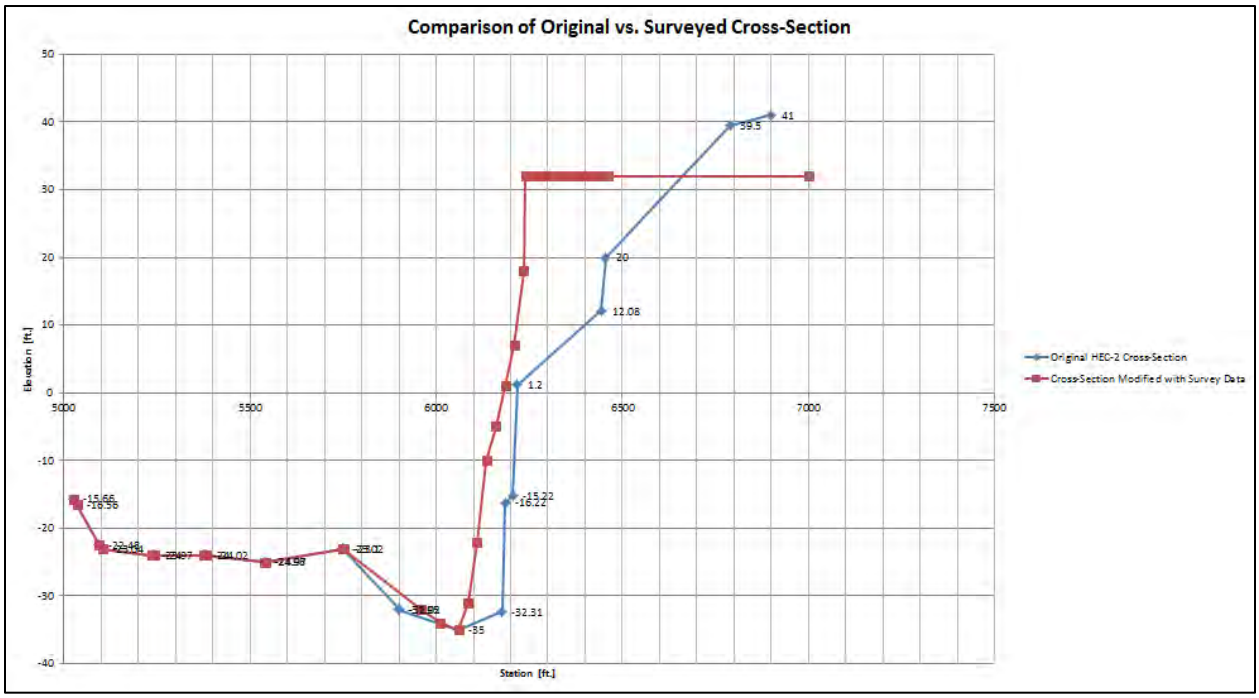


Figure 5: Comparison of Original vs. Surveyed Cross-Section

Figure 6 shows an example of the bridge method used to model the wharf and piers

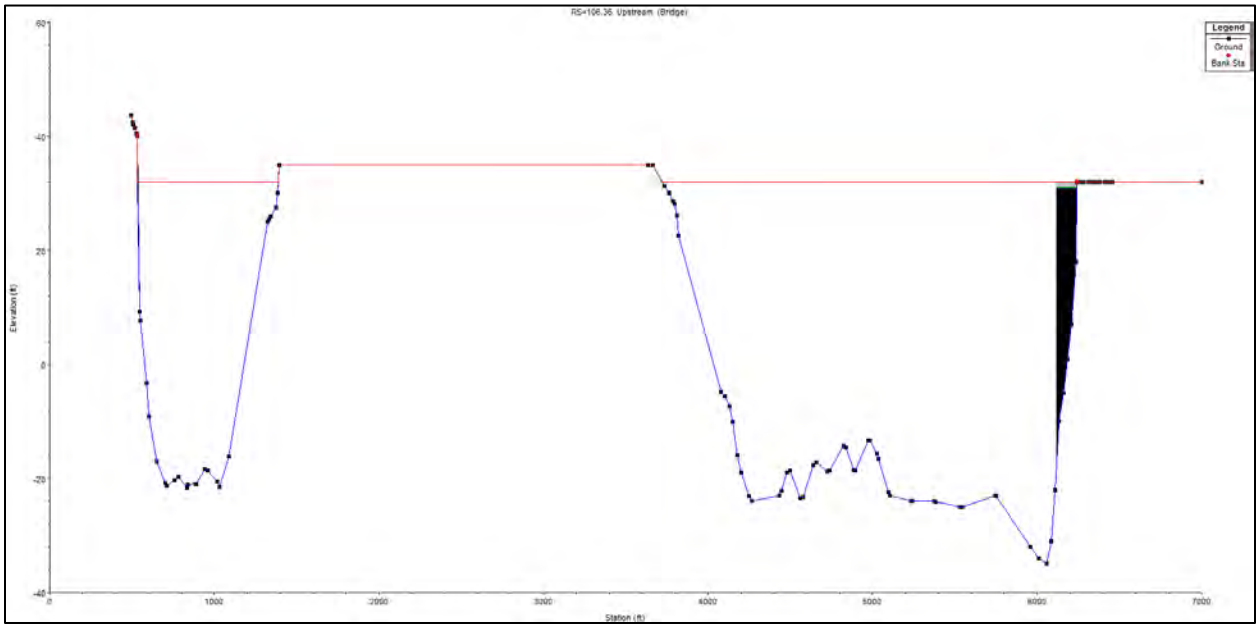


Figure 6: Full Cross-Section Profile of Wharf and Piers

Figure 7 provides an enlarged cross-section profile of the wharf and piers.

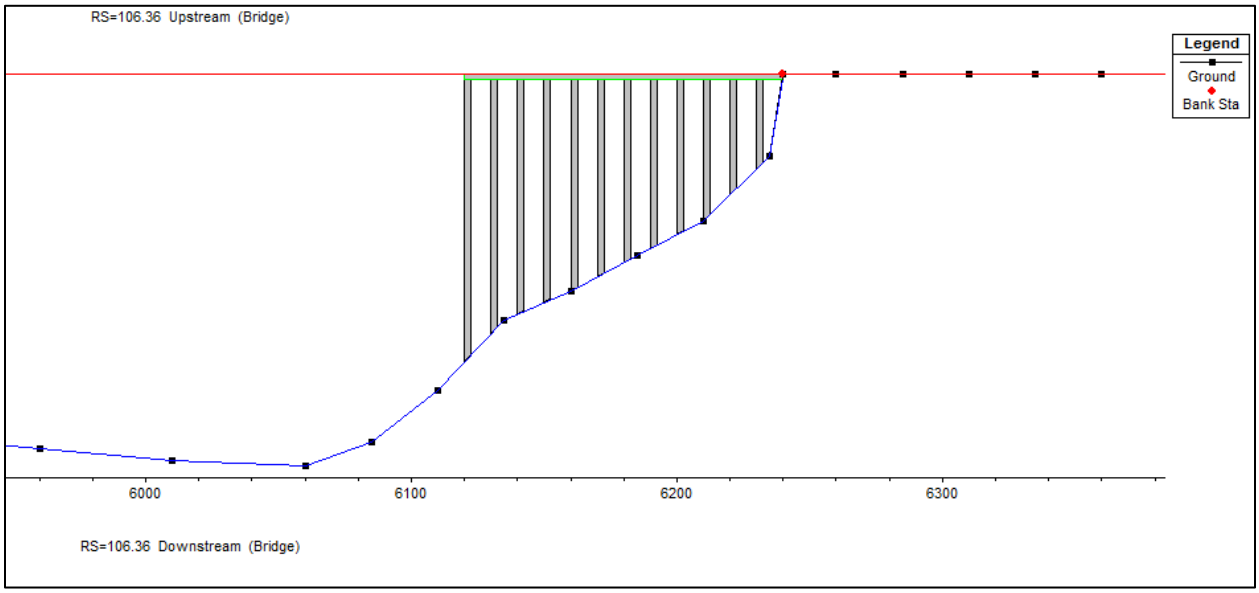


Figure 7: Enlarged Cross-Section Profile of Wharf and Piers

Table 4 shows a comparison of results from the corrected and existing models for reference only. Results from the existing model will serve as the baseline water surface elevation for the no-rise analysis when compared to the proposed condition.

Table 4. Comparison of WSEL between the Corrected Effective and Existing Model Data

Cross-Section (RM)	CORR-EFF* WSEL w/out FW	EXISTING WSEL w/out FW	Difference
106.450	28.20	28.18	0.02
106.435	**Interstate 5 Bridge**		
106.420	28.17	28.13	0.04
106.340	28.20	(removed)	
105.630	27.98	27.98	0.00
105.625	**Rail Road Bridge**		
105.620	27.95	27.95	0.00
105.540	27.95	27.95	0.00

Step 5 - Proposed Model

The proposed model builds on the existing conditions model and represents the post-project conditions based on the most current information available. This step is necessary to determine if the proposed conditions cause a rise in the BFEs. The following modifications were made to develop this model:

- Pier Layout #1 was modified to reflect the same pier configuration as Pier Layout #2 with 30-inch-diameter concrete piers spaced at 20 feet on center instead of 16-inch piles spaced at 8 feet on center in the existing conditions. Generally, this is a reduction from 15, 16-inch piles to 6, 30-inch piles in a row.
- Manning's n values were not changed in any locations

Table 5 shows the results of the existing conditions in comparison with the proposed conditions model. These are the results by which the no-rise condition should be analyzed. This table demonstrates no change in the water surface elevation greater than 0.00 feet between the existing and proposed conditions.

Table 5. Comparison of WSEL between the Existing and Proposed Model Data

Cross-Section (RM)	CORR-EFF* WSEL w/out FW	EXISTING WSEL w/out FW	Difference
106.450	28.18	28.18	0.00
106.435	**Interstate 5 Bridge**		
106.420	28.13	28.13	0.00
106.395*	28.13	28.13	0.00
106.303*	28.14	28.14	0.00
106.275*	28.14	28.14	0.00
105.630	27.98	27.98	0.00
105.625	**Rail Road Bridge**		
105.620	27.95	27.95	0.00
105.540	27.95	27.95	0.00

** Cross-sections interpolated within project area*

Results/Discussion

In order to determine if the project causes any rise in the BFEs, it is necessary to compare the water surface elevations of the existing conditions with those from the proposed conditions. This was completed using HEC-RAS hydraulic modeling analysis. The existing model was developed from current FIS and HEC-2 information and updated with the addition of recent survey data to make the model current. A similar proposed model was developed from the existing conditions by incorporating the development proposed at this time. The results in Table 5 show no-rise in water surface elevation greater than 0.00 feet between the existing and proposed conditions. Therefore it is believed that if the improvements are made as reflected in this memorandum and associated hydraulic analysis, this project can satisfy a no-rise condition under the FEMA National Flood Insurance Policy. If greater than 0.00 feet rise in BFEs was predicted for the proposed improvements then a Conditional Letter of Map Revision would need to be completed for the project to identify impacts to the floodplain and floodway. A floodplain encroachment permit will also be required from the local floodplain administrator prior to completion of any work in the floodplain or floodway. Model results are provided in Attachment A.

Conclusion

In accordance with the information above, results from the HEC-RAS hydrologic and hydraulic analysis indicate no-rise in the floodway BFEs due to the proposed site development.

Attachment A. Model Results

HEC-RAS Plan: Duplicate River: RIVER-1 Reach: Reach-1 Profile: FIS_100year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	126.62	FIS_100year	555000.00	-44.00	32.45	-14.93	32.65	0.000028	3.88	173175.80	6045.79	0.09
Reach-1	125.55	FIS_100year	555000.00	-29.00	32.33	-2.35	32.45	0.000031	2.76	202686.00	11648.95	0.09
Reach-1	123.94	FIS_100year	555000.00	-50.00	32.12	-3.83	32.22	0.000020	2.55	241295.80	13029.81	0.08
Reach-1	123.42	FIS_100year	555000.00	-31.00	32.04	-1.94	32.14	0.000028	2.69	227380.30	13040.29	0.08
Reach-1	122.88	FIS_100year	555000.00	-28.00	31.96	-3.88	32.06	0.000032	2.60	234688.90	11112.49	0.09
Reach-1	121.34	FIS_100year	565000.00	-40.00	31.61	-6.34	31.77	0.000039	3.29	185311.10	7658.50	0.10
Reach-1	119.88	FIS_100year	565000.00	-58.00	31.12		31.41	0.000053	4.35	140463.30	3668.99	0.10
Reach-1	118.06	FIS_100year	565000.00	-30.50	30.77		30.89	0.000046	2.71	208240.60	6729.24	0.09
Reach-1	116.1	FIS_100year	565000.00	-28.00	30.25		30.41	0.000044	3.21	176022.10	4774.64	0.09
Reach-1	115.02	FIS_100year	565000.00	-31.00	29.94		30.14	0.000051	3.54	161074.50	4642.69	0.10
Reach-1	112.93	FIS_100year	565000.00	-21.00	29.43		29.57	0.000049	3.00	188363.20	5970.06	0.09
Reach-1	111.15	FIS_100year	565000.00	-26.00	29.07		29.22	0.000029	3.10	182070.90	4614.44	0.09
Reach-1	110.17	FIS_100year	565000.00	-28.00	28.85		29.05	0.000038	3.56	158840.90	4059.66	0.10
Reach-1	109.49	FIS_100year	565000.00	-33.00	28.80		28.93	0.000021	2.81	202208.30	5411.95	0.08
Reach-1	107.39	FIS_100year	565000.00	-32.00	28.47		28.61	0.000041	3.04	185759.40	4586.97	0.08
Reach-1	106.59	FIS_100year	565000.00	-35.00	28.29		28.46	0.000032	3.29	172042.40	3955.11	0.09
Reach-1	106.45	FIS_100year	565000.00	-35.00	28.18	-11.10	28.42	0.000031	3.92	144431.80	3357.97	0.10
Reach-1	106.435		Bridge									
Reach-1	106.42	FIS_100year	565000.00	-35.00	28.18		28.42	0.000034	3.92	144431.80	3357.97	0.10
Reach-1	106.34	FIS_100year	565000.00	-35.00	28.21		28.37	0.000071	3.17	179423.70	6241.68	0.10
Reach-1	105.77	FIS_100year	565000.00	-43.00	28.06		28.23	0.000029	3.30	171457.20	3806.05	0.09
Reach-1	105.63	FIS_100year	565000.00	-43.00	28.01	-17.80	28.21	0.000031	3.52	160672.80	3417.77	0.09
Reach-1	105.625		Bridge									
Reach-1	105.62	FIS_100year	565000.00	-43.00	28.01		28.20	0.000031	3.52	160666.30	3417.76	0.09
Reach-1	105.54	FIS_100year	565000.00	-43.00	28.01		28.18	0.000034	3.30	171252.70	3805.59	0.09
Reach-1	104.43	FIS_100year	565000.00	-43.00	27.84		27.99	0.000028	3.08	191064.30	5548.65	0.08
Reach-1	103.31	FIS_100year	565000.00	-43.40	27.66		27.80	0.000033	3.00	188593.50	4674.62	0.08
Reach-1	102.17	FIS_100year	565000.00	-68.00	27.58	-45.21	27.68	0.000009	2.56	220297.70	3221.49	0.05

HEC-RAS Plan: Corrected River: RIVER-1 Reach: Reach-1 Profile: FIS_100year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	126.62	FIS_100year	555000.00	-44.00	32.42	-14.93	32.62	0.000028	3.88	173012.30	6045.56	0.09
Reach-1	125.55	FIS_100year	555000.00	-29.00	32.31	-2.35	32.42	0.000031	2.76	202486.00	11648.36	0.09
Reach-1	123.94	FIS_100year	555000.00	-50.00	32.09	-3.83	32.19	0.000020	2.55	241035.50	13028.76	0.08
Reach-1	123.42	FIS_100year	555000.00	-31.00	32.01	-1.94	32.12	0.000028	2.69	227079.60	13034.41	0.08
Reach-1	122.88	FIS_100year	555000.00	-28.00	31.93	-3.88	32.03	0.000032	2.60	234372.90	11110.70	0.09
Reach-1	121.34	FIS_100year	565000.00	-40.00	31.58	-6.34	31.74	0.000039	3.30	185085.80	7656.78	0.10
Reach-1	119.88	FIS_100year	565000.00	-58.00	31.09		31.38	0.000053	4.36	140352.00	3667.13	0.10
Reach-1	118.06	FIS_100year	565000.00	-30.50	30.74		30.85	0.000047	2.72	208028.50	6729.07	0.09
Reach-1	116.1	FIS_100year	565000.00	-28.00	30.22		30.38	0.000044	3.21	175864.30	4774.03	0.09
Reach-1	115.02	FIS_100year	565000.00	-31.00	29.91		30.10	0.000051	3.54	160917.00	4641.31	0.10
Reach-1	112.93	FIS_100year	565000.00	-21.00	29.40		29.54	0.000049	3.00	188150.00	5969.79	0.09
Reach-1	111.15	FIS_100year	565000.00	-26.00	29.04		29.19	0.000029	3.11	181900.90	4614.22	0.09
Reach-1	110.17	FIS_100year	565000.00	-28.00	28.81		29.01	0.000038	3.56	158688.90	4059.32	0.10
Reach-1	109.49	FIS_100year	565000.00	-33.00	28.77		28.89	0.000021	2.81	202004.70	5410.28	0.08
Reach-1	107.39	FIS_100year	565000.00	-32.00	28.47		28.61	0.000030	3.04	185770.90	4586.99	0.08
Reach-1	106.59	FIS_100year	565000.00	-35.00	28.31		28.48	0.000032	3.29	172136.30	3955.54	0.09
Reach-1	106.45	FIS_100year	565000.00	-35.00	28.20	-11.10	28.44	0.000042	3.92	144497.90	3358.35	0.10
Reach-1	106.435		Bridge									
Reach-1	106.42	FIS_100year	565000.00	-35.00	28.17		28.41	0.000042	3.92	144411.00	3357.85	0.10
Reach-1	106.34	FIS_100year	565000.00	-35.00	28.20		28.36	0.000078	3.17	179364.70	6241.28	0.10
Reach-1	105.77	FIS_100year	565000.00	-43.00	28.03		28.20	0.000034	3.30	171346.00	3805.80	0.09
Reach-1	105.63	FIS_100year	565000.00	-43.00	27.98	-17.80	28.18	0.000030	3.52	160567.00	3417.60	0.09
Reach-1	105.625		Bridge									
Reach-1	105.62	FIS_100year	565000.00	-43.00	27.95		28.14	0.000031	3.52	160462.40	3417.43	0.09
Reach-1	105.54	FIS_100year	565000.00	-43.00	27.95		28.12	0.000035	3.31	171025.60	3805.08	0.09
Reach-1	104.43	FIS_100year	565000.00	-43.00	27.80		27.95	0.000023	3.09	190833.60	5540.75	0.08
Reach-1	103.31	FIS_100year	565000.00	-43.40	27.66		27.79	0.000027	3.00	188563.50	4674.43	0.08
Reach-1	102.17	FIS_100year	565000.00	-68.00	27.58	-45.21	27.68	0.000009	2.56	220297.70	3221.49	0.05

HEC-RAS Plan: Existing River: RIVER-1 Reach: Reach-1 Profile: FIS_100year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	126.62	FIS_100year	555000.00	-44.00	32.42	-14.93	32.61	0.000028	3.88	172980.40	6045.52	0.09
Reach-1	125.55	FIS_100year	555000.00	-29.00	32.30	-2.35	32.42	0.000031	2.76	202447.00	11648.25	0.09
Reach-1	123.94	FIS_100year	555000.00	-50.00	32.09	-3.83	32.19	0.000020	2.55	240984.80	13028.55	0.08
Reach-1	123.42	FIS_100year	555000.00	-31.00	32.00	-1.94	32.11	0.000028	2.69	227021.00	13033.26	0.08
Reach-1	122.88	FIS_100year	555000.00	-28.00	31.92	-3.88	32.02	0.000032	2.60	234311.10	11110.35	0.09
Reach-1	121.34	FIS_100year	565000.00	-40.00	31.58	-6.34	31.74	0.000039	3.30	185041.80	7656.45	0.10
Reach-1	119.88	FIS_100year	565000.00	-58.00	31.09		31.38	0.000053	4.36	140330.20	3666.77	0.10
Reach-1	118.06	FIS_100year	565000.00	-30.50	30.73		30.85	0.000047	2.72	207987.10	6729.03	0.09
Reach-1	116.1	FIS_100year	565000.00	-28.00	30.21		30.37	0.000044	3.21	175833.50	4773.91	0.09
Reach-1	115.02	FIS_100year	565000.00	-31.00	29.90		30.10	0.000051	3.54	160886.30	4641.04	0.10
Reach-1	112.93	FIS_100year	565000.00	-21.00	29.39		29.53	0.000049	3.00	188108.30	5969.74	0.09
Reach-1	111.15	FIS_100year	565000.00	-26.00	29.03		29.18	0.000029	3.11	181867.70	4614.18	0.09
Reach-1	110.17	FIS_100year	565000.00	-28.00	28.81		29.00	0.000038	3.56	158659.10	4059.25	0.10
Reach-1	109.49	FIS_100year	565000.00	-33.00	28.76		28.88	0.000021	2.81	201964.80	5409.95	0.08
Reach-1	107.39	FIS_100year	565000.00	-32.00	28.46		28.60	0.000031	3.04	185712.50	4586.88	0.08
Reach-1	106.59	FIS_100year	565000.00	-35.00	28.30		28.46	0.000032	3.29	172074.50	3955.26	0.09
Reach-1	106.45	FIS_100year	565000.00	-35.00	28.18	-11.11	28.42	0.000042	3.92	144445.00	3358.05	0.10
Reach-1	106.435		Bridge									
Reach-1	106.42	FIS_100year	565000.00	-32.00	28.13		28.39	0.000048	4.07	138921.90	3221.09	0.11
Reach-1	106.395	FIS_100year	565000.00	-34.00	28.13	-10.41	28.38	0.000045	3.97	142447.30	3294.66	0.11
Reach-1	106.36		Bridge									
Reach-1	106.303*	FIS_100year	565000.00	-30.00	28.14	-9.38	28.33	0.000042	3.44	164449.10	5707.00	0.11
Reach-1	106.29		Bridge									
Reach-1	106.275	FIS_100year	565000.00	-30.21	28.14		28.32	0.000042	3.45	163582.80	5699.56	0.11
Reach-1	106.266*	FIS_100year	565000.00	-28.00	28.12		28.32	0.000045	3.52	160393.00	5698.10	0.12
Reach-1	106.248*	FIS_100year	565000.00	-30.63	28.12		28.31	0.000045	3.53	159903.70	5697.50	0.12
Reach-1	106.229*	FIS_100year	565000.00	-28.00	28.11		28.31	0.000048	3.59	157365.20	5748.66	0.12
Reach-1	105.77	FIS_100year	565000.00	-43.00	28.03		28.20	0.000032	3.30	171325.90	3805.75	0.09
Reach-1	105.63	FIS_100year	565000.00	-43.00	27.98	-17.80	28.17	0.000031	3.52	160550.50	3417.58	0.09
Reach-1	105.625		Bridge									
Reach-1	105.62	FIS_100year	565000.00	-43.00	27.95		28.14	0.000031	3.52	160445.60	3417.40	0.09
Reach-1	105.54	FIS_100year	565000.00	-43.00	27.95		28.12	0.000035	3.31	171006.10	3805.04	0.09
Reach-1	104.43	FIS_100year	565000.00	-43.00	27.79		27.94	0.000023	3.09	190804.80	5539.76	0.08
Reach-1	103.31	FIS_100year	565000.00	-43.40	27.65		27.79	0.000026	3.00	188556.00	4674.38	0.08
Reach-1	102.17	FIS_100year	565000.00	-68.00	27.58	-45.21	27.68	0.000009	2.56	220297.70	3221.49	0.05

HEC-RAS Plan: Proposed River: RIVER-1 Reach: Reach-1 Profile: FIS_100year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	126.62	FIS_100year	555000.00	-44.00	32.41	-14.93	32.61	0.000028	3.88	172964.50	6045.50	0.09
Reach-1	125.55	FIS_100year	555000.00	-29.00	32.30	-2.35	32.42	0.000031	2.76	202427.60	11648.19	0.09
Reach-1	123.94	FIS_100year	555000.00	-50.00	32.09	-3.83	32.18	0.000020	2.55	240959.50	13028.45	0.08
Reach-1	123.42	FIS_100year	555000.00	-31.00	32.00	-1.94	32.11	0.000028	2.69	226991.70	13032.60	0.08
Reach-1	122.88	FIS_100year	555000.00	-28.00	31.92	-3.88	32.02	0.000032	2.60	234280.40	11110.18	0.09
Reach-1	121.34	FIS_100year	565000.00	-40.00	31.57	-6.34	31.74	0.000039	3.30	185019.90	7656.28	0.10
Reach-1	119.88	FIS_100year	565000.00	-58.00	31.09		31.37	0.000053	4.36	140319.40	3666.59	0.10
Reach-1	118.06	FIS_100year	565000.00	-30.50	30.73		30.84	0.000047	2.72	207966.50	6729.02	0.09
Reach-1	116.1	FIS_100year	565000.00	-28.00	30.21		30.37	0.000044	3.21	175818.20	4773.85	0.09
Reach-1	115.02	FIS_100year	565000.00	-31.00	29.90		30.09	0.000051	3.54	160870.90	4640.91	0.10
Reach-1	112.93	FIS_100year	565000.00	-21.00	29.38		29.53	0.000049	3.00	188087.60	5969.72	0.09
Reach-1	111.15	FIS_100year	565000.00	-26.00	29.03		29.18	0.000029	3.11	181851.20	4614.15	0.09
Reach-1	110.17	FIS_100year	565000.00	-28.00	28.80		29.00	0.000038	3.56	158644.40	4059.22	0.10
Reach-1	109.49	FIS_100year	565000.00	-33.00	28.76		28.88	0.000021	2.81	201945.10	5409.79	0.08
Reach-1	107.39	FIS_100year	565000.00	-32.00	28.45		28.60	0.000031	3.04	185695.40	4586.85	0.08
Reach-1	106.59	FIS_100year	565000.00	-35.00	28.29		28.46	0.000032	3.29	172059.50	3955.19	0.09
Reach-1	106.45	FIS_100year	565000.00	-35.00	28.18	-11.11	28.42	0.000042	3.92	144432.30	3357.97	0.10
Reach-1	106.435		Bridge									
Reach-1	106.42	FIS_100year	565000.00	-32.00	28.13		28.39	0.000048	4.07	138909.60	3221.04	0.11
Reach-1	106.395	FIS_100year	565000.00	-34.00	28.13	-10.41	28.37	0.000045	3.97	142434.80	3294.61	0.11
Reach-1	106.36		Bridge									
Reach-1	106.303*	FIS_100year	565000.00	-30.00	28.14	-9.38	28.33	0.000042	3.44	164449.10	5707.00	0.11
Reach-1	106.29		Bridge									
Reach-1	106.275	FIS_100year	565000.00	-30.21	28.14		28.32	0.000042	3.45	163582.80	5699.56	0.11
Reach-1	106.266*	FIS_100year	565000.00	-28.00	28.12		28.32	0.000045	3.52	160393.00	5698.10	0.12
Reach-1	106.248*	FIS_100year	565000.00	-30.63	28.12		28.31	0.000045	3.53	159903.70	5697.50	0.12
Reach-1	106.229*	FIS_100year	565000.00	-28.00	28.11		28.31	0.000048	3.59	157365.20	5748.66	0.12
Reach-1	105.77	FIS_100year	565000.00	-43.00	28.03		28.20	0.000032	3.30	171325.90	3805.75	0.09
Reach-1	105.63	FIS_100year	565000.00	-43.00	27.98	-17.80	28.17	0.000031	3.52	160550.50	3417.58	0.09
Reach-1	105.625		Bridge									
Reach-1	105.62	FIS_100year	565000.00	-43.00	27.95		28.14	0.000031	3.52	160445.60	3417.40	0.09
Reach-1	105.54	FIS_100year	565000.00	-43.00	27.95		28.12	0.000035	3.31	171006.10	3805.04	0.09
Reach-1	104.43	FIS_100year	565000.00	-43.00	27.79		27.94	0.000023	3.09	190804.80	5539.76	0.08
Reach-1	103.31	FIS_100year	565000.00	-43.40	27.65		27.79	0.000026	3.00	188556.00	4674.38	0.08
Reach-1	102.17	FIS_100year	565000.00	-68.00	27.58	-45.21	27.68	0.000009	2.56	220297.70	3221.49	0.05

Appendix C
Preliminary Geotechnical Report (GRI 2016a)

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March 29, 2016 W1130-T12 PRELIMINARY GEOTECHNICAL RPT

Port of Vancouver USA
3103 Lower River Road
Vancouver, WA 98660

Attention: Monty Edberg

SUBJECT: Preliminary Geotechnical Investigation
Terminal 1 Redevelopment
Port of Vancouver, USA

GRI has completed a preliminary geotechnical investigation for the proposed redevelopment of Blocks A through E at Terminal 1 at the Port of Vancouver, USA. The Vicinity Map, Figure 1, shows the general location of the site. The purpose of this investigation was to review readily available geotechnical information contained in our files, to further investigate and evaluate subsurface conditions at the project site, and to develop preliminary geotechnical recommendations suitable for use in the master planning study. Limited geotechnical analyses were completed to evaluate seismic hazards and foundation support on a preliminary basis. Additional subsurface explorations and detailed geotechnical analyses will be required for final design. This preliminary report documents the work accomplished and provides the results of our studies.

The following reports were reviewed by GRI as part of this work:

> October 2011, "Task AH 8.7.3.3 Main River Crossing, Geotechnical Data Report;" prepared by Shannon & Wilson, Inc. for Columbia River Crossing.
>
> June 25, 2015, "Geotechnical Engineering Services Report for the Wet Well Location;" prepared by PBS Engineering and Environmental, Inc. for Columbia Waterfront, LLC.
>
> July 21, 2014, "Geotechnical Engineering Services Report for the Roadway Design Phase;" prepared by PBS Engineering and Environmental, Inc. for Columbia Waterfront, LLC.

PROJECT DESCRIPTION

The master planning study area includes Blocks A through E and the existing pier and dock. We understand the phased redevelopment may include six to eight buildings and reconstruction of portions of the existing pier and dock. Proposed buildings will typically be 4 to 6 stories but buildings up to 13 stories are being considered. One or two levels of underground parking, located on either or both of Blocks A and C, is also being considered. We anticipate that cuts or fills needed to establish final site-grades will be less than 5 ft.

SITE DESCRIPTION

Topography and Surface Conditions

The site is located at Terminal 1 of the Port of Vancouver, USA (Port) and includes blocks A through E. The project site is bounded to the north by the BNSF elevated railroad, to the west by the future Graymor mixed-use development, to the south by the Columbia River, and to the east by Columbia Street and Interstate 5. Columbia Way runs east-west through the site. Blocks A and C are located north of Columbia Way and are currently covered with asphalt concrete (AC) parking with landscaped islands containing mature trees. Blocks B, D, and E are located south of Columbia Way. The Columbia Business center and the former Red Lion Hotel are currently situated on these blocks. Asphalt concrete and portland cement concrete (PCC) covered hardscape areas surround these buildings. The former Red Lion Hotel extends partially over an approximate 100-ft-wide pier that runs along the majority of Columbia River frontage. The eastern 530 ft of the pier is supported by timber piles. Steel pipe piles support the portion of the dock near the existing amphitheater. The pile embedment is unknown. A floating dock is located near the western edge of the pier.

Elevations in this report refer to the 1929 National Geodetic Vertical Datum (NGVD 29) unless noted otherwise. Available topographic information indicates the ground surface is relatively flat at elevations ranging from about 28 to 32 ft. The upper portion of the of shoreline slope is inclined at about 1½H:1V (Horizontal:Vertical), portions of which are covered with rock and concrete debris. About 50 ft from the face of the existing pier, the mudline is at about elevation -30 ft. The base of the river channel is at about elevation -35 ft.

Geology

Existing geotechnical information indicates the site is mantled with 8 to 20 ft of sand fill and the thickness of fill generally increasing towards the river. The fill is underlain by recent alluvium deposited by the Columbia River, which in turn are underlain by sands and gravels associated with late-Pleistocene catastrophic floods that occurred between 13,500 and 15,000 years ago. The flood deposits are underlain at depth by interbedded sands and gravels of the Troutdale formation (Pliocene to Pleistocene), which are, in turn, underlain by the Columbia River Basalt bedrock at depth.

SUBSURFACE CONDITIONS

General

As noted above, GRI reviewed the results of several subsurface exploration programs completed at the site by others. Summary boring logs for these historical explorations are included in Appendix B. The locations of the previous explorations are shown on the Site Plan, Figure 2. In addition, GRI observed construction of the new utilities running underneath the paved right-of-way of Columbia Way. Subsurface materials and conditions at the site were further investigated on November 30 and December 1, 2016, with three borings, designated B-1 through B-3. In general, the subsurface conditions encountered during our current exploration were consistent with the conditions encountered during previous explorations. The borings for this phase of work were advanced to depths of 31.5 to 51.5 ft at the approximate locations shown on Figure 2. Detailed logs of the borings are provided on Figures 1A through 3A. The terms and symbols used to describe the soils are defined in Table 1A and the attached legend. Geotechnical laboratory testing included natural moisture content, washed and mechanical sieve analysis, dry unit weights, and one-dimensional consolidation tests. The results of the mechanical sieve analysis are

presented on Figures 4A and 5A. Details of the field investigation and laboratory test results are presented in Appendix A.

Soils

For the purpose of discussion, the soils disclosed by the explorations have been grouped into the following categories based on their physical characteristics, geologically significant features, and engineering properties. Listed as they were encountered from the ground surface downward, the units are:

1. **PAVEMENT**
2. **FILL**
3. **SAND and SILT**
4. **Clayey SILT**
5. **GRAVEL**

1. PAVEMENT. Asphalt concrete (AC) pavement was encountered at the ground surface in borings B-1 and B-3. The thickness of the AC encountered in these borings ranges from 5 to 6 in. The AC is underlain by 8 to 12 in. of crushed rock base course.

2. FILL. Fill was encountered at the ground surface in boring B-2 and below the pavement section in borings B-1 and B-3. The fill was encountered to depths of 10 to 30 ft, with the thickness of fill typically increasing towards the river. The fill typically consists of fine- to coarse-grained sand with variable silt content, ranging from trace silt to silty. The sand fill observed in borings B-2 and B-3 includes trace to some subangular to subrounded gravel. The relative density of the sand is very loose to medium dense, based on Standard Penetration Test (SPT) N-values ranging from 1 to 15. The natural moisture content of this material ranges from 9 to 65%, but is typically between 15 and 28%.

Fill consisting of silt with some fine-grained sand and organics was encountered in boring B-1 at a depth of 5 ft and extends to a depth of 10 ft. The relative consistency of the silt fill is stiff to very stiff, based on SPT N-values of 9 and 25 blows/ft. The natural moisture content of this material ranges from 19 and 23%.

Fill material of similar composition and density was encountered to depths of 8 and 10 ft in PBS borings PB-1 and PB-2, which were advanced north of Block A near the BNSF railroad embankment. West of the project area, fill was encountered to a depth of about 20 ft in PBS boring PB-5 while east of the project area fill was encountered to a depth of about 12 ft (about elevation 14.5 ft) in Shannon & Wilson borings CRC-RC-025 and CRC-RC-025A.

Debris including steel channels, wood, and timber piling were observed by GRI in the fill during installation of the underground utilities located in the Columbia Way right-of-way.

3. SAND and SILT. Alluvial deposits of sand and silt were encountered below the fill in borings B-2 and B-3. Sand with variable silt content, ranging from some silt to silty, was encountered in boring B-2 from between 25 and 45 ft. The sand is fine to medium grained. Based on SPT N-values of between 3 and 14 blows/ft, the relative density of the sand is very loose to medium dense. The natural moisture content of the sand ranges from 23 to 51%, with the higher end of the range typically corresponding to zones with higher silt content.

Silt was encountered in boring B-2 from 20 to 25 ft and in boring B-3 from 30 to 41 ft. The silt contains variable fine-grained sand contents, ranging from trace sand to sandy. Fine organics were observed in the silt encountered in boring B-3. Based on SPT N-values of between 3 and 8 blows/ft, the relative consistency of the silt is soft to medium stiff. The natural moisture content of the silt varies from 44 and 50%. Based on visual observation, the silt is non-plastic or has very low plasticity.

3. Clayey SILT. Alluvial clayey silt with variable clay content, ranging from some clay to clayey was encountered below the fill to a depth of 24 ft in boring B-1. The relative consistency of the silt is medium stiff to stiff, based on SPT N-values of between 6 and 13 blows/ft and a Torvane shear strength value of 0.7 tsf. The natural moisture content of the clayey silt varies from 20 to 39%. Consolidation testing of a representative sample of the clayey silt from a depth of 14.4 ft (elevation 16 ft), indicates the clayey silt is slightly overconsolidated and displays relatively low compressibility in the preconsolidated range and high compressibility in the normally consolidated range of stresses. The results of the consolidation tests of the silt are shown on Figure 6A.

4. GRAVEL. Gravel was encountered below the alluvial silts and sands to the maximum depths explored, 31.5 to 51.5 ft. The gravels are subangular to subrounded and contain trace to some silt and trace to some fine-to coarse-grained sand. Typical SPT N-values of between 28 and 64 blows/ft indicate the relative density of the gravel is medium dense to very dense, and is typically dense. Based on our experience at sites along the Columbia River in the Vancouver area, cobbles and boulders are present in this unit.

North of Block A, PBS encountered the gravel soils at a depth of about 19 ft in their borings PB-1 and PB-2. Gravel was not encountered within the depths explored, about 31.5 ft, in PBS boring PB-5 advanced west of the site. Gravel was encountered at depths of about 28.5 (elevation -2.3 ft) and 27 (elevation 0 ft) ft in Shannon & Wilson borings CRC-RC-025 and CRC-RC-025A, respectively. Near the face of the pier, Shannon & Wilson encountered the gravel unit approximately 5 ft below mudline (elevation -34 ft) in their boring CRC-RC-023.

Groundwater

A vibrating-wire piezometer was installed at a depth of 28 ft in boring B-1 and at a depth of 38 ft in boring B-3. The piezometer is connected to a data logger that records the groundwater level at 4-hr intervals. Installation details for the piezometers are described in Appendix A.

Groundwater levels were measured in each of the piezometers between December 2, 2015 and March 22, 2016. As shown on Figure 3, the groundwater level during this time ranged from approximately elevation 4.5 ft to 11 ft and fluctuates in response to the level of the nearby Columbia River, precipitation, and other factors. The groundwater level is typically highest during the annual spring freshet extending from mid-May through about mid-July and during the normally wet, winter and spring months, particularly following storm events. The groundwater is typically lowest during the summer when the river is low in July through October. The Columbia River 100 year flood level is elevation 27.5 ft and the average river level is elevation 7.5 ft. During flood events, we anticipated that the groundwater table may approach the ground surface. Perched groundwater conditions may develop above less permeable silty layers in the fill or alluvial deposits during periods of prolonged or intense precipitation and following periods of high river levels.

CONCLUSIONS AND RECOMMENDATIONS

General

The subsurface explorations completed for this study and by others indicate that the project site is mantled by very loose to dense sand with varying percentages of wood and concrete debris. The fill is underlain by alluvial silts and sands that extend to depths of between 20 and 45 ft below site grades. Dense gravel was encountered below the alluvial deposits. Groundwater at the site closely follows the water level in the adjacent Columbia River.

The loose sand and non-plastic silt present below the groundwater table are susceptible to liquefaction as a result of the code-based earthquake. Liquefaction may result in ground surface settlement and lateral spreading deformations towards the Columbia River. Ground improvement may be needed in order to mitigate the lateral spreading risk and reduce the magnitude of potential seismic deformations that may impact building foundations and the pier.

Based on our preliminary evaluation it is our opinion that the site is suitable for the proposed development including the one to two levels of below grade parking being considered. However, the fill and the underlying soft silt are not suitable to support relatively heavy at-grade or embedded buildings on spread footings. In addition, spread footings will likely not be able to tolerate the seismic induced settlement discussed above. We anticipate the buildings will be supported on deep foundations or by a ground improvement system.

Our preliminary conclusions and recommendations for seismic design considerations including ground improvement, deep foundations, construction dewatering, and temporary excavations and shoring are provided in the following sections of this report.

Seismic Considerations

Code-Based Response Spectrum. We understand seismic design of the mixed-use development will be in accordance with the 2012 International Building Code (IBC), which references ASCE Standard 7-10, Minimum Design Loads for Buildings and Other Structures (ASCE 7-10). The IBC design methodology uses two spectral accelerations, S_S and S_1, corresponding to periods of 0.2 and 1.0 second, to develop the Risk-Targeted Maximum Considered Earthquake (MCE_R) response spectrum. The spectral accelerations were obtained from the U.S. Geological Survey (USGS) Uniform Hazard Response Spectra Curves for the coordinates of 46.6224° N latitude and 122.6752° W longitude. The S_S and S_1 spectral accelerations identified for the site are 0.94 and 0.41 g, respectively, for Site Class B (bedrock) conditions. These bedrock spectral ordinates are adjusted for Site Class with the 0.2- and 1.0-second period site coefficients, F_a and F_v, based on the soil profile in the upper 100 ft. This spectrum is designated the MCE_R-level spectrum. The design-level response spectrum is calculated as two-thirds of the Site Class-adjusted MCE_R spectrum.

According to Section 20.3.1 of ASCE 7-10, soil profiles containing potentially liquefiable soil would classify as Site Class F and require a site-specific response analysis to determine the response spectrum. An exception to this requirement is provided in Section 20.3.1 of ASCE 7-10 for structures that have a fundamental period less than 0.5 second. For structures with a fundamental period of less than or equal to 0.5 seconds, ASCE 7-10 allows for the site coefficients to be equal to the site coefficients if the soil profile

were not susceptible to liquefaction. In the absence of liquefaction, the site profile beneath the proposed improvements is representative of Site Class D or E.

Liquefaction. Liquefaction is a process by which saturated granular materials, such as sand, and low-plasticity silts, temporarily lose strength during and immediately after a seismic event. Liquefaction occurs as seismic shear stresses propagate through saturated soil and distort the soil structure causing loosely packed groups of particles to contract or collapse. If drainage is impeded and cannot occur quickly, the collapsing soil structure increases the porewater pressure between the soil grains. If the porewater pressure increases to a level approaching the weight of the overlying soil, the granular layer temporarily behaves as a viscous liquid rather than a solid. At this site, liquefaction may result in ground surface settlement, decreased bearing capacity and settlement of shallow foundations, a reduction in the axial and lateral capacity of pile foundations, and lateral deformations towards the Columbia River.

The potential for liquefaction at the site was evaluated using the simplified procedure as described by Boulanger and Idriss (2014). Section 11.8.3 of ASCE 7-10 requires that liquefaction and cyclic softening be evaluated for site peak ground acceleration, earthquake magnitude, and source characteristics consistent with the Geometric Mean Maximum Considered Earthquake (MCE_G) peak ground acceleration (PGA_M). The liquefaction analyses were conducted using magnitude-acceleration pairs consistent with the 2008 USGS disaggregation of seismic sources that contribute to the site's seismic exposure. The 2008 USGS National Seismic Hazard Maps form the basis for the 2012 IBC and ASCE 7-10. A moment magnitude (M_w) of 6.8 was used for a shallow crustal earthquake source and M_w 9.0 was used for a Cascadia Subduction Zone earthquake. A mean peak ground surface acceleration of 0.44 and 0.34 g was used for local crustal and subduction zone earthquake, respectively. The recommended peak ground accelerations meet the intent of ASCE 7-10. For the purpose of our preliminary liquefaction studies, we have assumed the water table is at elevation +7.5 ft. This elevation corresponds to the average water level in the Columbia River.

Our preliminary analysis indicates that the fill and the alluvial silt and sands located below the groundwater table are susceptible to liquefaction as a result of the seismic loading required by the 2012 IBC. The underlying gravel deposits are not considered to be susceptible to liquefaction. Based on the limited geotechnical information collected, the top of the gravel unit in the northern portion of Blocks A and C is located above the groundwater table; therefore, the risk of liquefaction in this portion of the site is considered low. We estimated the liquefaction-induced free-field settlement across the rest of the site using an empirical methodology described by Idriss and Boulanger (2008). The empirical method is based on case histories of areas that had undergone liquefaction. Using this empirical methodology, we estimate liquefaction-induced settlement in Blocks B, D, and E and the southern portion of Blocks A and C may be on the order of 6 to 12 in. Associated lateral spreading movements toward the river would also contribute to vertical ground surface displacements at the site and are not included in the estimates provided above.

Lateral Spreading. The potential for lateral spreading at the site was evaluated using a method developed by Youd, Hansen, and Bartlett (2002). Based on our evaluation, the risk of lateral spreading deformations in the northern portion of Blocks A and C is considered low. Lateral spreading deformations near the shoreline could be on the order of 10 ft for the 2012 code-based earthquake. It should be understood that this method is largely based on empirical data, and consequently does not provide a precise estimate of the actual ground movement that may occur. In this regard, the displacement estimates provided by this

approach are commonly presented with a range of 50 to 200% of the estimated values. It should be acknowledged that the available analytical methods do not predict localized effects, such as flow failures, that may occur near the crest of slopes. If not mitigated, lateral spreading will result in horizontal displacement of structures and additional lateral structural loads on piles and walls. Associated differential vertical movements, or ground surface subsidence, may range up to about half of the total horizontal movement.

Ground Improvement. A ground improvement program can be designed to improve the existing subsurface soils and mitigate the risk of seismically induced settlement and lateral spreading. Feasible ground improvement alternatives include vibro-replacement (stone columns), rammed aggregate piers, soil-cement mixing, and jet grouting. We anticipate ground improvement would be designed by GRI or a specialty ground improvement contractor to meet specified performance criteria.

Vibro-replacement (stone columns) is a ground improvement technique that can densify (and reduce liquefaction potential) relatively clean granular soils using a vibratory probe. The probe is vibrated and jetted into the ground until reaching the bottom of the improvement zone. Stone aggregate is added to the void created by the probe after reaching the bottom of the treatment zone. The aggregate is densified by lowering the probe into the aggregate in small lifts until reaching the ground surface, creating columns of compacted aggregate. Stone columns are typically most effective in densifying relatively clean sand with less than about 15% fines (percentage of material passing the No. 200 sieve). Stone columns can also be used in silty soil; however, in these soils, the stone columns are installed in a tighter configuration and act more as reinforcement elements rather than to densify the adjacent ground.

Soil mixing and jet grouting are ground improvement methods that mix cement into the in situ soils to create columns of soil with improved strength and stiffness. During soil mixing, wet or dry cement is mixed with the in situ soils by use of a mechanical paddle that is advanced similar to a drill. The diameter of the soil-cement column is dependent on the diameter of the paddle tool. Jet grouting makes soil/cement columns by injecting cement grout through high-velocity grout jets. The jets erode the in situ soil and mix it with cement and sometimes air and water. Jet grouting can be used to construct improved soil/cement columns or columns can be overlapped to create continuous panels. While jet grouting or deep soil mixing can be used to improve both sandy and silty soils, these methods are typically more expensive than stone column ground improvement.

Lateral spreading is often mitigated by constructing a zone, or buttress, of improved soil along the waterfront that will not liquefy. The buttress needs to be of sufficient width and extend to adequate depth to maintain stability following ground shaking and minimize or prevent lateral displacement of the upland soils towards the Columbia River. Ground improvement for the buttress would need to extend to the non-liquefiable gravels that are present at depths of up to 45 ft along the riverfront. The width of the buttress would depend on the type of ground improvement used. This approach would not reduce liquefaction-induced settlement in the area behind the buttress.

Ground improvement could be used to improve the foundation support characteristics and to reduce liquefaction induced settlement in the area upland of the ground improvement buttress and allow the structures to be founded on spread or mat foundations. The spacing and type of ground improvement are typically be designed by a specialty ground improvement contractor in order to meet specified

performance criteria, including: allowable bearing capacity, static foundation settlement, and liquefaction induced settlement. Depending on the subsurface soil conditions and the specific design, design allowable bearing capacities on the order of 4,000 psf can be assumed for spread or mat foundations placed on improved ground.

Alternatively, deep foundations could also be considered to limit liquefaction-induced settlement of foundations located upland of the ground improvement buttress.

Deep Foundations

Heavily loaded structures or structures located outside of improved ground can be supported by pile foundations. The pile tip elevation will depend on structural loads and settlement tolerances; however, we recommend that the piles extend at least 10 ft into the underlying gravel for seismic considerations. We anticipate the feasible pile types for this project could include 16- or 18-in.-diameter driven grout or auger cast piles or closed-end, steel pipe piles such as PP12.75x0.5-in. or PP16x0.5-in.

A driven grout pile is installed by driving a hollow mandrel, fitted with a sacrificial boot at the tip, to a predetermined depth using an impact pile driving hammer. As the mandrel is driven and withdrawn, grout is pumped through the mandrel to maintain the diameter of the pile shaft. Auger cast piles are constructed by rotating a continuous flight of hollow-stem auger into the ground to the desired depth. As the auger is slowly withdrawn, grout is pumped through the hollow stem and out the bottom of the auger to maintain the diameter of the pile shaft. Following withdrawal of the mandrel or auger, reinforcing steel is lowered into the fluid column of grout, and the pile head is subsequently formed at the ground surface. Driven grout piles result in less spoil material needing to be hauled off site than auger cast piles. Disposal of auger cast pile drilling spoils should be considered if contaminated soil or groundwater is present at the project site. We anticipate that an air or diesel impact hammer of sufficient size will be required to drive closed-end, steep pipe piles into the underlying gravel. The presence of large debris could impact the construction of driven grout, augercast, and steel piles. Predrilling may be needed if large debris is encountered.

For preliminary planning purposes, we anticipate the type of piles discussed above can develop static and seismic allowable capacities (compression) on the order of 200 to 300 kips. The estimated allowable capacities are based on soil support characteristics and may further be limited by structural considerations and assume that the piles have a center-to-center spacing of at least three pile diameters. Actual embedment into gravel will depend on the structural requirements and on variations in subsurface conditions at the pile locations and will be based on the specific soil conditions, driving resistance, and testing during pile installation. Pile Driving Analyzer (PDA) tests can be used to evaluate the capacity of driven grout and steel pipe piles.

Static and seismic pile settlement depends on the structural loads and the lengths of the piles and should be evaluated as part of the final design. However, under static loading conditions, individual piles are typically designed to limit settlement to approximately the elastic shortening of the piles plus 1/4 in.

Below-Grade Parking

The use of below-grade parking structures in Blocks A and C is considered to be feasible using conventional foundation systems and excavation support. It is anticipated that the subgrade for a single

level of below-grade parking will be located about 15 ft below existing site grades. Preliminary geotechnical data indicates that soil below a single level of below grade parking will consist of variable fill and alluvial deposits, ranging from about 5 to 15 ft thick. These deposits will generally provide poor foundation support and are susceptible to liquefaction; and we anticipate that a single level of below-grade parking will need to be supported on improved ground or on deep foundations as discussed above. Foundation subgrade for a two -story below-grade parking structure may be approach the elevation of the dense to very dense gravel unit and spread footing foundation support may be feasible.

Additional recommendations regarding construction dewatering, temporary excavations and shoring, and buoyancy are provided in the following portion of this preliminary report.

Construction Dewatering. Vibrating-wire piezometers were installed in borings B-1 and B-3 to allow measurement of groundwater. The vibrating-wire piezometers were measured between December 2, 2015 and March 22, 2016 and during this time period the groundwater level ranged from between elevations 4.5 and 11 ft, which closely followed the river level. Higher groundwater levels are possible, especially during the annual spring freshet which typically occurs from mid-May through about mid-July and after strong storm events during the normally wet, winter and spring months.

Excavation below the groundwater table would require construction dewatering. Control of groundwater will depend on the soil and groundwater levels encountered in the excavation, the Columbia River levels, and the contractor's approach to the work. We anticipate that excavations will be primarily in the sand fill that mantles the site. The sand is relatively clean and will yield significant groundwater inflow into excavations during high river and groundwater conditions. In order to prevent sloughing, running, and base heave/instability, dewatering of sand would likely require deep pumping wells, or well points. Deeper excavations, such as those needed for a two story below-grade structure will potentially extend into the gravel which would also require a significant groundwater dewatering effort.

In order to limit the amount of construction dewatering, construction of deep excavations should be planned at the time of the year when the groundwater table is near its seasonal low (late July through October). Depending somewhat on the number of below grade building levels it is possible that basement excavations can be made when groundwater is well below the base of the excavation. For example the average daily maximum river levels have historically been in the range of elevation 6 and 8 ft in the months of July through October. In this regard we anticipate the groundwater will be on the order of 20 to 25 ft deep during that time period.

Temporary Excavations and Shoring. It is anticipated that potential temporary excavation and shoring methods for this project could include:

1) Open-cut sloped excavations.
2) Conventional soldier pile and lagging shoring; cantilevered, or with ground anchors or internal bracing.
3) Tight joint, sheet pile shoring; cantilevered or with ground anchors or internal bracing.

Provided the base of the temporary excavation is located above the groundwater table (or the groundwater level is lowered by dewatering), and there are no existing improvements to remain within a horizontal distance equal to 150 to 200% of the excavation depth, temporary excavation slopes could be used on the project. According to current OSHA regulations, the majority of the sand, fine-grained soils, and gravelly materials encountered in the explorations would be classified as a Type C soil. For Type C soils, temporary excavation slopes of 1H:1V or flatter are typically required.

Temporary shoring walls can be used for excavation support where existing roads or structures are too close to the excavation to allow the sides to be sloped. A conventional soldier pile and lagging shoring wall can be used for deep excavations located above the groundwater table or if construction dewatering is used to lower the groundwater table below the base of the excavation. Sheet pile wall shoring systems are relatively watertight and can be used for deeper excavations to reduce dewatering inflows, seepage uplift forces, and the risk of running soils. Groundwater intrusion through the bottom of deep sheeted excavations can be further reduced by using jet grouting methods to create a plug of cement-amended soil to minimize groundwater inflow. The plug must also be designed to resist buoyant forces. Alternatively, dewatering wells could be installed inside of the excavation to depressurize the soil below the base of the excavation. The feasibility of installing sheet piles through the fill and into the gravel should be considered as part of final design.

Depending on the depth of excavation, lateral support of the shoring system may be required and can be developed by internal bracing, compressive hoop stress in a circular wall, and/or external support provided by ground anchors. Ground anchors and other shoring elements are designed by the contractor's engineer.

Lateral and Uplfit Pressures. We anticipate that the groundwater may approach the ground surface during flooding of the Columbia River. We anticipate that walls for below-grade parking structures will need to be designed to resist water pressures on all embedded walls in addition to surcharge and static and seismic earth pressures. We recommend designing embedded parking structures to resist the full hydrostatic uplift pressure for a groundwater level equal to the 100-year flood elevation of 27.5 ft.

Existing Pier Foundations

Our preliminary analysis indicates that lateral spreading deformations in excess of 10 ft and these lateral spreading deformations will impose significant lateral loads on the existing pier foundations. Based on the preliminary geotechnical data collected for this project, the depth of significant lateral spreading deformations may extend to between elevation -15 and -30 ft. These deformations will impose significant lateral loads on the existing pier foundations, which will need to be evaluated as part of final design.

LIMITATIONS

This report has been prepared to aid the Port of Vancouver and their consultants in the preliminary planning and cost estimating for the proposed improvements at Terminal 1. The preliminary findings presented herein are based on our review of readily available geotechnical information and the additional data obtained as part of this investigation. The scope of our investigation was limited by the fact that actual plans for development are indefinite; hence, only preliminary opinions are presented. Significant limitations are inherent in a study of this type, and additional site investigations should be conducted as specific construction plans and designs are developed. The information provided in this report is not

intended for final design of the project. Additional exploration work and engineering analyses will be required to develop criteria and guidelines for final design.

Please contact the undersigned if you have any questions regarding this report.

Submitted for GRI,

Issued 03-29-16 Renews 4/2016

Matthew S. Shanahan, PE
Principal

Brian A. Bennetts, PE
Senior Engineer

This document has been submitted electronically.

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USGS TOPOGRAPHIC MAP
VANCOUVER, WASH. (2014)
PORTLAND, OREG. (2014)

North

0 1/2 1 MILE

GRI

PORT OF VANCOUVER USA
TERMINAL 1 REDEVELOPMENT

VICINITY MAP

MAR. 2016 JOB NO. W1130-T12 FIG. 1

BORING MADE BY GRI
(NOVEMBER 30 - DECEMBER 1, 2015)

BORING MADE BY PBS ENGINEERING AND ENVIRONMENTAL
(JUNE 2014)

BORING MADE BY PBS ENGINEERING AND ENVIRONMENTAL
(MARCH 2014)

BORING MADE BY SHANNON & WILSON
(2010)

SITE PLAN FROM FILE BY OLSON ENGINEERING INC., DATED DECEMBER 2015

North

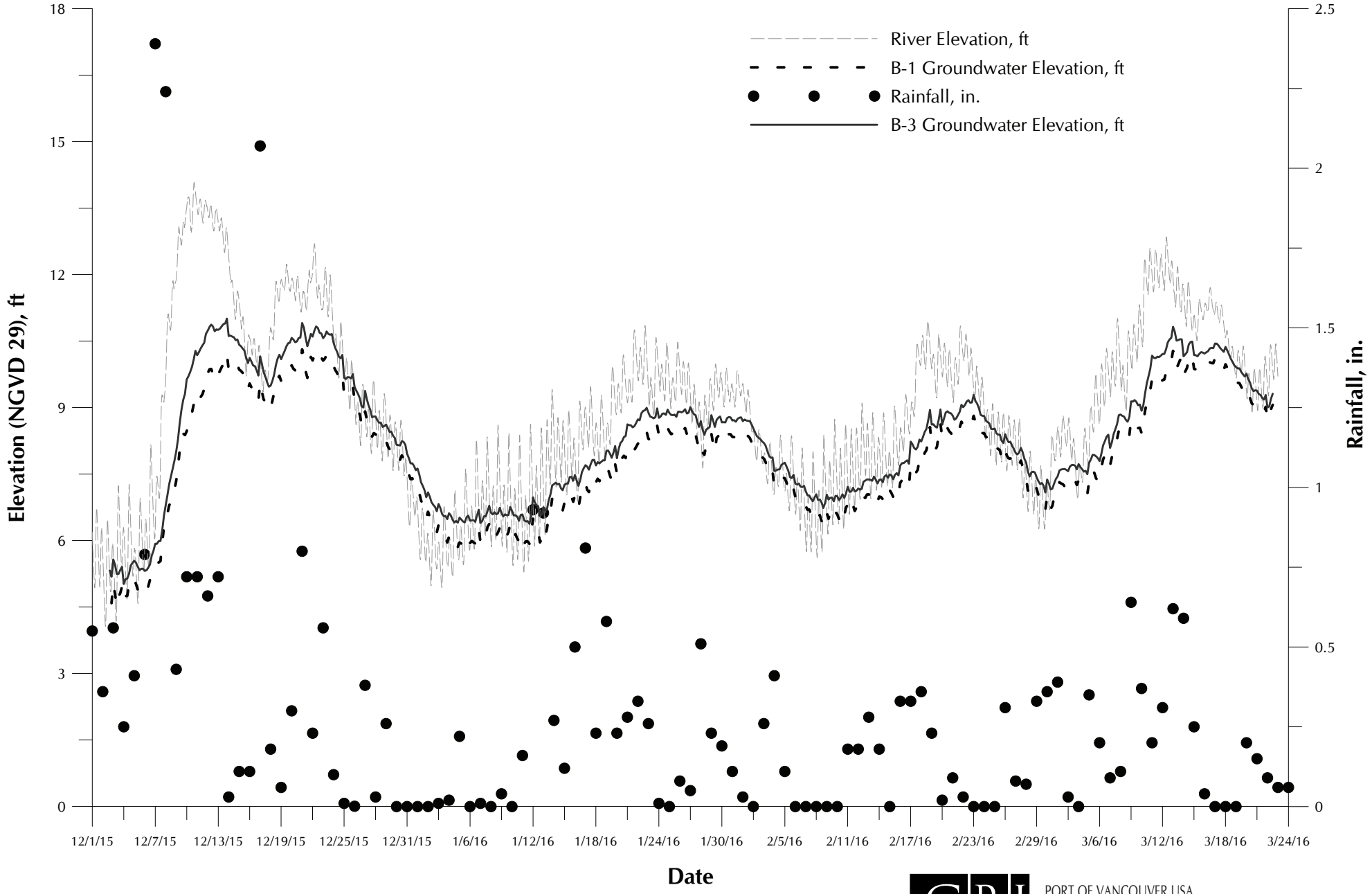
0 100 200 FT

GRI

PORT OF VANCOUVER USA
TERMINAL 1 REDEVELOPMENT

SITE PLAN

MAR. 2016 JOB NO. W1130-T12 FIG. 2



GRI

PORT OF VANCOUVER USA
TERMINAL 1 REDEVELOPMENT

PIEZOMETER DATA

(BORINGS B-1 AND B-3)

MAR. 2016 JOB NO. W1130-T12 FIG. 3

APPENDIX A

Field Explorations and Laboratory Testing

APPENDIX A

FIELD EXPLORATIONS AND LABORATORY TESTING

FIELD EXPLORATIONS

General

Subsurface materials and conditions at the site were investigated between November 30 and December 1, 2015, with three borings, designated B-1 through B-3. The approximate locations of the explorations are shown on the Site Plan, Figure 2. The borings were completed using a truck-mounted, mud-rotary drill rig provided by Hard Core Drilling, Inc. of Dundee, Oregon under subcontract to GRI. All drilling and sampling operations were observed by a geotechnical engineer from GRI, who maintained a detailed log of the materials and conditions disclosed from the course of work.

The borings were advanced to depths of 31.5 to 51.5 ft below the ground surface. Disturbed and undisturbed samples were typically obtained in the borings at 2.5-ft intervals of depth in the upper 15 ft and at 5-ft intervals below this depth. At the time of sampling, the Standard Penetration Test was conducted. This test consists of driving a standard split-spoon sampler into the soil a distance of 18 in. using a 140-lb hammer dropped 30 in. The number of blows required to drive the sampler the last 12 in. is known as the standard penetration resistance, or N-value. The N-values provide a measure of the relative density of granular soils, such as sand, and the relative consistency, or stiffness, of cohesive soils, such as silt. The split-spoon samples were carefully examined in the field and representative portions were saved in airtight jars. Relatively undisturbed samples of fine-grained, cohesive soils were obtained by pushing 3-in.-O.D. Shelby tubes into the undisturbed soil a maximum distance of 24 in. using drill rig hydraulics. The soil exposed in the ends of the Shelby tubes were examined and classified in the field. After classification, the tubes were sealed with rubber caps and tape to preserve the natural moisture content of the soils. All samples were returned to our laboratory for further examination and testing.

Logs of the borings are provided on Figures 1A through 3A. The terms and symbols used to describe the materials encountered in the borings are defined in Table 1A and the attached legend. Each log presents a descriptive summary of the various types of material encountered in the boring and notes the depth at which the materials and/or characteristics of the materials change. To the right of the descriptive summary, the numbers and types of samples taken during the drilling operation are indicated. Farther to the right, N-values are shown graphically along with the natural moisture contents, Torvane shear strengths, and percentage of material passing the No. 200 sieve. Dry unit weights are noted on the far right of the logs.

INSTRUMENTATION

Vibrating-Wire Piezometers

RST Instruments VS2100-0.35 vented vibrating-wire piezometers were installed in boring B-1 and B-3 at depths of 28 and 38 ft, respectively. The piezometer is equipped with a RST Instruments Model DT2011B single-channel data logger programmed to record data at 4-hr intervals. At the time of installation, the piezometer was saturated with water, taped to a 1-in.-O.D. PVC grout pipe in an inverted position to maintain saturation, and inserted into the open borehole to the desired depth. The boring was then filled with cement-bentonite grout to near the ground surface. The performance of the piezometer was verified before installation and immediately after insertion with a manual readout box. The installation is equipped with a steel monument casing that was cement grouted into the borehole collar to protect the data logger

and readout cable from vandalism and the elements. The data logger is being downloaded periodically to evaluate the data.

LABORATORY TESTING

General

The samples obtained from the borings were examined in our laboratory, where the physical characteristics of the samples were noted, and the field classifications were modified where necessary. The laboratory testing program included determinations of the natural moisture content, washed and mechanical sieve analysis, Torvane shear strengths, dry unit weight, and one-dimensional consolidation. Results of the laboratory testing are summarized in Table 2A. The following sections describe the testing program in more detail.

Natural Moisture Content

Natural moisture contents were determined in conformance with ASTM D2216. The results are summarized on the boring logs and in Table 2A.

Grain Size Analysis

Washed sieve analyses were performed on representative samples of the soil to assist in their classification and for liquefaction studies. The test is performed by taking a sample of known dry weight and washing it over a No. 200 sieve. The material retained on the sieve is oven-dried and weighed. The percentage of material passing that passes the No. 200 sieve is then calculated. Test results are shown on the boring logs and in Table 2A.

A full mechanical sieve analysis was completed on four samples obtained from the borings. The mechanical sieve analysis was completed in substantial conformance with ASTM D6913. The test is performed by taking a sample of known dry weight and washing it over a No. 200 sieve. The material retained on the sieve is oven-dried and weighed, and the percentage of material passing the No. 200 sieve is calculated. The soil retained on the No. 200 sieve is then screened through a series of sieves of various sizes using a sieve shaker. The weight of each sieve is measured prior to and after the test. The weight of the sample retained on each sieve is recorded and expressed as a percentage of the total sample weight. The test results are shown on Figures 4A and 5A.

Torvane Shear Strength

The approximate undrained shear strength of a selected sample of fine-grained soils was determined using the Torvane shear device. The Torvane is a hand-held apparatus with vanes that are inserted into the soil. The torque required to fail the soil in shear around the vanes is measured using a calibrated spring. The results of the Torvane shear strength testing are summarized on the boring logs.

Undisturbed Unit Weight

The dry unit weight, or density, of undisturbed soil sample obtained from boring B-1 was determined in the in substantial conformance with ASTM D2937. The test results are summarized on the boring logs and in Table 2A.

One-Dimensional Consolidation

A one-dimensional consolidation test was performed on a relatively undisturbed sample obtained from boring B-1 in accordance with ASTM D2435 to obtain data on the stress history of the soil. The test results are summarized on Figure 6A in the form of a curve showing vertical effective stress versus percent strain. The initial moisture content and dry unit weight of the samples are provided on the figures.

Table 1A: GUIDELINES FOR CLASSIFICATION OF SOIL

Description of Relative Density for Granular Soil

Relative Density	Standard Penetration Resistance (N-values) blows per foot
very loose	0 - 4
loose	4 - 10
medium dense	10 - 30
dense	30 - 50
very dense	over 50

Description of Consistency for Fine-Grained (Cohesive) Soils

Consistency	Standard Penetration Resistance (N-values) blows per foot	Torvane or Undrained Shear Strength, tsf
very soft	0 - 2	less than 0.125
soft	2 - 4	0.125 - 0.25
medium stiff	4 - 8	0.25 - 0.50
stiff	8 - 15	0.50 - 1.0
very stiff	15 - 30	1.0 - 2.0
hard	over 30	over 2.0

Sandy silt materials which exhibit general properties of granular soils are given relative density description.

Grain-Size Classification	Modifier for Subclassification		
Boulders:		Primary Constituent SAND or GRAVEL	Primary Constituent SILT or CLAY
> 12 in.			
Cobbles:	Adjective	Percentage of Other Material (by weight)	
3 - 12 in.	trace:	5 - 15 (sand, gravel)	5 - 15 (sand, gravel)
Gravel:	some:	15 - 30 (sand, gravel)	15 - 30 (sand, gravel)
1/4 - 3/4 in. (fine)	sandy, gravelly:	30 - 50 (sand, gravel)	30 - 50 (sand, gravel)
3/4 - 3 in. (coarse)			
Sand:	trace:	< 5 (silt, clay)	*Relationship of clay and silt determined by plasticity index test*
No. 200 - No. 40 sieve (fine)	some:	5 - 12 (silt, clay)	
No. 40 - No. 10 sieve (medium)	silty, clayey:	12 - 50 (silt, clay)	
No. 10 - No. 4 sieve (coarse)			
Silt/Clay:			
pass No. 200 sieve			

Table 2A

SUMMARY OF LABORATORY RESULTS

Sample Information						Atterberg Limits			
Location	Sample	Depth, ft	Elevation, ft	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Fines Content, %	Soil Type
B-1	S-1	2.5	28.0	36	--	--	--	--	FILL
	S-2	5.0	25.5	19	--	--	--	58	FILL
	S-3	7.5	23.0	23	--	--	--	--	FILL
	S-4	10.0	20.5	30	--	--	--	98	SILT
	S-5	12.5	18.0	20	--	--	--	96	SILT
	S-6	14.5	16.0	35	87	--	--	--	SILT
	S-6	15.0	15.5	34	--	--	--	99	SILT
	S-7	16.0	14.5	39	--	--	--	100	SILT
	S-8	20.0	10.5	37	--	--	--	99	SILT
B-2	S-1	2.5	29.5	21	--	--	--	--	FILL
	S-2	5.0	27.0	23	--	--	--	4	FILL
	S-3	7.5	24.5	26	--	--	--	--	FILL
	S-4	10.0	22.0	65	--	--	--	--	FILL
	S-5	12.5	19.5	23	--	--	--	5	FILL
	S-7	20.0	12.0	49	--	--	--	87	SILT
	S-8	25.0	7.0	23	--	--	--	8	SAND
	S-9	30.0	2.0	37	--	--	--	24	SAND
	S-10	35.0	-3.0	51	--	--	--	--	SAND
	S-11	40.0	-8.0	31	--	--	--	16	SAND
	S-12	45.0	-13.0	19	--	--	--	11	GRAVEL
	S-13	50.0	-18.0	13	--	--	--	--	GRAVEL
B-3	S-1	2.5	28.5	28	--	--	--	--	FILL
	S-2	5.0	26.0	24	--	--	--	--	FILL
	S-3	7.5	23.5	27	--	--	--	--	FILL
	S-4	10.0	21.0	9	--	--	--	4	FILL
	S-5	12.5	18.5	25	--	--	--	--	FILL
	S-6	15.0	16.0	15	--	--	--	4	FILL
	S-7	20.0	11.0	21	--	--	--	9	FILL
	S-8	25.0	6.0	26	--	--	--	6	FILL
	S-9	30.0	1.0	50	--	--	--	58	Sandy SILT
	S-10	35.0	-4.0	44	--	--	--	--	Sandy SILT
	S-11	40.0	-9.0	37	--	--	--	--	Silty SAND
	S-12	45.0	-14.0	9	--	--	--	14	GRAVEL
	S-13	50.0	-19.0	13	--	--	--	--	GRAVEL

GRI

BORING AND TEST PIT LOG LEGEND

SOIL SYMBOLS

Symbol	Typical Description
	LANDSCAPE MATERIALS
	FILL
	GRAVEL; clean to some silt, clay, and sand
	Sandy GRAVEL; clean to some silt and clay
	Silty GRAVEL; up to some clay and sand
	Clayey GRAVEL; up to some silt and sand
	SAND; clean to some silt, clay, and gravel
	Gravelly SAND; clean to some silt and clay
	Silty SAND; up to some clay and gravel
	Clayey SAND; up to some silt and gravel
	SILT; up to some clay, sand, and gravel
	Gravelly SILT; up to some clay and sand
	Sandy SILT; up to some clay and gravel
	Clayey SILT; up to some sand and gravel
	CLAY; up to some silt, sand, and gravel
	Gravelly CLAY; up to some silt and sand
	Sandy CLAY; up to some silt and gravel
	Silty CLAY; up to some sand and gravel
	PEAT

BEDROCK SYMBOLS

Symbol	Typical Description
	BASALT
	MUDSTONE
	SILTSTONE
	SANDSTONE

SURFACE MATERIAL SYMBOLS

Symbol	Typical Description
	Asphalt concrete PAVEMENT
	Portland cement concrete PAVEMENT
	Crushed rock BASE COURSE

SAMPLER SYMBOLS

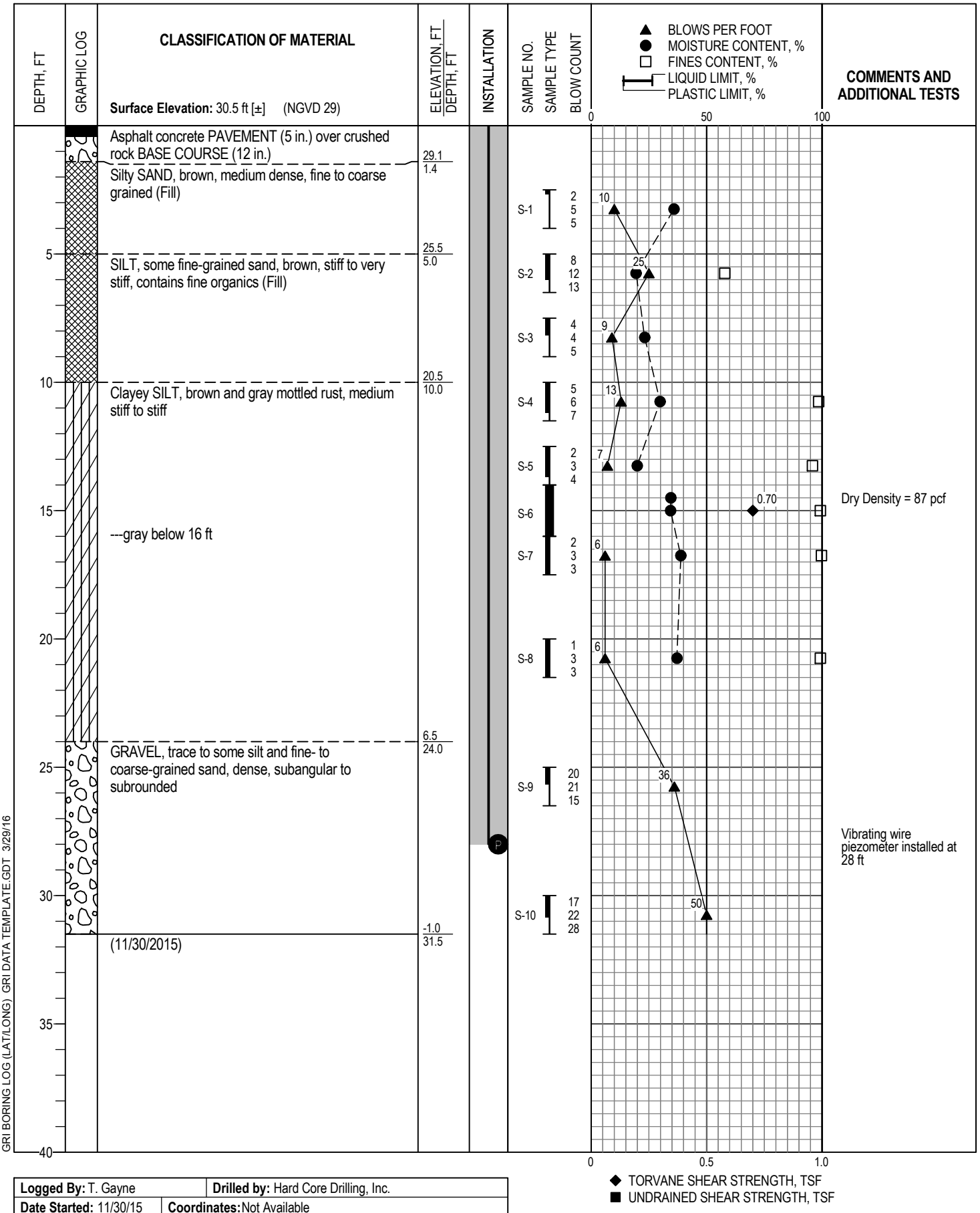
Symbol	Sampler Description
	2.0-in. O.D. split-spoon sampler and Standard Penetration Test with recovery (ASTM D1586)
	Shelby tube sampler with recovery (ASTM D1587)
	3.0-in. O.D. split-spoon sampler with recovery (ASTM D3550)
	Grab Sample
	Rock core sample interval
	Sonic core sample interval
	Geoprobe sample interval

INSTALLATION SYMBOLS

Symbol	Symbol Description
	Flush-mount monument set in concrete
	Concrete, well casing shown where applicable
	Bentonite seal, well casing shown where applicable
	Filter pack, machine-slotted well casing shown where applicable
	Grout, vibrating-wire transducer cable shown where applicable
P	Vibrating-wire pressure transducer
	1-in.-diameter solid PVC
	1-in.-diameter hand-slotted PVC
	Grout, inclinometer casing shown where applicable

FIELD MEASUREMENTS

Symbol	Typical Description
▽	Groundwater level during drilling and date measured
▼	Groundwater level after drilling and date measured
	Rock core recovery
	Rock quality designation (RQD)

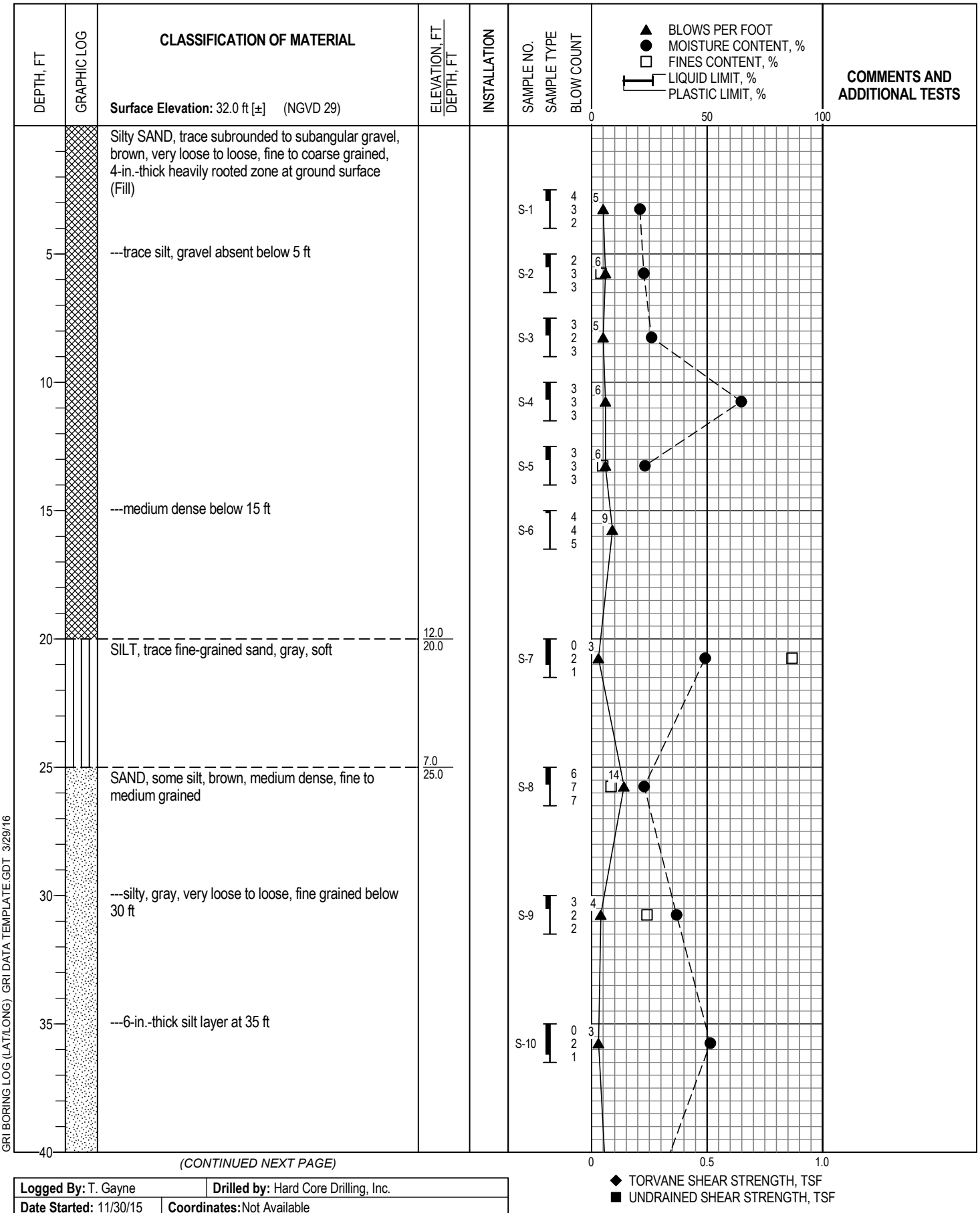


GRI BORING LOG (LAT/LONG) GRI DATA TEMPLATE.GDT 3/29/16

Logged By: T. Gayne	**Drilled by:** Hard Core Drilling, Inc.
Date Started: 11/30/15	**Coordinates:** Not Available
Drilling Method: Mud Rotary **Equipment:** CME 75 Truck-Mounted Drill Rig **Hole Diameter:** 5 in.	**Hammer Type:** Auto Hammer **Weight:** 140 lb **Drop:** 30 in. **Energy Ratio:** 72%
Note: See Legend for Explanation of Symbols	

BORING B-1

MAR. 2016 JOB NO. W1130-T12 FIG. 1A

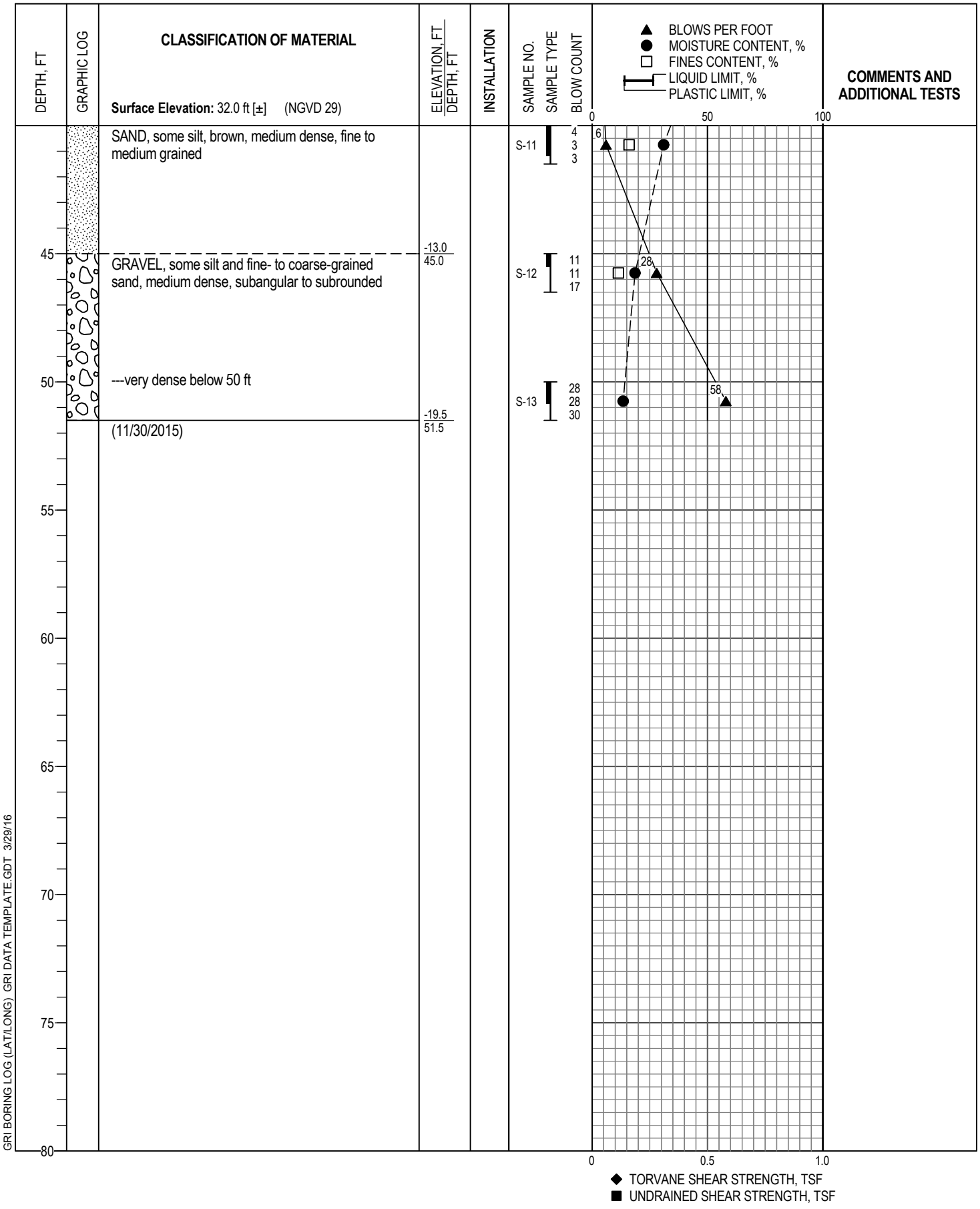


GRI BORING LOG (LAT/LONG) GRI DATA TEMPLATE.GDT 3/29/16

Logged By: T. Gayne	**Drilled by:** Hard Core Drilling, Inc.
Date Started: 11/30/15	**Coordinates:** Not Available
Drilling Method: Mud Rotary **Equipment:** CME 75 Truck-Mounted Drill Rig **Hole Diameter:** 5 in.	**Hammer Type:** Auto Hammer **Weight:** 140 lb **Drop:** 30 in. **Energy Ratio:** 72%
Note: See Legend for Explanation of Symbols	

BORING B-2

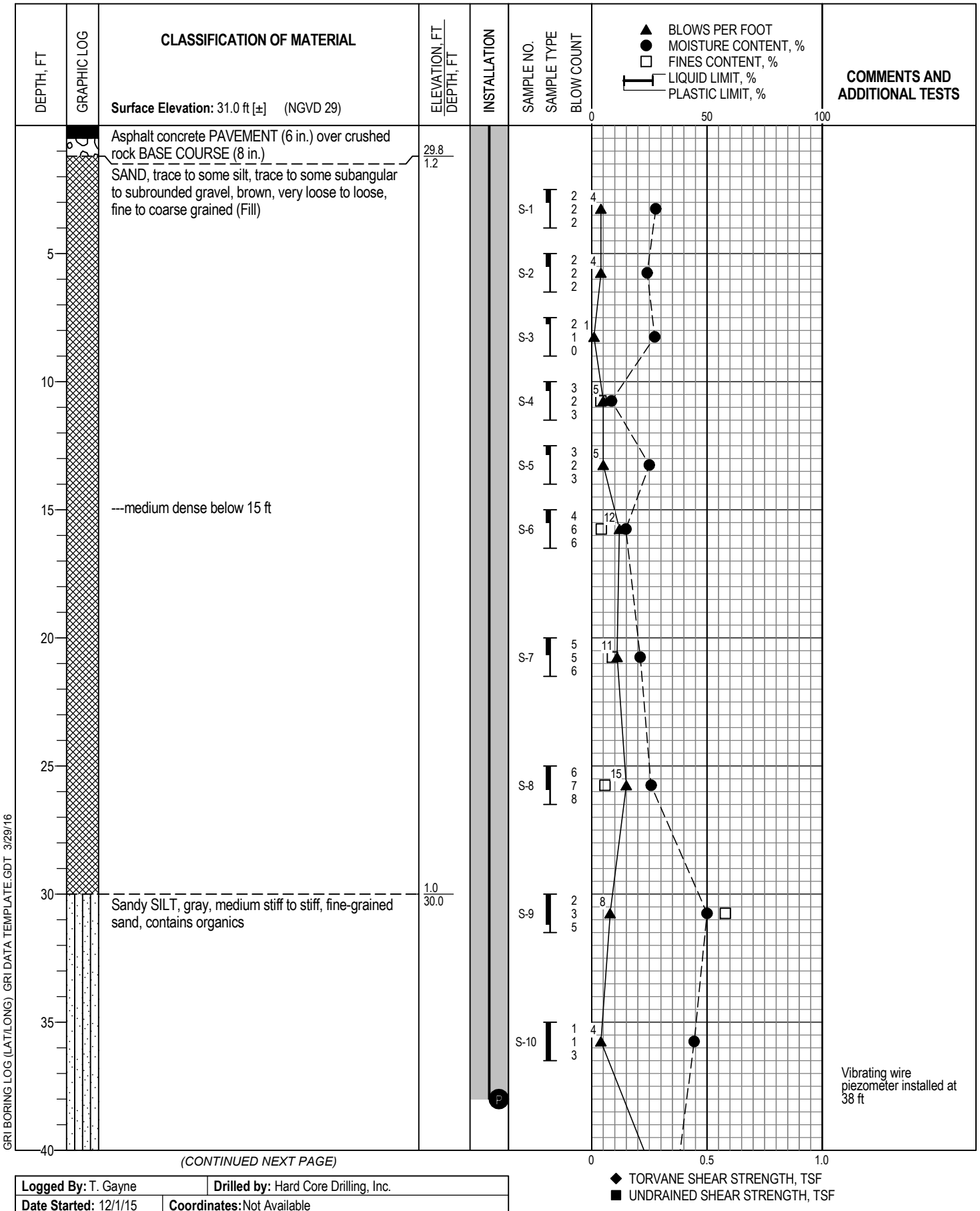
MAR. 2016 JOB NO. W1130-T12 FIG. 2A



GRI BORING LOG (LAT/LONG) GRI DATA TEMPLATE.GDT 3/29/16

BORING B-2

MAR. 2016 JOB NO. W1130-T12 FIG. 2A



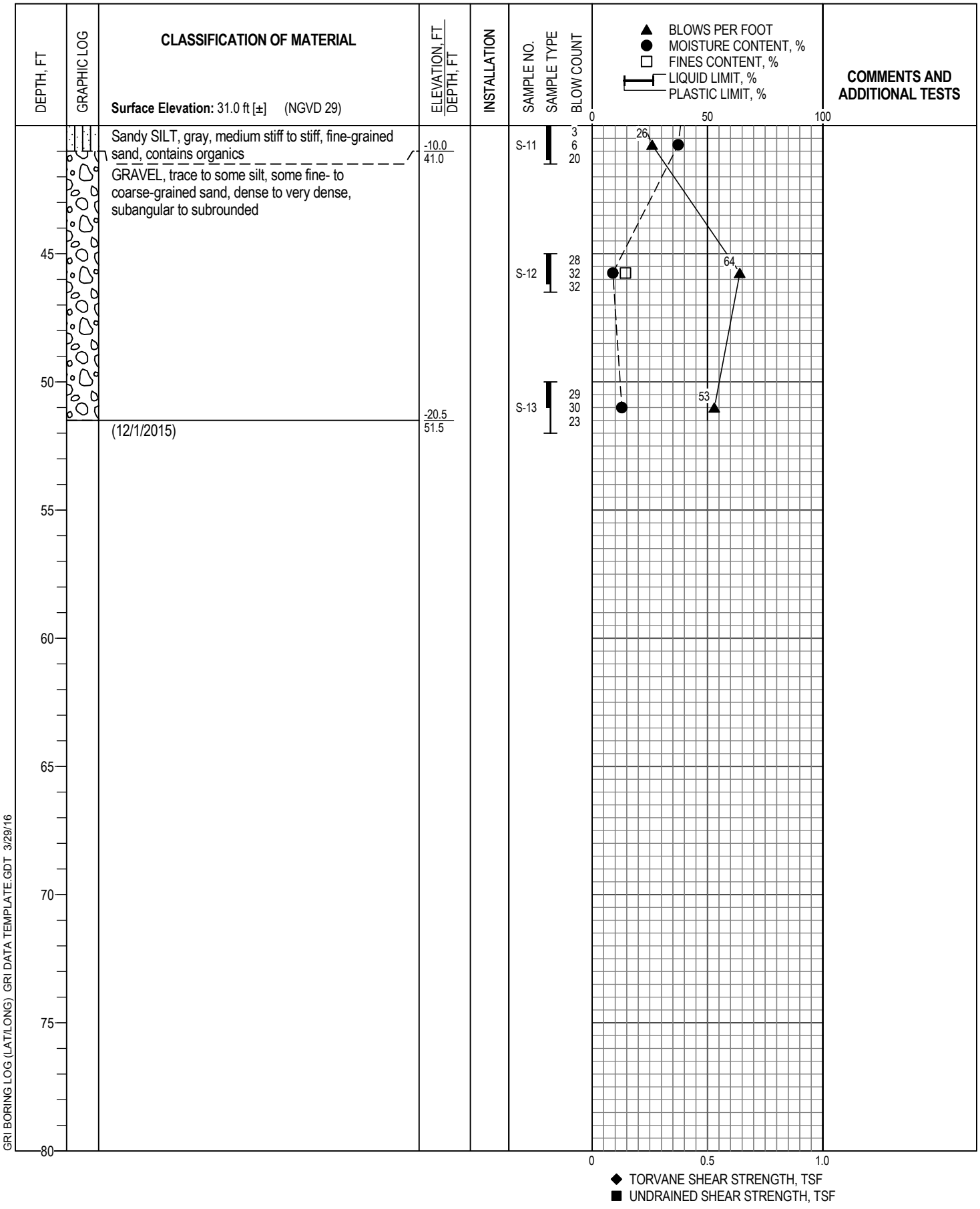
(CONTINUED NEXT PAGE)

GRI BORING LOG (LAT/LONG) GRI DATA TEMPLATE.GDT 3/29/16

Logged By: T. Gayne	**Drilled by:** Hard Core Drilling, Inc.
Date Started: 12/1/15	**Coordinates:** Not Available
Drilling Method: Mud Rotary **Equipment:** CME 75 Truck-Mounted Drill Rig **Hole Diameter:** 5 in.	**Hammer Type:** Auto Hammer **Weight:** 140 lb **Drop:** 30 in. **Energy Ratio:** 72%
Note: See Legend for Explanation of Symbols	

BORING B-3

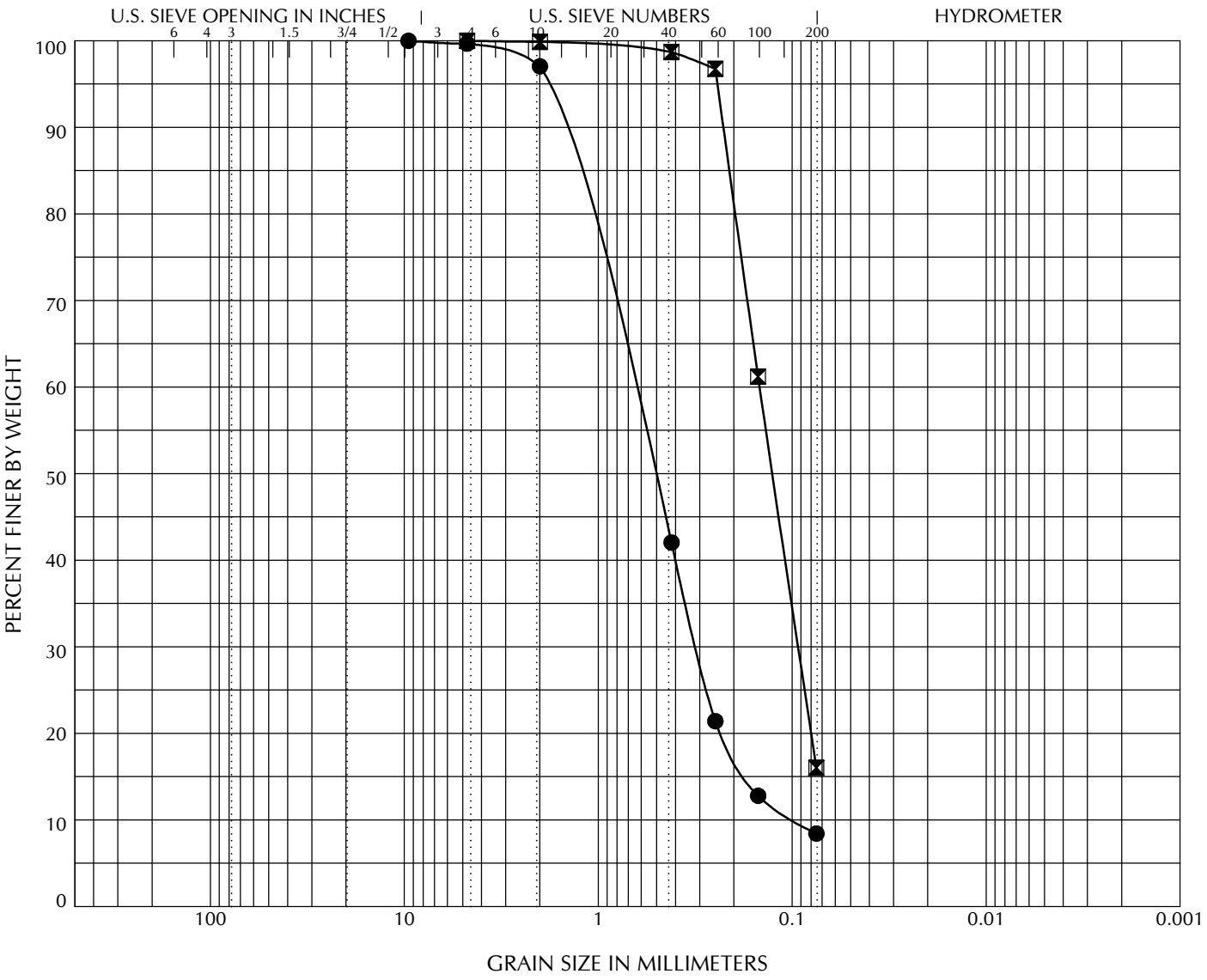
MAR. 2016 JOB NO. W1130-T12 FIG. 3A



GRI BORING LOG (LAT/LONG) GRI DATA TEMPLATE.GDT 3/29/16

BORING B-3

MAR. 2016 JOB NO. W1130-T12 FIG. 3A



COBBLES	GRAVEL		SAND			SILT OR CLAY
	Coarse	Fine	Coarse	Medium	Fine	

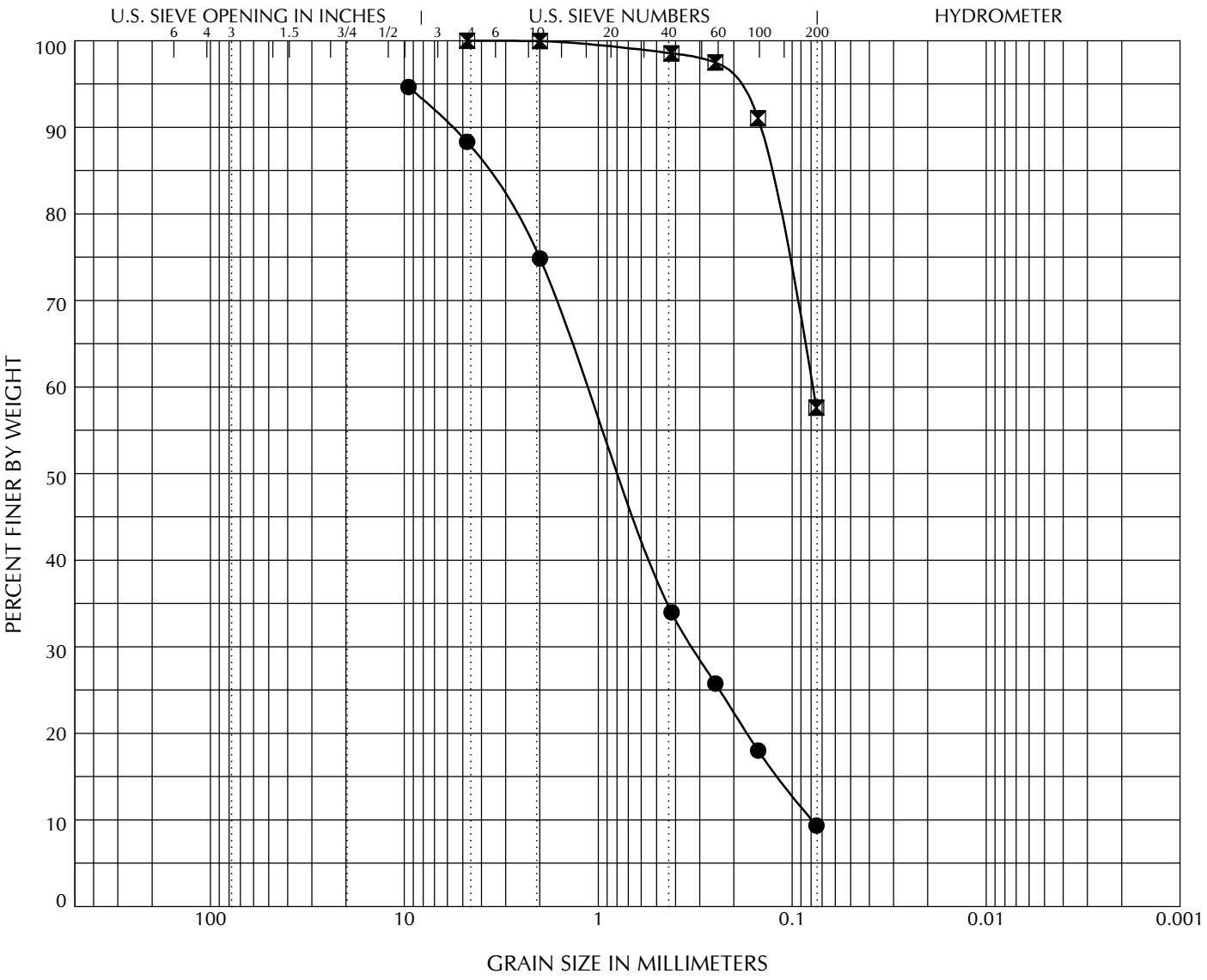
	Location	Sample	Depth, ft	Classification	Gravel, %	Sand, %	Fines, %
●	B-2	S-8	25.0	SAND, some silt, brown, medium dense, fine to medium grained	0.3	91.2	8.4
⧓	B-2	S-11	40.0	Silty SAND, gray, loose, fine grained	0.0	84.0	16.0

GRAIN SIZE GRI-TWO PER PAGE GRI DATA TEMPLATE.GDT 3/25/16

GRI

GRAIN SIZE DISTRIBUTION

MAR. 2016 JOB NO. W1130-T12 FIG. 4A



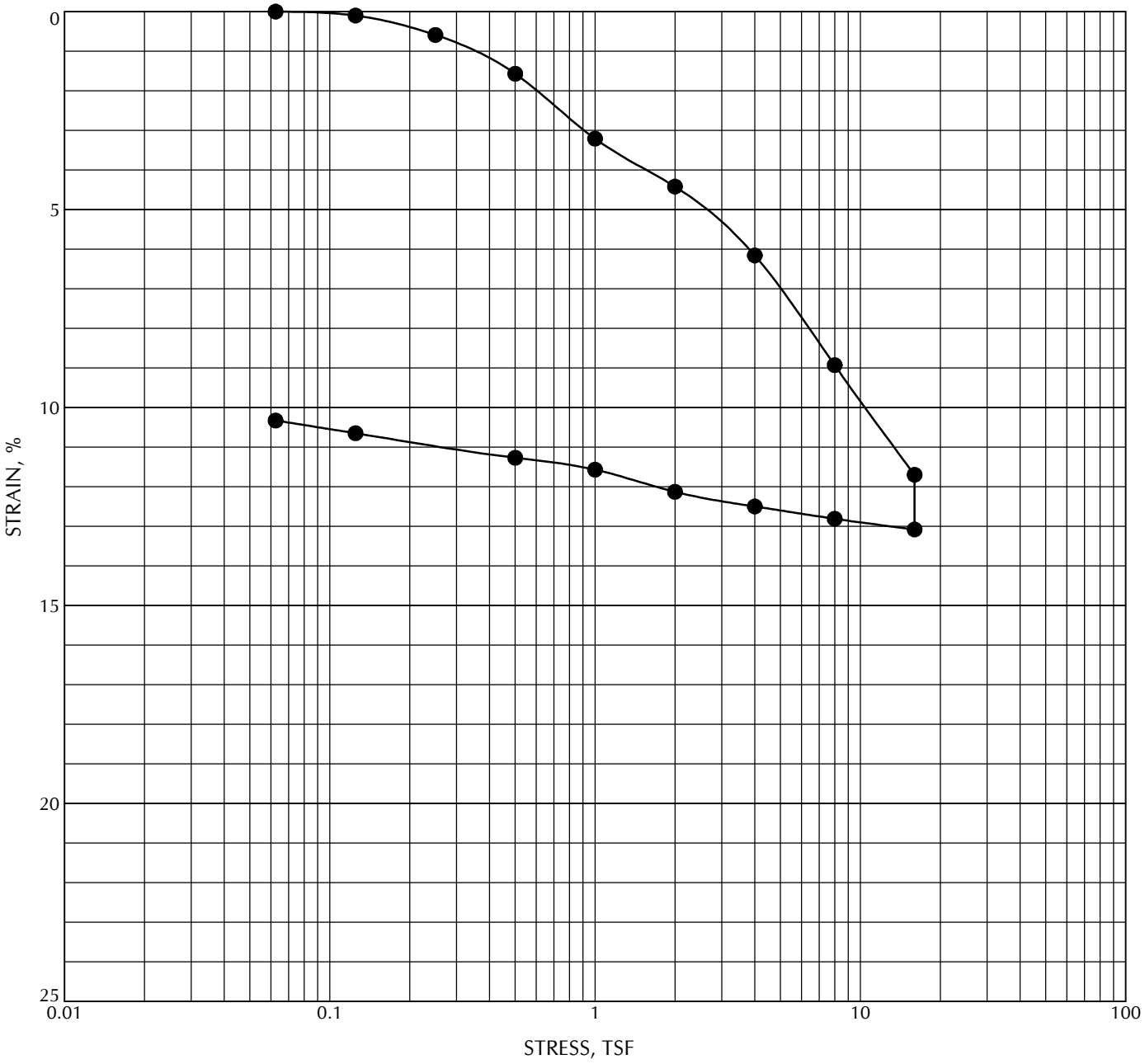
COBBLES	GRAVEL		SAND			SILT OR CLAY
	Coarse	Fine	Coarse	Medium	Fine	

	Location	Sample	Depth, ft	Classification	Gravel, %	Sand, %	Fines, %
●	B-3	S-7	20.0	SAND, some silt, trace subangular to subrounded gravel, brown, medium dense, fine to coarse grained (Fill)	6.3	79.0	9.4
⧓	B-3	S-9	30.0	Sandy SILT, gray, stiff, fine-grained sand, contains organics	0.0	42.4	57.6

GRI

GRAIN SIZE DISTRIBUTION

MAR. 2016 JOB NO. W1130-T12 FIG. 5A



	Location	Sample	Depth, ft	Classification	Initial γ_d, pcf	Initial MC, %
●	B-1	S-6	14.4	Clayey SILT, brown and gray mottled rust, medium stiff to stiff	88	32

GRI

CONSOLIDATION TEST

MAR. 2016 JOB NO. W1130-T12 FIG. 6A

APPENDIX B

Historical Geotechnical Information

PBS Engineering + Environmental
4412 SW Corbett Avenue
Portland, Oregon 97239
Phone: 503.248.1939
Fax: 866.727.0140

VANCOUVER WATERFRONT DEVELOPMENT
VANCOUVER, WASHINGTON

PBS PROJECT NUMBER:
73116.000 - Ph. 002

BORING PB-1

APPROX. BORING PB-1 LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	BLOW COUNT / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
0.0		Loose to very dense, silty GRAVEL with sand and debris (bricks & asphalt); moist **FILL**	0.0		S-1	69	Bentonite seal from 1 to 28.5 feet bgs
5.0					S-2	27	No recovery
					S-3	12	No recovery
		Soft to medium stiff, brown, SILT with trace coarse gravel and sand; moist, high plasticity	8.0		S-4	8	Sample redriven with Dames & Moore sampler for recovery
10.0					S-5	3	Sample redriven with Dames & Moore sampler for recovery
15.0				ATT	S-6	7	LL = 57% PL = 32% PI = 26%
		Medium dense to dense, brown, silty GRAVEL/gravelly SILT with trace sand; wet	19.0				
20.0					S-7	32	Sample redriven with Dames & Moore sampler for recovery P200 = 28%
		Brown-gray, silty fine to coarse GRAVEL; wet, subrounded to subangular	21.0	P200 SIEV			▼ 03/17/14 04/03/14
25.0					S-8	38	
30.0		becomes fine poorly-graded GRAVEL, less silt; wet, subrounded	30.0		S-9	24	
35.0					S-10	21	
40.0							

BLOW COUNT
DYNAMIC CONE PENETROMETER
MOISTURE CONTENT %
RQD% CORE REC%
0 50 100

INSTALLATION AND COMMENTS
Surface Conditions:

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: T. North

BIT DIAMETER: 3-7/8 inch
HAMMER EFFICIENCY PERCENT: 63.6
LOGGING COMPLETED: 3/17/14

FIGURE A1

BORING LOG 73116 B1-2 062514.GPJ PBS_DATA.TMPL GEO.GDT PRINT DATE: 6/25/14 RW

PBS Engineering + Environmental
4412 SW Corbett Avenue
Portland, Oregon 97239
Phone: 503.248.1939
Fax: 866.727.0140

VANCOUVER WATERFRONT DEVELOPMENT
VANCOUVER, WASHINGTON

PBS PROJECT NUMBER:
73116.000 - Ph. 002

BORING PB-1
(continued)

APPROX. BORING PB-1 LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	▲ BLOW COUNT ◇ DYNAMIC CONE PENETROMETER ● MOISTURE CONTENT % RQD% CORE REC% (0 – 50 – 100)	INSTALLATION AND COMMENTS
40.0		NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.					Surface Conditions:
					S-11	31 ▲	Cave to 40.5 feet bgs prior to piezomenter installation
45.0		Final depth 45.0 feet bgs; boring caved to 40.5 feet after drilling; piezometer installed upon completion	45.0				
50.0							
55.0							
60.0							
65.0							
70.0							
75.0							
80.0							

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: T. North

BIT DIAMETER: 3-7/8 inch
HAMMER EFFICIENCY PERCENT: 63.8
LOGGING COMPLETED: 3/17/14

FIGURE A1
Page 2 of 2

BORING LOG: 73116_B1-2_062514.GPJ PBS_DATATMPL.GEO.GDT PRINT DATE: 6/25/14 RW

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Portland, Oregon 97239
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Fax: 866.727.0140

VANCOUVER WATERFRONT DEVELOPMENT
VANCOUVER, WASHINGTON

BORING PB-2

PBS PROJECT NUMBER:
73116.000 - Ph. 002

APPROX. BORING PB-2 LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	BLOW COUNT / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
0.0		Loose, silty GRAVEL with sand and debris (asphalt and concrete); moist	0.0		S-1	0	No recovery
		FILL					
5.0					S-2	5	
					S-3	9	Sample redriven with Dames & Moore sampler for recovery
		wood in cuttings					
10.0		Soft to medium stiff, brown, SILT with trace gravel and sand; moist, low plasticity	10.0		S-4	4	
15.0					S-5	7	
			19.0				Driller's comment: grinding at 19.0 feet bgs
20.0		Dense to very dense, brown, silty fine to coarse GRAVEL with sand; wet, subrounded to subangular			S-6	67	▽ 03/17/14
25.0					S-7	46	
30.0		becomes fine poorly-graded GRAVEL, less silt; subrounded	30.0		S-8	22	
35.0				P200 SIEV	S-9, S-10	31	P200 = 3% Sample redriven with Dames & Moore sampler for recovery
		Final depth 36.5 feet bgs; boring backfilled with bentonite chips	36.5				
40.0							

NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

Surface Conditions:

BLOW COUNT
DYNAMIC CONE PENETROMETER
MOISTURE CONTENT %
RQD% CORE REC%

0 50 100

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: T. North

BIT DIAMETER: 3-7/8 inch
HAMMER EFFICIENCY PERCENT: 71.7
LOGGING COMPLETED: 3/19/14

FIGURE A2
Page 1 of 1

BORING LOG 73116_B1-2_062514.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 6/25/14 RW

PBS Engineering + Environmental
1500 D Street
Vancouver, WA 98663
Phone: 360.690.4331
Fax: 866.727.0140

VANCOUVER WATERFRONT DEVELOPMENT
VANCOUVER, WASHINGTON

BORING PB-5

PBS PROJECT NUMBER:
73116.000 Phase 0001

APPROX. BORING PB-5 LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	BLOW COUNT / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
0.0		ASPHALT CONCRETE	0.0				Surface Conditions: Grass
		Medium dense, gray, sandy GRAVEL; moist, angular	0.2				Flush-mount monument/vault
		FILL	0.6				
		Loose, brown-gray, SAND with trace silt; moist					No sample at 2.5 feet bgs; driller drilled through
		FILL-DREDGE SAND			S-1	6	
5.0					S-2	5	1-inch diameter PVC casing
10.0		becomes very loose			S-3	2	
							Bentonite chips
15.0		becomes medium dense			S-4	9	
							10/20 silica sand filter
20.0		Medium stiff, gray, SILT with clay; moist	20.0	P200	S-5	5	P200 = 95%
		ALLUVIUM			S-6		50 psi for 12 inches, 200 psi for 12 ----> 24 inches (push, undisturbed sample)
25.0		Loose, gray, silty SAND; moist	25.0		S-7	5	1-inch diameter, .010-slot, PVC screen
		ALLUVIUM					
30.0		Stiff gray, sandy SILT; moist	30.0		S-8	9	5-inch-diameter bore hole
		ALLUVIUM	31.5				
		Final depth 31.5 feet bgs; boring backfilled with bentonite chips					
35.0							

NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

0 50 100

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: T. Rikli

BIT DIAMETER: 4 7/8-inch
HAMMER EFFICIENCY PERCENT: 63.8
LOGGING COMPLETED: 6/09/14

FIGURE A8
Page 1 of 1

BORING LOG 73116PH0001 TP1-7&PB5 070314.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 7/3/14 RSD

Total Depth:	110.1 ft.	Northing:	112,690 ft.	Drilling Method:	Mud Rotary	Hole Diam.:	4 in.
Top Elevation:	-25.4 ft.	Easting:	1,083,924 ft.	Drilling Company:	Hardcore Drilling	Rod Type:	NWJ
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	CME 75 (YEAA724)	Hammer Type:	Automatic
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Very dense brown sandy GRAVEL, trace silt; wet; fine to coarse sand; rounded to subangular gravel; occasional organics; occasional shell fragments in upper 6 inches; slight iron oxidation and red-orange staining; occasional concrete debris. (GP)

-30.4 / 5.0

FILL

Very dense to dense brown to brown-gray sandy GRAVEL, trace silt; wet; fine to coarse sand; rounded to subangular gravel. (GP)

GRAVEL ALLUVIUM

-43.4 / 18.0

Dense brown-gray sandy GRAVEL, trace silt; wet; fine to coarse sand; rounded to subangular gravel; occasional zones of loose sand. (GP)

Mud loss: 55 gallons, 27 to 28 feet.

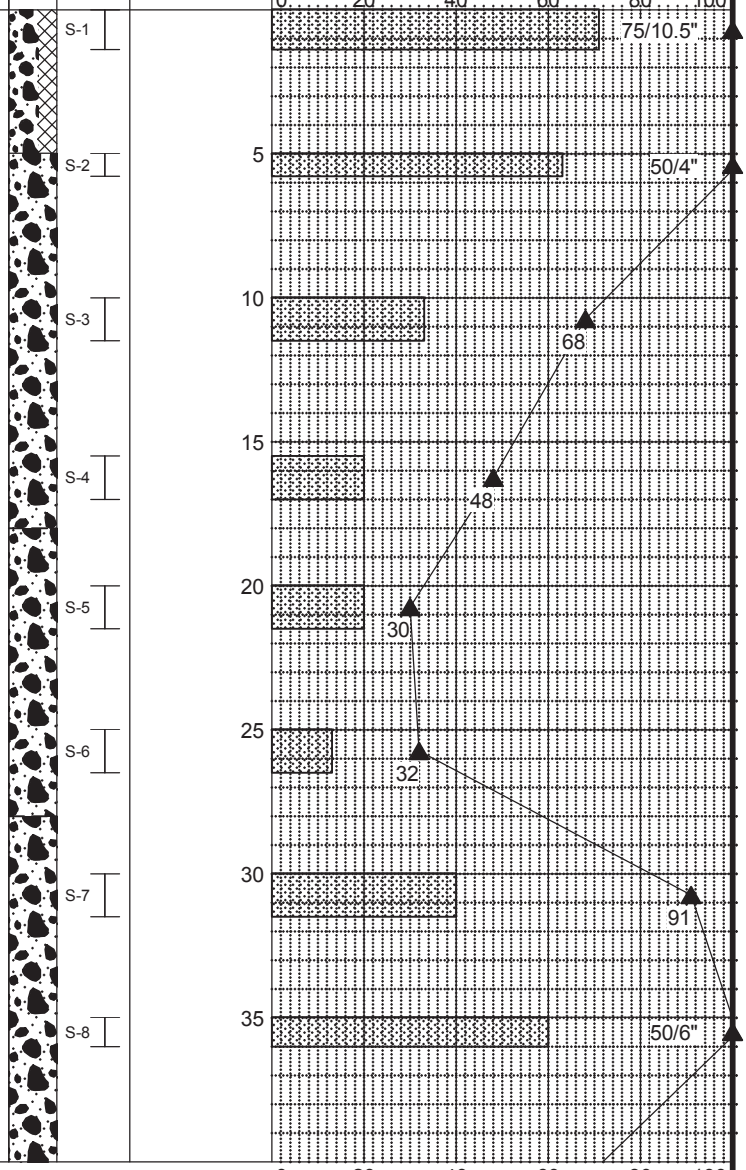
-53.4 / 28.0

Very dense to dense brown-gray sandy GRAVEL, trace silt; wet; fine to coarse sand; rounded to subangular gravel. (GP)

Cobbles at 39.5 feet.

CONTINUED NEXT SHEET

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.



LEGEND

* Sample Not Recovered

⊥ Standard Penetration Test

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-023

October 2011 | 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A20
Sheet 1 of 3

REV 3

Rev: PWB Typ: MAS/AEL
Log: CKS
MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	110.1 ft.	Northing:	112,690 ft.	Drilling Method:	Mud Rotary	Hole Diam.:	4 in.
Top Elevation:	-25.4 ft.	Easting:	1,083,924 ft.	Drilling Company:	Hardcore Drilling	Rod Type:	NWJ
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	CME 75 (YEAA724)	Hammer Type:	Automatic
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Continued:

Very dense to dense brown-gray sandy GRAVEL, trace silt; wet; fine to coarse sand; rounded to subangular gravel. (GP)

Mud loss: 100 gallons, 40 feet.

Mud loss: 50 gallons, 45 feet.

GRAVEL ALLUVIUM

-75.4
50.0

Dense to very dense brown to olive-brown sandy GRAVEL, trace silt; wet; fine to medium sand; rounded to subangular gravel; tight weakly cemented sand matrix.

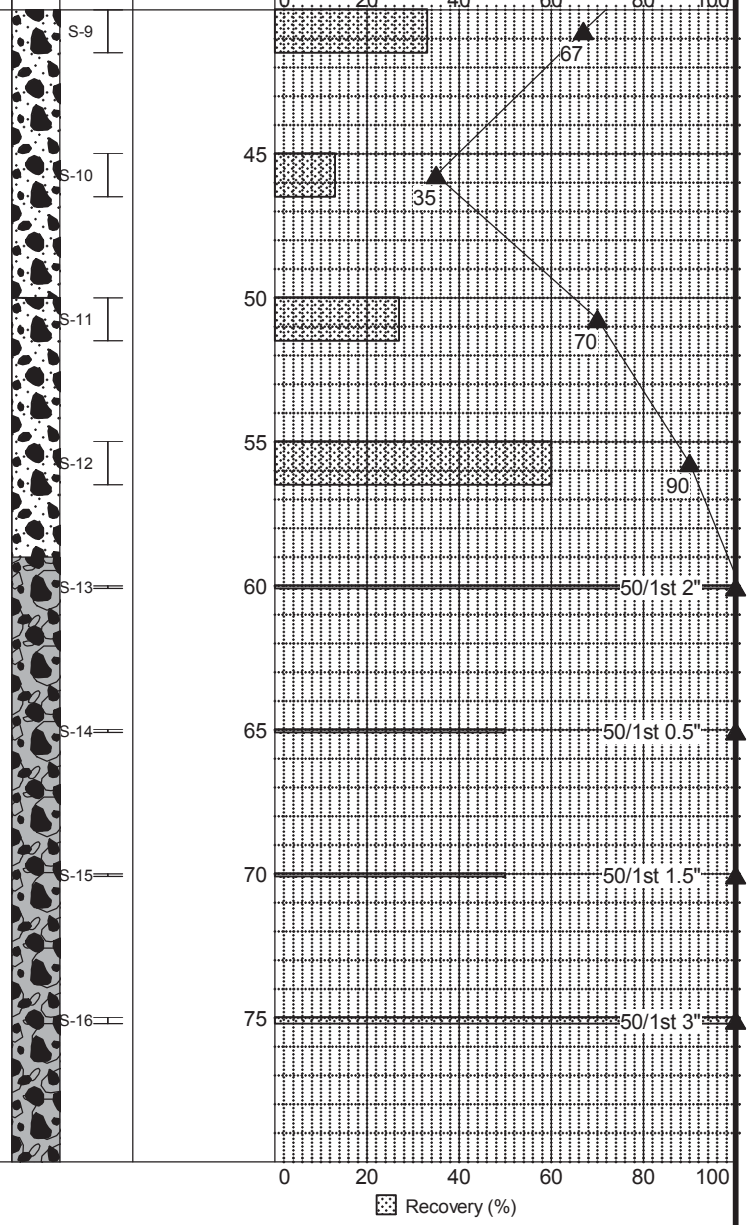
-84.4
59.0

Very dense orange-brown to yellow-brown sandy GRAVEL, trace silt; wet; fine to medium sand; rounded to subrounded gravel; occasional cobbles; micaceous; moderately to strongly cemented sand matrix; slight to moderate iron-oxide staining. (GP)

TROUTDALE

CONTINUED NEXT SHEET

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.



LEGEND

* Sample Not Recovered

⊥ Standard Penetration Test

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-023

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A20
Sheet 2 of 3

REV 3

Rev: PWB Typ: MAS/AEL
Log: CKS
MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	110.1 ft.	Northing:	112,690 ft.	Drilling Method:	Mud Rotary	Hole Diam.:	4 in.
Top Elevation:	-25.4 ft.	Easting:	1,083,924 ft.	Drilling Company:	Hardcore Drilling	Rod Type:	NWJ
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	CME 75 (YEAA724)	Hammer Type:	Automatic
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: 140 lbs / 30 inches

Continued:

Very dense orange-brown to yellow-brown sandy GRAVEL, trace silt; wet; fine to medium sand; rounded to subrounded gravel; occasional cobbles; micaceous; moderately to strongly cemented sand matrix; slight to moderate iron-oxide staining. (GP)

TROUTDALE

Grades to scattered cobbles at 106 feet.

-135.5 110.1

Completed - November 18, 2010

S-17 S-18 S-19 S-20

85 90 95 100 105 110 115

50/1st 2" 50/1st 1.5" 50/1st 1" 50/1st 0.5"

0 20 40 60 80 100

Recovery (%)

● % Water Content

Plastic Limit ⊢—⊣ Liquid Limit

LEGEND

* Sample Not Recovered

⌶ Standard Penetration Test

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
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4. The hole location and elevation should be considered approximate.
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I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-023

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
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FIG. A20
Sheet 3 of 3

REV 3

Log: CKS Rev: PWB Typ: MAS/AEL

MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	150 ft.	Northing:	112,912 ft.	Drilling Method:	Rotosonic	Hole Diam.:	4 in.
Top Elevation:	29.7 ft.	Easting:	1,084,165 ft.	Drilling Company:	Major Drilling	Rod Type:	N/A
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	Geoprobe 8140LS	Hammer Type:	N/A
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: *140 lbs / 30 inches*

0 20 40 60 80 100

ASPHALT CONCRETE

28.7
1.0

Brown and gray sandy gravelly SILT; moist; low plasticity; fine to coarse angular to rounded sand; fine to coarse angular to rounded gravel. (ML)

FILL

Grades to gray at 6.4 feet.

Grades to sandy SILT, trace gravel; scattered wire at 9 feet.

18.0
11.7

Gray sandy SILT; moist; low plasticity; fine sand; micaceous. (ML)

STRATIFIED SAND AND SILT ALLUVIUM 1

Grades to gray and brown at 14 feet.

Grades to gray at 16 feet.

Burnt wood at bottom of liner R-4; very high wood content inferred from low liner R-5 weight.

Grades to sandy SILT to SILT with sand; low to medium plasticity; fine to coarse sand; numerous wood fragments; slight organic odor at 25 feet.

1.2
28.5

Gray sandy GRAVEL, trace silt; wet; fine to coarse subrounded to subangular sand; fine to coarse rounded to subrounded gravel. (GP)

GRAVEL ALLUVIUM

Grades to sandy GRAVEL to SAND with gravel and silt at 35 feet. (GP/SW-SM)

R-1, S-1, R-2, S-2, R-3, S-3, R-4, S-4, R-5, S-5, R-6, S-6, R-7, S-7

5 10 15 20 25 30 35

CONTINUED NEXT SHEET

0 20 40 60 80 100

Recovery (%)

◇ % Fines (<0.075mm)

● % Water Content

Plastic Limit ⊢—⊣ Liquid Limit

LEGEND

* Sample Not Recovered

Soil Core

Grab Sample

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-025

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
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FIG. A22
Sheet 1 of 4

REV 3

Log: AAH/AEL/EJOF Rev: AAH Typ: AEL

MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	150 ft.	Northing:	112,912 ft.	Drilling Method:	Rotosonic	Hole Diam.:	4 in.
Top Elevation:	29.7 ft.	Easting:	1,084,165 ft.	Drilling Company:	Major Drilling	Rod Type:	N/A
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	Geoprobe 8140LS	Hammer Type:	N/A
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: *140 lbs / 30 inches*

0 . . . . . 20 . . . . . 40 . . . . . 60 . . . . . 80 . . . 100

Continued:

Gray sandy GRAVEL to gravelly SAND, trace silt; wet; fine to coarse subrounded to subangular sand; fine to coarse rounded to subrounded gravel. (GP/SP)

-15.4
45.0

GRAVEL ALLUVIUM

Grades to sandy GRAVEL with silt; low to medium plasticity fines; occasional cobbles at 43 feet. (GP-GM)

-19.9
49.5

Gray SAND with silt and gravel; wet; low to medium plasticity fines; medium to coarse sand. (SP-SM)

Gray sandy GRAVEL to gravelly SAND, trace silt; wet; medium to coarse sand; fine to coarse rounded to subrounded gravel. (GP/SP)

Grades to sandy GRAVEL at 53 feet. (GP)

Grades to GRAVEL with sand, trace silt at 56 feet. (GP/GW)

Grades to occasional cobbles to 4-inch diameter observed at 70 feet.

R-8, S-8, R-9, S-9, R-10, S-10, R-11, S-11, R-12, S-12

45, 50, 55, 60, 65, 70, 75

CONTINUED NEXT SHEET

0 20 40 60 80 100

Recovery (%)

◇ % Fines (<0.075mm)

● % Water Content

Plastic Limit ⊢——⊣ Liquid Limit

LEGEND

* Sample Not Recovered

Soil Core

G Grab Sample

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-025

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A22
Sheet 2 of 4

REV 3

Log: AAH/AEL/EJOF Rev: AAH Typ: AEL

MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	150 ft.	Northing:	112,912 ft.	Drilling Method:	Rotosonic	Hole Diam.:	4 in.
Top Elevation:	29.7 ft.	Easting:	1,084,165 ft.	Drilling Company:	Major Drilling	Rod Type:	N/A
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	Geoprobe 8140LS	Hammer Type:	N/A
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: *140 lbs / 30 inches*

0 20 40 60 80 100

Continued:

Gray GRAVEL with sand, trace silt; wet; fine to coarse subrounded to subangular sand; fine to coarse rounded to subrounded gravel; occasional cobbles to 4-inch diameter observed. (GP)

GRAVEL ALLUVIUM

R-13 *

R-14

R-15a

-70.4
100.0

Gray gravelly SAND with silt; wet; coarse subrounded sand; coarse rounded gravel. (SP-SM)

S-13

R-15b

-74.4
104.0

Gray GRAVEL with sand, trace silt; wet; coarse subrounded sand; fine to coarse rounded gravel; occasional cobbles to 3-inch diameter observed. (GP)

Grades to GRAVEL at 106 feet.

R-16: Cutting shoe obstructed by cobble, preventing sample recovery.

R-16

-85.4
115.0

COBBLES with gravel and sand, trace silt; wet; coarse rounded gravel.

R-17a

85 90 95 100 105 110 115

0 20 40 60 80 100

CONTINUED NEXT SHEET

LEGEND

* Sample Not Recovered

Soil Core

Grab Sample

Recovery (%)

◇ % Fines (<0.075mm)

● % Water Content

Plastic Limit ⊢—⊣ Liquid Limit

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-025

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A22
Sheet 3 of 4

REV 3

Log: AAH/AEL/EJOF Rev: AAH Typ: AEL

MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	150 ft.	Northing:	112,912 ft.	Drilling Method:	Rotosonic	Hole Diam.:	4 in.
Top Elevation:	29.7 ft.	Easting:	1,084,165 ft.	Drilling Company:	Major Drilling	Rod Type:	N/A
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	Geoprobe 8140LS	Hammer Type:	N/A
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: *140 lbs / 30 inches*

0 20 40 60 80 100

Continued:

COBBLES with gravel and sand, trace silt; wet; coarse rounded gravel.

GRAVEL ALLUVIUM

-97.4
127.0

Gray GRAVEL with sand, trace silt; wet; fine sand; coarse rounded gravel; scattered cobbles. (GP)

-99.4
129.0

Yellow-brown SAND, trace silt; wet; fine sand. (SP)

-105.3
134.9

Yellow-brown sandy silty GRAVEL; wet; nonplastic to low plasticity fines; fine sand; coarse rounded gravel; weakly cemented. (GM)

TROUTDALE

Grades to silty GRAVEL with sand; medium plasticity fines; fine sand; fine rounded gravel from 144 to 144.5 feet.

-120.4
150.0

Completed - October 1, 2010

S-17b

S-14 G
R-18

S-15 G
R-19

R-20

125 130 135 140 145 150 155

0 20 40 60 80 100

Recovery (%)
◇ % Fines (<0.075mm)
● % Water Content
Plastic Limit ⊢—⊣ Liquid Limit

LEGEND

* Sample Not Recovered
Soil Core
G Grab Sample

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-025

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A22
Sheet 4 of 4

REV 3

Log: AAH/AEL/EJOF Rev: AAH Typ: AEL

MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	90.3 ft.	Northing:	112,960 ft.	Drilling Method:	Mud Rotary	Hole Diam.:	4 in.
Top Elevation:	30.3 ft.	Easting:	1,084,220 ft.	Drilling Company:	Boart Longyear	Rod Type:	NWJ
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	CME 75 (YAPZ024)	Hammer Type:	Automatic
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Elev. Depth (ft.)	Soil Description
29.8 / 0.5	ASPHALT CONCRETE
28.3 / 2.0	BASE AGGREGATE
	Very stiff gray sandy SILT; moist; low plasticity; fine to coarse subangular sand. (ML) **FILL**
23.3 / 7.0	Loose brown silty SAND; moist; low to medium plasticity; fine sand. (SM)
18.3 / 12.0	Loose to medium dense gray sandy SILT to silty SAND; moist to wet; nonplastic to low plasticity; fine sand; micaceous. (ML/SM) **STRATIFIED SAND AND SILT ALLUVIUM 1**
3.3 / 27.0	Dense to very dense gray sandy GRAVEL with silt; wet; medium plasticity fines; fine to coarse subangular sand; fine rounded gravel. (GP-GM) **GRAVEL ALLUVIUM** *Mud loss: 100 gallons, 35 to 40 feet.*

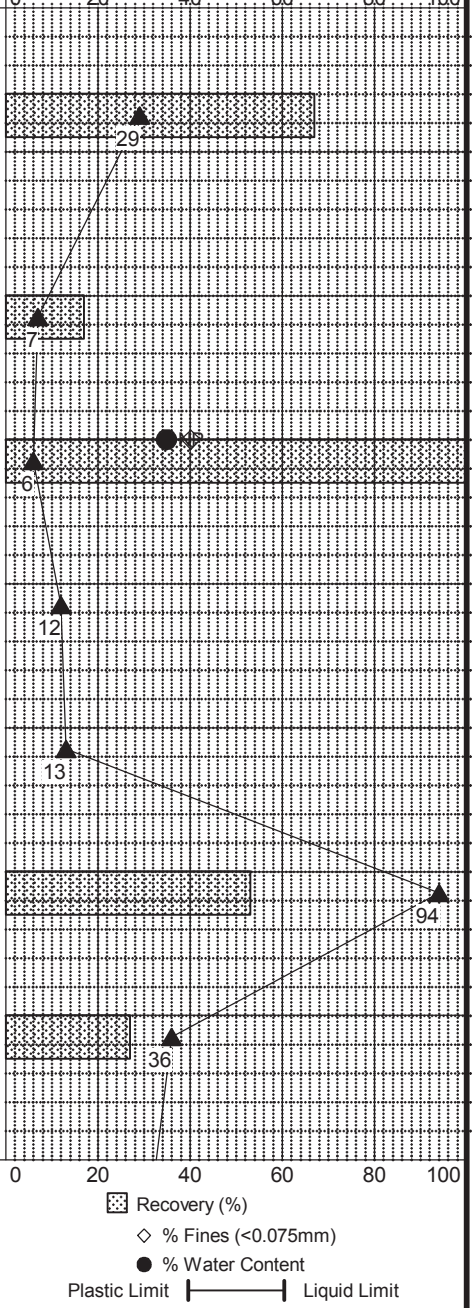
Symbol | Samples | Ground Water | Depth, ft.

S-1, S-2, S-3, S-4 *, S-5 *, S-6, S-7

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: *140 lbs / 30 inches*



CONTINUED NEXT SHEET

LEGEND

* Sample Not Recovered

Standard Penetration Test

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-025A

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A23
Sheet 1 of 3

REV 3

Rev: AAH Typ: MAS/AEL
Log: EJOF
MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11

Total Depth:	90.3 ft.	Northing:	112,960 ft.	Drilling Method:	Mud Rotary	Hole Diam.:	4 in.
Top Elevation:	30.3 ft.	Easting:	1,084,220 ft.	Drilling Company:	Boart Longyear	Rod Type:	NWJ
Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	CME 75 (YAPZ024)	Hammer Type:	Automatic
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: 140 lbs / 30 inches

Continued:

Dense to very dense gray sandy GRAVEL with silt; wet; medium plasticity fines; fine to coarse subangular sand; fine rounded gravel. (GP-GM)

-12.7 / 43.0

Very dense gray sandy GRAVEL, trace silt; wet; coarse subangular sand; fine subrounded gravel. (GP)

Medium dense layer at 50 feet.

GRAVEL ALLUVIUM

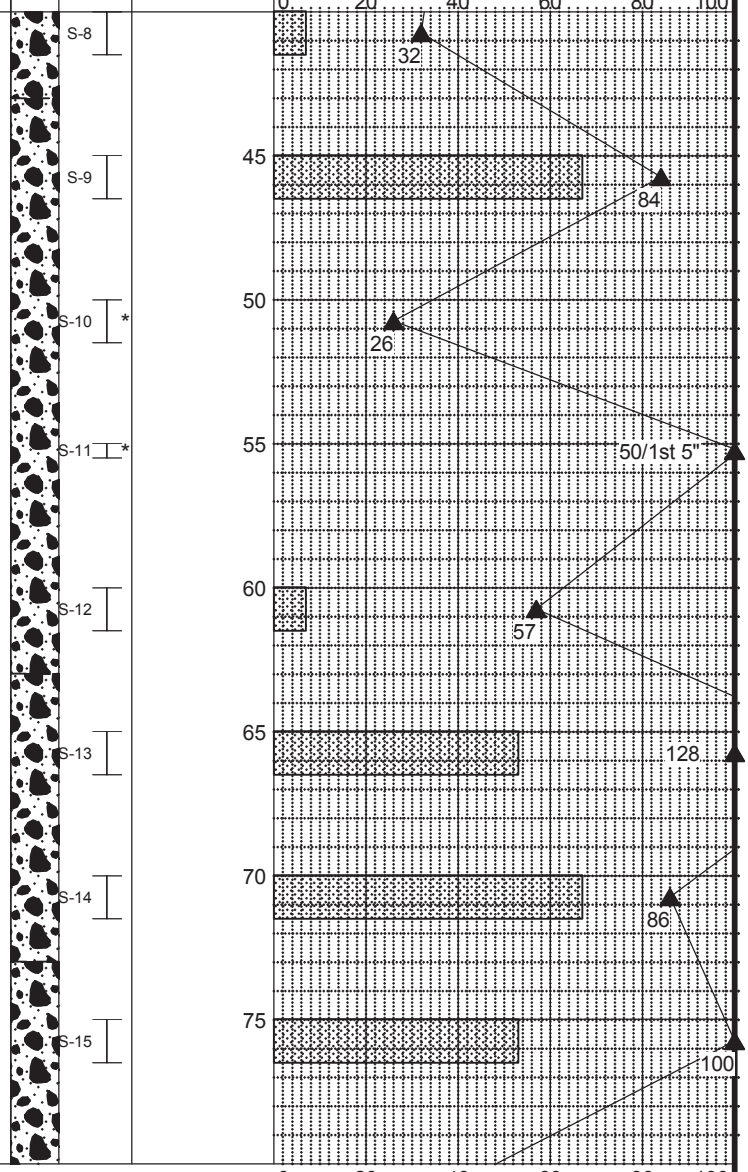
-32.7 / 63.0

Very dense brown sandy GRAVEL, trace silt; wet; medium to coarse subangular sand; coarse rounded gravel; ~5% quartzite. (GP)

-42.7 / 73.0

Very dense gray sandy GRAVEL; wet; fine subangular sand; coarse rounded to subrounded gravel. (GP)

Mud loss: 450 gallons, 75 to 80 feet.



CONTINUED NEXT SHEET

LEGEND

* Sample Not Recovered

Standard Penetration Test

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
5. Energy-corrected blow counts are not provided for non-standard samplers.

I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-025A

October 2011 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A23
Sheet 2 of 3

REV 3

MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11 Log: EJOF Rev: AAH Typ: MAS/AEL

Total Depth:	90.3 ft.	Northing:	112,960 ft.	Drilling Method:	Mud Rotary	Hole Diam.:	4 in.
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Vert. Datum:	NAVD88	Station:		Drill Rig Equipment:	CME 75 (YAPZ024)	Hammer Type:	Automatic
Horiz. Datum:	CRC Project	Offset:		Other Comments:			

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines indicated below represent the approximate boundaries between soil types, and the transitions may be gradual.

Dense to very dense gray sandy GRAVEL; wet; fine subangular sand; coarse rounded to subrounded gravel. (GP)

GRAVEL ALLUVIUM

-57.7 / 88.0

Very dense tan sandy GRAVEL, trace silt; wet; nonplastic; fine subangular sand; coarse subrounded gravel. (GP)

-60.0 / 90.3

Completed - October 14, 2010

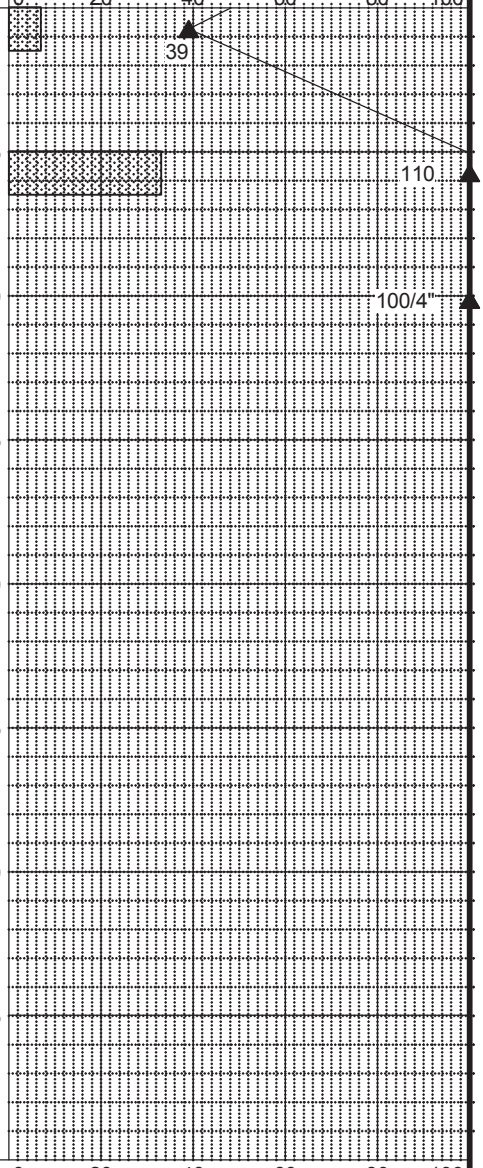
Elev. Depth (ft.) | Symbol | Samples | Ground Water | Depth, ft.

S-16 | S-17 | S-18 *

PENETRATION RESISTANCE, N (blows/ft.)

▲ Energy-Corrected Field Blow Count [5], N_E

Hammer Wt. & Drop: 140 lbs / 30 inches



LEGEND

* Sample Not Recovered

Standard Penetration Test

Recovery (%)

◇ % Fines (<0.075mm)

● % Water Content

Plastic Limit — Liquid Limit

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. The hole location and elevation should be considered approximate.
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I-5 Columbia River Crossing
Main River Crossing
Portland, Oregon / Vancouver, Washington

LOG OF BORING CRC-RC-025A

October 2011 | 24-1-03595-030

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A23
Sheet 3 of 3

REV 3

MASTER_LOG_E_NE_24_1_03595.GPJ SHAN_WIL.GDT 10/25/11 Log: EJOF Rev: AAH Typ: MAS/AEL

Appendix D
Geologic Hazard/Critical Areas Technical Memorandum (GRI 2016b)

GRI
1101 Broadway, Suite 130
Vancouver, WA 98660
p| 360-213-1690 f| 360-213-1697

TECHNICAL MEMORANDUM

To: Greg Westrand, PE / Port of Vancouver, USA

Date: December 21, 2016

GRI Project No.: W1130-T13

From: George Freitag, LEG; Matthew Shanahan, PE; and Michael Marshall, LG

Re: Geologic Hazard / Critical Areas Evaluation
POV Terminal 1
Port of Vancouver, USA

GRI has completed a Geologic Hazard / Critical Areas evaluation for the proposed redevelopment at Terminal 1 Port of Vancouver, USA (Port). The Site Plan, Figure 1, shows the general location of the site. The project includes property redevelopment at Blocks A through E and the existing pier and dock. We understand the phased redevelopment may include six to eight buildings and reconstruction of portions of the existing pier and dock. Proposed buildings will typically be 4 to 6 stories but buildings up to 13 stories are being considered. One or two levels of underground parking, located on either or both of Blocks A and C, is also being considered. We anticipate that cuts or fills needed to establish final site-grades will be less than 5 ft. This technical memorandum documents potential geologic hazards at or near the project site with respect to reporting requirements of the Critical Areas protection guidance provided in Vancouver Municipal Code (VMC) 20.740.130. Geologic hazards to be evaluated include 1) landslides; 2) seismic-related features, including liquefaction-induced settlement, ground shaking, and fault rupture; and 3) erosion.

Our work included the following tasks:

1) Review published geologic literature and pertinent available geotechnical data for the vicinity.

2) Conduct a limited site reconnaissance to visually observe potential areas of landslides, slope instability, fault rupture, erosion, or other geologic hazard.

3) Evaluate the following potential geologic hazards at the site: 1) landslides; 2) seismic hazards, including liquefaction-induced settlement, ground shaking amplification, and fault rupture; and 3) erosion.

This technical memorandum summarized our work and provides our conclusions regarding the geologic conditions and potential geologic hazards at the site.

SITE DESCRIPTION

General

The project site is bounded to the north by the BNSF elevated railroad, to the west by the future Graymor mixed-use development, to the south by the Columbia River, and to the east by Columbia Street and Interstate 5 as shown on Figure 1. Columbia Way extends east-west through the site. Blocks A and C are located north of Columbia Way and are currently covered with asphalt concrete (AC) parking with landscaped islands containing mature trees. Blocks B, D, and E are located south of Columbia Way. The Columbia Business center and the former Red Lion Hotel are currently situated on these blocks. Asphalt concrete and portland cement concrete (PCC) covered hardscape areas surround these buildings. The former Red Lion Hotel extends partially over an approximate 100-ft-wide pier that extends along the majority of Columbia River frontage. The eastern 530 ft of the pier is supported by timber piles. Steel pipe piles support the portion of the dock near the existing amphitheater. The pile embedment is unknown. A floating dock is located near the western edge of the pier.

Topography

Available topographic information indicates the ground surface is relatively flat at elevations ranging from about 28 to 32 ft (NGVD 29). The upper portion of the riverbank is a fill slope covered with rock and concrete debris inclined at about 1½H:1V (Horizontal:Vertical) down to the natural riverbank at about elevation 10 where the slope is flatter in the range of 3.5H:1V to 4H:1V. About 50 ft from the face of the existing pier, the mudline is at about elevation -30 ft. The base of the river channel is at about elevation -35 ft.

Geology

Existing geotechnical information indicates the site is mantled with 8 to 20 ft of sand fill and the thickness of fill generally increasing towards the river. The fill is underlain by recent alluvium deposited by the Columbia River, which in turn are underlain by sands and gravels associated with late-Pleistocene catastrophic floods that occurred between 13,500 and 15,000 years ago. The flood deposits are underlain at depth by interbedded sands and gravels of the Troutdale Formation (Pliocene to Pleistocene), which are, in turn, underlain by Columbia River Basalt (Miocene) bedrock at depth.

GEOLOGIC HAZARDS EVALUATION

Landslides

Landslide mapping of the area was reviewed (Fiksdal, 1975). The site and surrounding area are not shown as areas of past landslides. With the exception of the banks of the Columbia River, the project site is relatively flat. Based on site survey information the banks of the river have slope inclinations flatter than about 1.5H:1V. Obvious indications of slope instability were not observed. Improvements on or near the riverbank would be designed to meet code requirements outlined in VMC Title 17, Building and Construction for slope stability.

Seismic-Related Features

Liquefaction-Induced Settlement and Ground Shaking. Seismic hazard mapping of the site and vicinity was reviewed (Palmer et al., 2004). In addition, a geotechnical investigation completed for the project indicates liquefaction-induced settlement may be on the order of 6 to 12 in. (GRI, 2016). The entire

project site and area upland of the Columbia River is considered to have moderate to high susceptibility to liquefaction and relatively high potential (Site Class D or D to E) for ground shaking amplification.

In our opinion, the proposed site improvements will not directly impact the potential for seismic shaking or liquefaction. It is our understanding the improvements will be designed to satisfy the intent of requirements outlined in VMC Title 17, Building and Construction, related to liquefaction-induced settlement, and ground shaking amplification.

Fault Rupture. U.S. Geological Survey Quaternary fault and geologic mapping for the site and vicinity was reviewed (U.S. Geological Survey, 2006). The maps do not show active or potentially active faults that could be capable of inducing ground surface rupture at the site.

Erosion Hazard Areas. The U.S. Department of Agriculture Soil Conservation Service's, "Soil Survey of Clark County, Washington" (1972) indicates soil identified as having *severe erosion hazard* is considered a potential geologic hazard. The Clark County Soil Survey was reviewed and soils that are considered to have *severe erosion hazard* were not identified at the site. The county soil survey indicates soils at the site are classified as *Fn* or fill, which does not have a potential erosion hazard designation. In our opinion, the dredged sand fill is characterized as *moderately erosive* and would therefore not be considered an erosion hazard. The proposed site grading and surfacing will tend to limit the potential for erosion of the fill.

Bank Erosion Hazard Areas. Bank Erosion Hazard Areas are areas along lakes, streams, and rivers that are subject to regression or retreat due to lacustrine or fluvial processes and adjacent land within 100 ft. Existing bank stabilization (rock and concrete debris) is present along the banks of Colombia River at the project site. The majority of the upland improvements are proposed away from the riverbank. However, plans for the Waterfront improvements are still being developed and may include new development on or near the riverbank. Based on the available project information, the project does not appear to increase the risk of bank erosion beyond pre-development conditions. New improvements on or near the riverbank would be designed to include riverbank stabilization as needed to meet code requirements outlined in VMC Title 17, Building and Construction.

Site Visit

An experienced engineering geologist from GRI conducted a surface reconnaissance of the area on November 2, 2016, to visually observe potential areas of landslides, slope instability, erosion, fault rupture, or other observable geologic hazard. Care was taken to note exposures of natural soil and rock, fill, seeps and springs, and the condition of exposed sections of riverbank.

Areas of landslides, slope instability, erosion, fault rupture, or other geologic hazards were not observed during the surface reconnaissance. Revetment was observed on the riverbank in the vicinity of the former Red Lion Hotel and to the west occasionally concealed by vegetation. The large boulder armoring of the bank along the Columbia River will limit the potential for bank erosion at the site.

SUMMARY AND CONCLUSIONS

Based on the work completed for this evaluation, we provide the following conclusions:

1) Based on the absence of mapped landslides, relatively flat project site, and the absence of areas of landslides or slope instability observed during the site visit, it is our opinion the potential for landslide hazards to affect the proposed development or adjacent areas is low.

2) Hazard maps and previous work by GRI and others in the vicinity of the site indicate the alluvial sand and silt soils will likely be subject to liquefaction-induced settlement and ground shaking amplification during strong seismic events up to 12 in. Although detailed plans are not currently available, it is our understanding the infrastructure improvements will be designed to satisfy the intent of requirements outlined in VMC Section 20.740.130.C(2) related to liquefaction-induced settlement and ground shaking amplification.

3) Based on the absence of active or potentially active faults that could be capable of inducing surface rupture at the site, and the absence of potential fault-related features observed during the site visit, it is our opinion the risk of seismic-related fault rupture that could affect the proposed development or adjacent areas is low unless occurring on an unmapped fault.

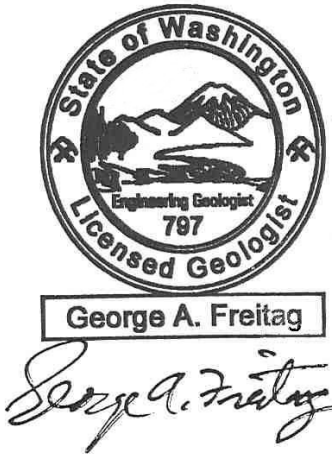
4) Based on the absence of soils designated as a *severe erosion hazard* and bank armoring revetment, it is our opinion the potential for erosion to affect the proposed development or adjacent areas is low. The project will use erosion control methods for construction activities that are in accordance with City requirements. The project improvements will be designed to avoid areas of steep river banks or include stabilization measures to protect earthwork/improvements from erosion.

5) Given our overall evaluation of site geologic conditions and our current understanding of building code requirements, it is our opinion the proposed infrastructure development will not increase the risk of damage from potential geologic hazards at the site or adjacent areas.

LIMITATIONS

This technical memorandum has been prepared to support the Port in the permitting for this project. The scope is limited to the specific project and location described herein. Our description of the project represents our understanding of the significant aspects of the project relevant to the design and construction of the planned improvements. In the event that any changes in the design and location of the site improvements, as outlined in this memorandum, are planned, we should be given the opportunity to review the changes and to modify or reaffirm the conclusions of this memorandum in writing. No warranty is provided.

Submitted for GRI,



Renews 2/2017

George A. Freitag, LEG
Principal

Matthew S. Shanahan, PE
Principal

Michael S. Marshall, LG
Project Geologist

This document has been submitted electronically.

References

Fiksdal, A. J., 1975, Slope stability of Clark County, Washington: Washington Department of Natural Resources, Division of Geology and Earth Resources Report 75-10.

Palmer, S.P., Magsino, S.L., Niggeman, R.A., Bilderback, E.L., Folger, D.S., Poelstra, J.L., 2004, Liquefaction susceptibility and site class maps of Washington State, by county: Washington State Department of Natural Resources Open File Report 2004-20. Clark County Sheet; scale 1:100,000.

U.S. Department of Agriculture, 1972, Soil survey of Clark County, Washington.

U.S. Geological Survey, 2006, Quaternary fault and fold database for the United States, accessed November 2, 2016, from USGS web site: http//earthquakes.usgs.gov/regional/qfaults.

SITE PLAN FROM FILE BY OLSON ENGINEERING INC., DATED DECEMBER 2015

North

0 100 200 FT

GRI

PORT OF VANCOUVER USA
TERMINAL 1 REDEVELOPMENT

SITE PLAN

DEC. 2016 JOB NO. W1130-T13 FIG. 1

Appendix E
Riparian Habitat Functional Assessment Form

CLARK COUNTY HABITAT CONSERVATION ORDINANCE
RIPARIAN HABITAT FIELD RATING FORM

Date: **September 16, 2016**

Investigator(s): **D Gunderson; A Kinney**

Stream: **Columbia River**

Legal: **SW1/4 S27 T02N R01E WM**

Parcel #: **502240000, 502245000, 502246000, 502250000**

Stream Type: [S] F Ns Np

Reach #: **RM 106.5**

Land Use Designations

Zoning: **City Center (CX)**

Shorelines: **Aquatic and High Intensity**

Other:

Base Riparian Zone Width: **100 foot RMA/175-foot RB**

(Note: Complete 1 field rating form for each reach)

FISH HABITAT FUNCTIONS

Streamflow Influence

1 – Vegetative Cover (%)	
0-33%	(1)
34-66%	2
67-100%	3

2 – Associated Wetlands	
Present	+2
Absent	(+0)

3 – Springs or Seeps	
Absent	(0)
Intermittent	1
Semi-Permanent	2
Permanent	3

4 – Hydrology (excess flows, erosion, scour, etc.)	
Present	-2
Absent	(+0)

Influence on water Temperature & Dissolved Oxygen

5 – Canopy Cover (%)	
0-33%	(1)
34-66%	2
67-100%	3

6 – Riffles (%)	
0%	(0)
1-16%	1
17-33%	2
34-50+%	3

Control of Sedimentation

7	10-33% Cover	34-66% Cover	67-100% Cover
0-33% Slope	1	2	3
33-66% Slope	0	1	2
67-100% Slope	(0)	1	2

8 – Vegetated Banks	
0-33%	(-2)
34-66%	1
67-100%	3

Dissolved Oxygen Measurements (optional):

Control of Stream Pollution

9 – Vegetative Cover (%)	
0-33%	(1)
34-66%	2
67-100%	3

10 – Associated Wetlands	
Present	+2
Absent	(+0)

Contribution to Food Web

11 – Canopy Cover (%)	
0-33%	(1)
34-66%	2
67-100%	3

12 – Dominant Tree Species	
67-100%	dec (1)
67-100%	con. 1
33-66% mixed	3

13 – LWD (Pieces per BFW)	
0	0
1	1
2	2
3	(3)

***NOTE: Assessment criteria and scoring were based on conditions likely to be encountered. Users of this methodology may be required to exercise their best professional judgment as a result of unique site conditions.**

Stream Structural Diversity

Streams <10m (33ft) wide

14 – LWD (Key Pieces per BFW)	
0.0	0
0.1	1
0.2	2
>+0.3	3

Streams 10-20+m(33ft) wide

14 – LWD (Key Pieces per BFW)	
0.0	0
0.1-0.2	1
0.3-0.4	2
>+0.4	(3)

15 – Pools (%)	Gradient (%) <2%	2-5%	>5%
>55%	3	3	3
41-54%	2	3	3
31-40%	1	2	3
10-30%	0	1	2
<10%	(0)	0	1

16 – Riffles (%)	Gradient (%) <2%	2-5%	>5%
1-16%	(1)	1	0
17-33%	2	2	1
34-50%	2	3	2

17 – Off Channel Habitat	
Present	3
Absent	(0)

18 – Fines (%)	Gradient (%) <2%	2-5%	>5%
0-10%	2	2	2
11-44%	1	-3	-4
45-100%	(0)	-4	-5

TERRESTRIAL WILDLIFE HABITAT FUNCTIONS

Structural/Biological Complexity

Plant Species Diversity

19 – Native Woody Plant Species (#)	
0	0
1-3	(1)
4-6	2
7+	3

Vertical Diversity

20 – Multiple Canopy Layers	
1	(1)
2	2
3+	3

Snags

21 – Snags/Acre (20"+dbh, 6' high)	
0	(0)
1	1
2-3	2
4+	3

Downed Material

22 – Downed Logs/Acre (12"+ diam, 20'+ long)	
1	(1)
2-3	2
4+	3

Non-Native Plants

23 – Non-native Plant Species	
<10%	1
10-33%	-1
34-66%	-2
67-100%	(-4)

Connectivity with Other Ecosystems

24 – Riparian Corridor Connected to Other PHS Polygons or Points?	
No	+0
Yes	(+2)

Abundant Food Sources

25 – Native Woody Plant Species (#)	
1-3	(1)
4-6	2
7+	3
Specify:	

Available Water

26 – Hydrological Characteristics	
Intermittent	1
Semi-permanent	2
Permanent	(3)

Moist and Moderate Microclimate

27 – Temperature Microclimate Difference?	
Yes	+2
No	(+0)
Method:	

General Observations and Wildlife Occurrences

Limited habitat function. Overgrown with Himalayan blackberry and false indigo. 100+ relic piles along shoreline, potential creosote. Animals seen: songbirds. Steeper slopes on the east side of the site, but less false indigo than the west side. Six timber dolphins on the east side.

EVALUATION SUMMARY

FISH HABITAT FUNCTIONS

FUNCTION	POSSIBLE POINTS	SCORE
Stream Flow Influence		
1 – Vegetative Cover	3	**1**
2 – Associated Wetlands	2	**0**
3 – Springs or Seeps	3	**0**
4 – Altered Hydrology	0	**0**
Influence on Water Temperature & D.O.		
5 – Canopy Cover	3	**1**
6 – Riffles	3	**0**
Ccontrol of Sedimentation		
7 – Slope/Vegetative Cover	3	**0**
8 – Vegetated Banks	3	**-2**
Control of Stream Pollution		
9 – Vegetative Cover	3	**1**
10 – Associated Wetlands	2	**0**
Contribution to Food Web		
11 – Canopy Cover	3	**1**
12 – Dominant Tree Species	3	**1**
13 – Large Woody Debris	3	**3**
Structural Stream Diversity		
14 – Large Wood Debris	3	**3**
15 – Pools	3	**0**
16 – Riffles	3	**1**
17 – Off-channel Habitat	3	**0**
18 – Fines	2	**0**
HABITAT SUBTOTAL (HS):	***48***	***10***

TERRESTRIAL WILDLIFE HABITAT FUNCTIONS

FUNCTION	POSSIBLE POINTS		SCORE
Structural Complexity			
19 – Native Woody Plant Species	3		**1**
20 – Multiple Canopy Layers	3		**1**
21 – Snags	3		**0**
22 – Downed Logs	3		**1**
Connectivity			
23 – Non-native Plant Species	1		**-4**
24 – Connection to Other PHS	2		**2**
Abundant Food Sources			
25 – Native Woody Plant Species	3		**1**
Available Water			
26 – Hydrological Characteristics	3		**3**
Moist & Mild Microclimate			
27 – Temperature/Micro. Difference	2		**0**
WILDLIFE SUBTOTAL (WS)	***23***		***5***
Total: WS X% of Riparian Area that is Vegetated	23	5 x 0.29	**1.45**
TOTAL SCORE +1 for Type 1 waters (FISH+WILDLIFE FUNCTIONS):	***72***		***11.45***

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

December 19, 2016

Ryan Lopossa, PE
City of Vancouver Public Works
Engineering Services Building
4500 SE Columbia Way
Vancouver, WA 98668-1995

RE: Terminal 1 Waterfront Development Transportation Compliance Letter

Dear Ryan,

This Transportation Compliance Letter was prepared to document the trip impacts of the Port of Vancouver's proposed Terminal 1 Waterfront Development. Pursuant to the requirements listed in City of Vancouver Ordinance M-3833 (Vancouver City Center Vision Planned Action Ordinance (VCCV PAO)) and additional scoping direction provided by City Transportation Services staff, the following elements are addressed:

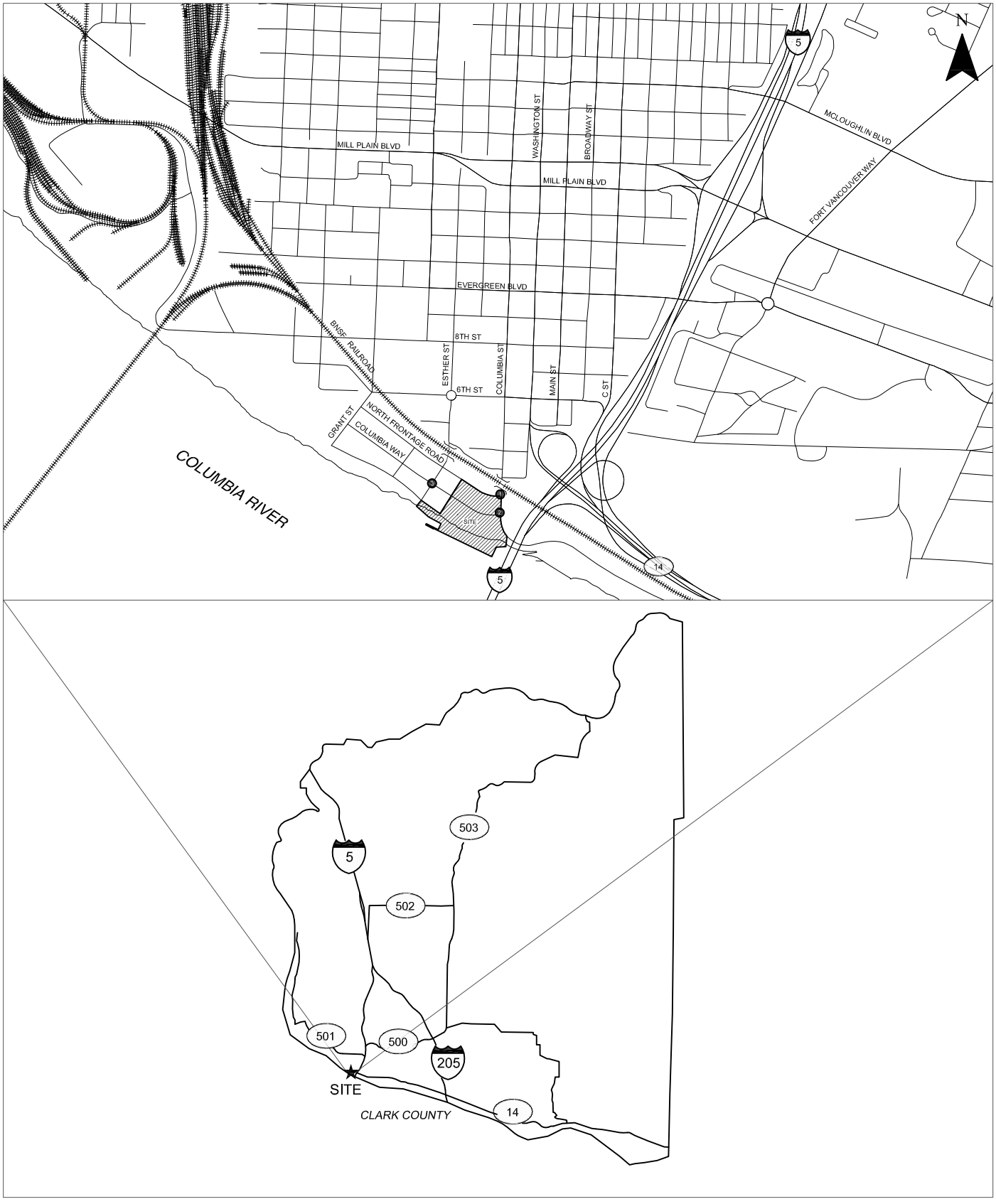
- Trip generation estimate for the project;
- Trip distribution estimate for the project;
- Concurrency corridor trip assignment;
- VCCV thresholds analysis;
- Operational assessment of study intersections; and,
- Driveway safety review.

BACKGROUND INFORMATION

The Terminal 1 Waterfront Development site is generally located between the north side of the Columbia River and the Burlington Northern Santa Fe (BNSF) Railroad, west of Columbia Street and a block east of Esther Street. This general site location is shown in Figure 1. For transportation planning purposes, the site is located within City of Vancouver Transportation Analysis Zone #20. Separate development of the master-planned project known as The Waterfront has been approved by the City at a location directly to the west of the Terminal 1 Waterfront Development site.

The property encompassing the site is currently a mix of vacant parcels, the former Red Lion Hotel and Quay Restaurant and Bar, and a two-story office building. Complete redevelopment of the site is anticipated over the next 20 years. For traffic modeling purposes, full site redevelopment was assumed to occur by the year 2035.

At this point, the specific details of the redevelopment plan are unknown. Instead, the proposed redevelopment is expected to evolve with market conditions and through more detailed site planning. Figure 2 illustrates the conceptual site plan. For purposes of this study, full site buildout was assumed



- Study Intersections

Site Vicinity
Vancouver, Washington

Figure
1

PROPOSED USES PER BLOCK

Block A - Office Mixed Use
- Ground Floor Retail
- Office
- Pedestrian Mid-block Corridor
- Parking

Block B - Office Mixed Use
- Ground Floor Retail
- Office
- Live/Work Units
- Residential; Efficiency Apartments
- Parking

Block C - Residential Mixed Use
- Ground Floor Retail
- Residential
- Parking

Block D - Hospitality
- Ground Floor Retail
- Hotel
- Restaurant
- Event Space
- Parking

Public Space
- Terminal 1
- Marketplace
- Outdoor Civic Space
- Columbia Renaissance Trail
- Maritime Use Office / Visitor's Center
- Restaurant

Conceptual plan subject to modification.

Site plan provided by NBBJ

Conceptual Site Plan
Vancouver, Washington

Figure
2

to encompass construction of multiple uses including approximately 160 hotel rooms, approximately 200,000 square feet of office space, 62,000 square feet of ground floor retail space, an "open air" market with 36,600 square feet of retail space, and up to 355 apartments. Parking for the anticipated uses is expected to be accommodated via on-site parking structures located north of Columbia Way, a parking garage at the hotel, as well as through on-street parking.

TRIP GENERATION ESTIMATE

Estimates of daily and weekday AM and PM peak hour vehicle trip ends for the conceptual plan were prepared using trip rates from the standard reference manual, *Trip Generation, 9th Edition*, published by the Institute of Transportation Engineers (Reference 1). Table 1 shows trips from now-vacant former land uses on the site, as well as the estimated trip generation for the conceptual plan. Daily trips were rounded to the nearest even number. Note that while Table 1 shows trip estimates for the former site land uses (buildings are currently still in place but not in use), the trips are only considered vested for VCCV accounting and traffic impact fee purposes[1]. No internal or transit-based trip reductions were assumed for the former uses as they effectively operated stand-alone and had no transit service.

Given that the site is located in Downtown Vancouver, where transit availability is more prevalent than other locations in the city, and that there are multiple employment centers within a reasonable walking distance, a 20 percent transit/mobility reduction factor has been applied to the proposed hotel and office trip estimates and a 40 percent transit/mobility reduction factor has been applied to the retail and apartment trip estimates. These reductions are consistent with other development projects in the downtown area and VCCV transportation modeling (refer to Appendix A for additional documentation/considerations related to internal and transit trip reductions). Note also that no pass-by trips were assumed for the retail commercial uses on site given the project location and aforementioned transit/internal trip reductions.

[1] The former Red Lion site hotel and Columbia Business Center space were generally vacant or experiencing limited use when traffic counts were obtained for this study. Consequently, no credit was assumed for existing site trips for traffic operations analysis purposes. Traffic impact fee credits and VCCV debiting credit should be available for the former site uses as allowed by City of Vancouver code and considering the buildings were in use when the VCCV traffic analysis was prepared.

Table 1: Trip Generation Estimate

Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Former Site Trips (Existing Buildings to be Removed)									
General Office (Columbia Business Center)	710	8,000 sq. ft	88	12	11	1	12	2	10
Hotel (Red Lion)	310	160 rooms	1,308	85	50	35	96	49	47
Total Existing Trips			1,396	97	61	36	108	51	57
Proposed Uses									
General Office	710	200,000 sq. ft.	2,206	312	275	37	298	51	247
Central City Transit/Internal Reduction (20%)			*(442)*	*(62)*	*(55)*	*(7)*	*(60)*	*(10)*	*(50)*
Specialty Retail	826	36,600 sq. ft.	1,622	37	23	14	99	44	55
Central City Transit/Internal Reduction (40%)			*(648)*	*(15)*	*(9)*	*(6)*	*(40)*	*(18)*	*(22)*
Retail	820	62,000 sq. ft.	2,648	60	37	23	230	110	120
Central City Transit/Internal Reduction (40%)			*(1,060)*	*(24)*	*(15)*	*(9)*	*(92)*	*(44)*	*(48)*
Hotel	310	166 rooms	1,356	88	52	36	100	51	49
Central City Transit/Internal Reduction (20%)			*(272)*	*(18)*	*(10)*	*(8)*	*(20)*	*(10)*	*(10)*
Apartments	220	355 units	2,360	181	36	145	220	143	77
Central City Transit/Internal Reduction (40%)			*(944)*	*(72)*	*(14)*	*(58)*	*(88)*	*(57)*	*(31)*
Total Proposed Trips			10,192	678	423	255	947	399	548
Total Central City Transit/Internal Reduction			*(3,366)*	*(191)*	*(103)*	*(88)*	*(300)*	*(139)*	*(161)*
Total Net Proposed Trips (Total Trips-Reductions)			**6,826**	**487**	**320**	**167**	**647**	**260**	**387**
Total Net Proposed Trips – Total Former Site Trips			**5,430**	**390**	**259**	**131**	**539**	**209**	**330**

TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution pattern for the proposed development is outlined in the November 2006 *VCCV Subarea Plan Final Supplemental Environmental Impact Statement* (FSEIS) page 2-9 (Reference 2) and is shown in Exhibit 1. Based on a distribution pattern derived from this exhibit, Table 2 summarizes the total number of weekday PM peak hour trips entering each of the City's adopted concurrency corridors (note that no trip credits for the former site used were assumed in Table 2). Assigned trips were recorded counting trips only once along each of the specified corridors.

Exhibit 1 - VCCB FSEIS Trip Distribution Pattern

Table 2. Concurrency Corridor Weekday PM Peak Hour Trip Assignment

Corridor Name	Corridor Limit	PM Peak Trips to Corridor
Mill Plain Blvd.	Fourth Plain to I-5	30
	I-5 to Andresen	49
	Andresen to I-205	0
	I-205 to 136th Ave.	0
	136th Ave. to 164th Ave.	0
	164th Ave. to 192nd Ave.	0
I-5	Mill Plain to SR 500	143
St. Johns / Ft. Van Way	Mill Plain to 63rd St.	5
Fourth Plain Blvd.	Mill Plain to I-5	0
	I-5 to Andresen	28
	Andresen to I-205	0
	I-205 to 162nd Ave.	0
Andresen Road	Mill Plain to SR500	0
	SR500 to 78th St.	0
112th Avenue	Mill Plain to 28th St.	0
	28th St. to 51st St.	0
164th/162nd Avenue	SR14 to SE 1st St.	19
	SE 1st St. to Fourth Plain	0
Burton Road / 28th Street	18th St. to 112th Ave.	0
	112th Ave. to 138th Ave.	0
	138th Ave. to 162nd Ave.	0
18th Street	112th Ave. to 138th Ave.	0
	138th Ave. to 164th Ave.	0
136th/137th Avenue	Mill Plain to 28th St.	0
	28th St. to Fourth Plain	0
192nd Avenue	SR14 to NE 18th St.	11

Intersections Impacted By 10 or More PM Peak Hour Trips

Based on the estimated trip generation and distribution associated with the conceptual plan, key intersections impacted by ten or more weekday PM peak hour site-generated trips include:

- Esther Street/6th Street
- Esther Street/Columbia Way
- Columbia Street/Columbia Way
- Columbia Street/5th Street
- Washington Street/5th Street
- Columbia Street/6th Street
- Washington Street/6th Street
- Columbia Street/Evergreen Boulevard
- Washington Street/Evergreen Boulevard
- Columbia Street/Mill Plain Boulevard
- Columbia Street/E 15th Street
- Washington Street/Mill Plain Boulevard
- Washington Street/E 15th Street
- I-5/Mill Plain Boulevard Southbound Ramp
- I-5/Mill Plain Boulevard Northbound Ramp
- SE 192nd Avenue/SR 14

VCCV THRESHOLDS ANALYSIS

City of Vancouver Ordinance M-3833 (page 24) references a total threshold of 6,610 weekday PM peak hour trips anticipated within the VCCV subarea as shown in the Supplemental Environmental Impact Statement (SEIS). All projects within the VCCV area are required to demonstrate compliance with this 6,610-trip threshold. The 6,610-trip estimate does not include the 20 percent internal/transit trip reduction; therefore, the actual number of net new trips assumed within the VCCV FEIS is 5,288. While the former Red Lion and Columbia Business Center site trips were not factored into the traffic operations analysis, they are factored into the VCCV threshold analysis. Table 3 provides an accounting of known trips allocated within the VCCV area as of the time of the Terminal 1 Waterfront Development development application[2].

Table 3: Allocated Trips within VCCV Area

Land Use	Weekday PM Peak Hour Trips Used	VCCV Trips Remaining for Allocation
Initial VCCV Trip Bank	+5,288	5,288
Riverwest Development Agreement (6/29/2007)	-329	4,959
Prestige Plaza Development Agreement (3/17/2008)	-144	4,815
Columbia Waterfront Certificate of Concurrency (10/19/2009)	-2,391	2,424
Source Rock Climbing Gym Certificate of Concurrency)	0	2,424
Add Back Prestige Plaza Development Agreement Trips	+144	2,568
Add Back Current Prestige Plaza Site Trip Generation (Burgerville)	+28	2,596
Less July 2011 Prestige Plaza Land Use Application	-70	2,526
West Pointe Apartments	-59	2,467
Lincoln Place Apartments	-19	2,448
The Uptown	0	2,448
13 West Apartments	-46	2,402
West Esther Apartments	-71	2,331
Our Heros Place	-38	2,293
VW 1 Apartments	-10	2,283
VW 2 Apartments	-30	2,253
VW 3 Apartments	-22	2,231
Terminal 1 Waterfront Development	*-539*	*1,692*
Trips Remaining in VCCV Account		**1,692*

*Estimated – City of Vancouver will provide final accounting documenting other applications that may have been approved in the interim.

[2] Discussions with City Public Works staff confirmed that City will review this listing to confirm available trips as well as other trip requests that may have been separately filed.

STUDY INTERSECTION OPERATIONS

This section provides an overview of operations at the study area intersections under existing conditions, as well as under future forecast background and total traffic conditions. Both weekday AM and PM peak hour operations were analyzed.

Based on scoping direction provided by City of Vancouver Transportation Services staff, an operations analysis was prepared for three key study area intersections assuming buildout of the Terminal 1 Waterfront Development in the future year 2035. The intersection analysis focused on future year conditions. The study intersections include:

- Northern Frontage Road/Columbia Street
- SE Columbia Way/Columbia Street
- SE Columbia Way/Esther Street

Levels of Service

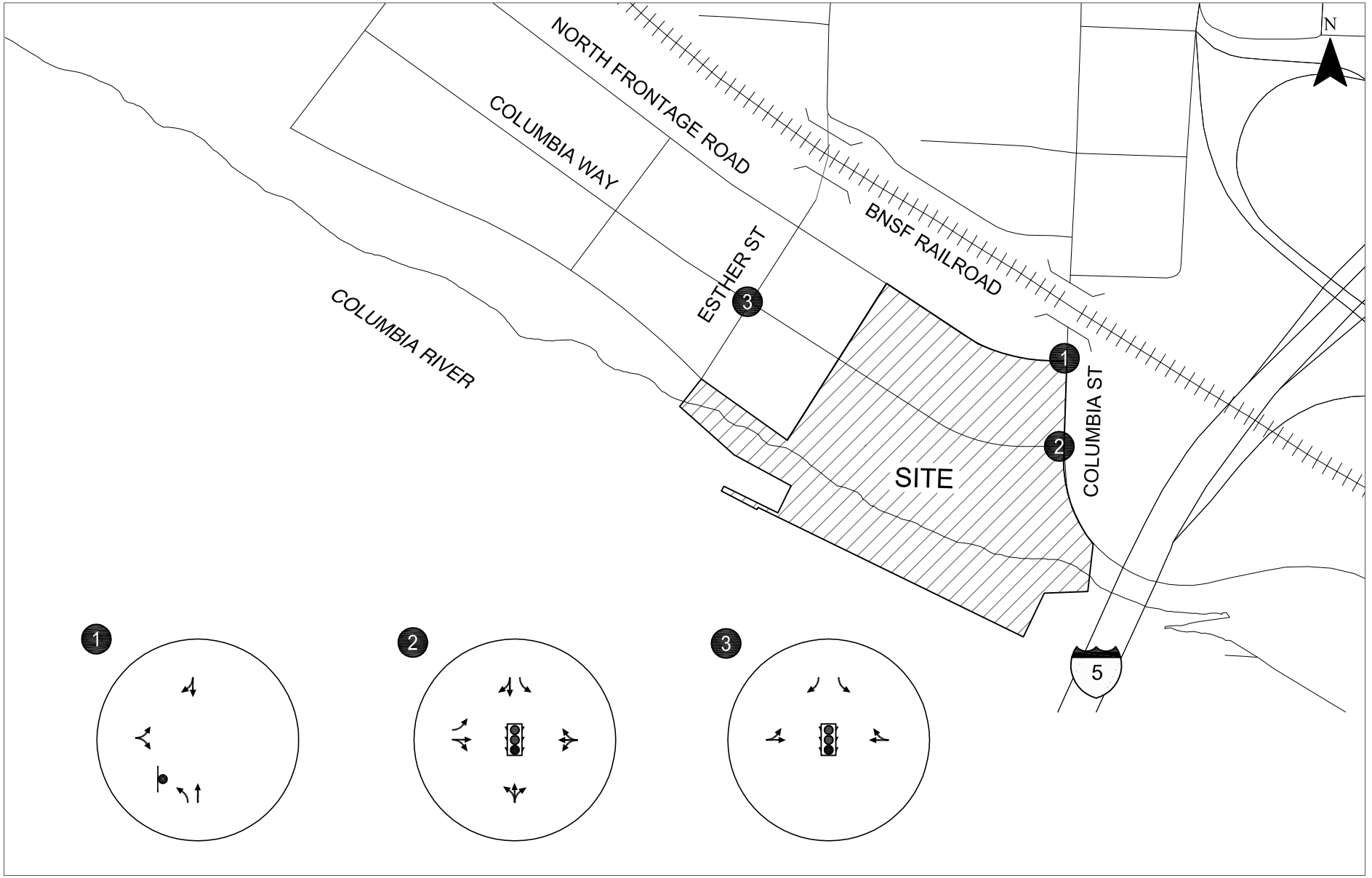
All level-of-service analyses described in this report were performed in accordance with the procedures stated in the 2010 *Highway Capacity Manual* (Reference 3). The peak 15-minute flow rate was used in the evaluation of all intersection levels of service to ensure that this analysis was based on a reasonable worst-case scenario. For this reason, the analyses reflect conditions that are only likely to occur for 15 minutes out of each average peak hour. Traffic conditions during all other weekday hours will likely operate under better conditions than those described in this report.

Vancouver Municipal Code (VMC) Section 11.80.130B requires signalized intersections under City jurisdiction to maintain LOS "E" and a v/c ratio less than 0.95[3]. Unsignalized intersections must maintain a v/c ratio less than 0.95 for any lane on any approach.

Existing Traffic Conditions

Weekday morning and evening peak hour turning movement counts were conducted at the study intersections in November 2015 between 7:00 and 9:00 AM and 4:00 and 6:00 PM. Figure 3 illustrates the assumed lane configurations and traffic control devices while Figure 4 illustrates the intersection operations analysis results. As shown in Figure 4, the intersections were all found to operate at level-of-service "A" thereby meeting city standards. Appendix B contains the traffic count sheets used in this study. Appendix C contains the traffic analysis worksheets.

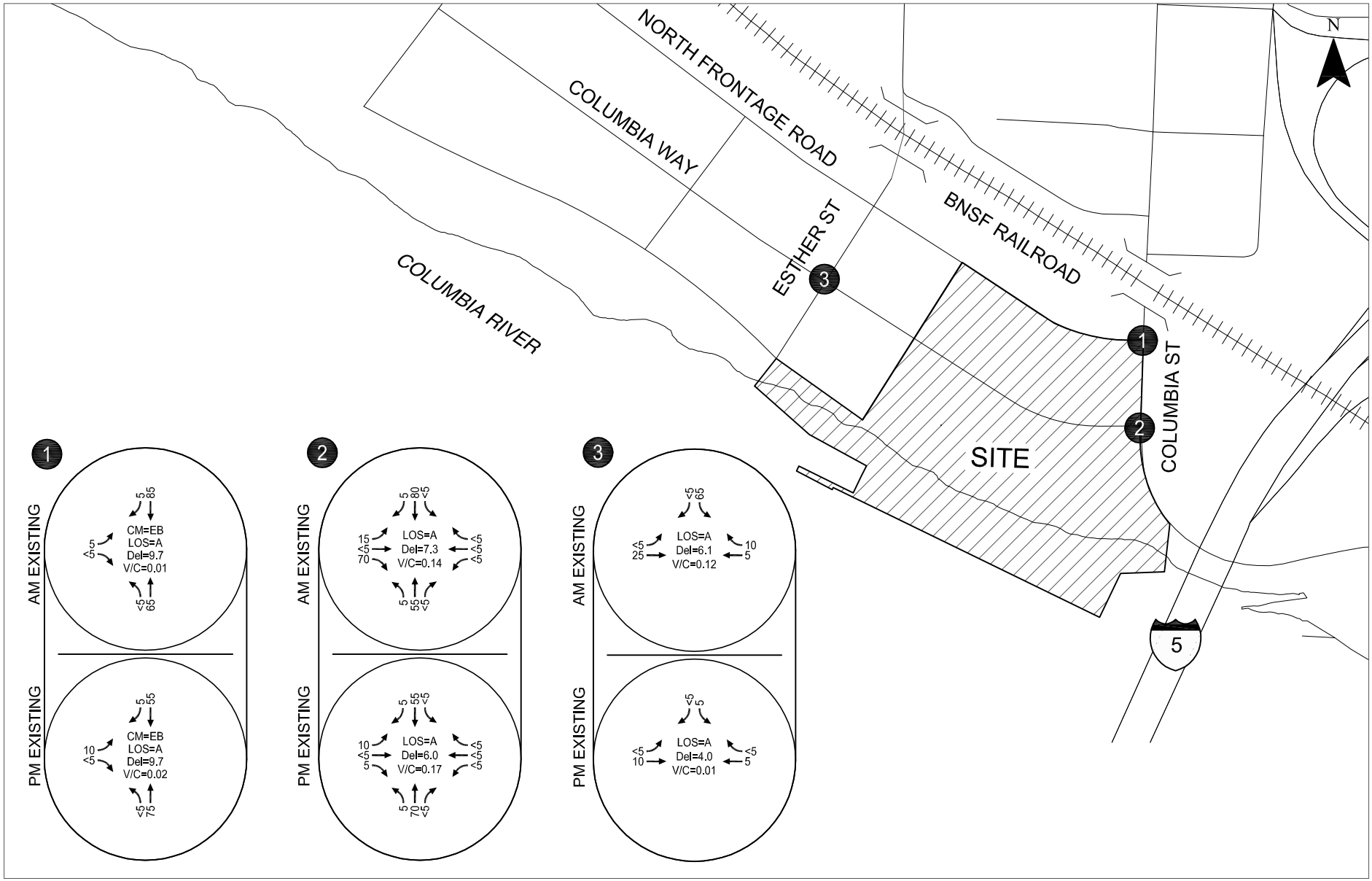
[3] This standard is not applicable when a proposed development adds at four or less new peak hour trips to an intersection approach operating at LOS "E" or "F".



- STOP SIGN
- TRAFFIC SIGNAL

Existing Lane Configuration & Traffic Control Devices Vancouver, Washington

Figure **3**



CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED) / CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED) / CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2015 Existing Traffic Conditions
Weekday Peak Hours
Vancouver, Washington

Figure **4**

2035 Background Traffic Conditions

The background traffic analysis identifies how the study area's transportation system will operate assuming full site occupancy in the year 2035. This analysis includes traffic growth due to development within the study area and from general growth in the region, but does not include traffic from the proposed site re-development. Year 2035 background traffic volumes were adjusted by applying a five percent annual growth rate to the existing 2015 traffic volumes per City staff direction and adding in in-process trips associated with the approved Columbia Waterfront Master Plan. Further, turn movements at the Northern Frontage Road/Columbia Street intersection were assumed to be limited to right-turns only and eastbound left-turns were re-routed to the signalized SE Columbia Way/Columbia Street intersection. As indicated in Figure 5, each of the study intersections is projected to operate acceptably during both peak periods under 2035 background traffic conditions.

2035 Total Traffic Conditions

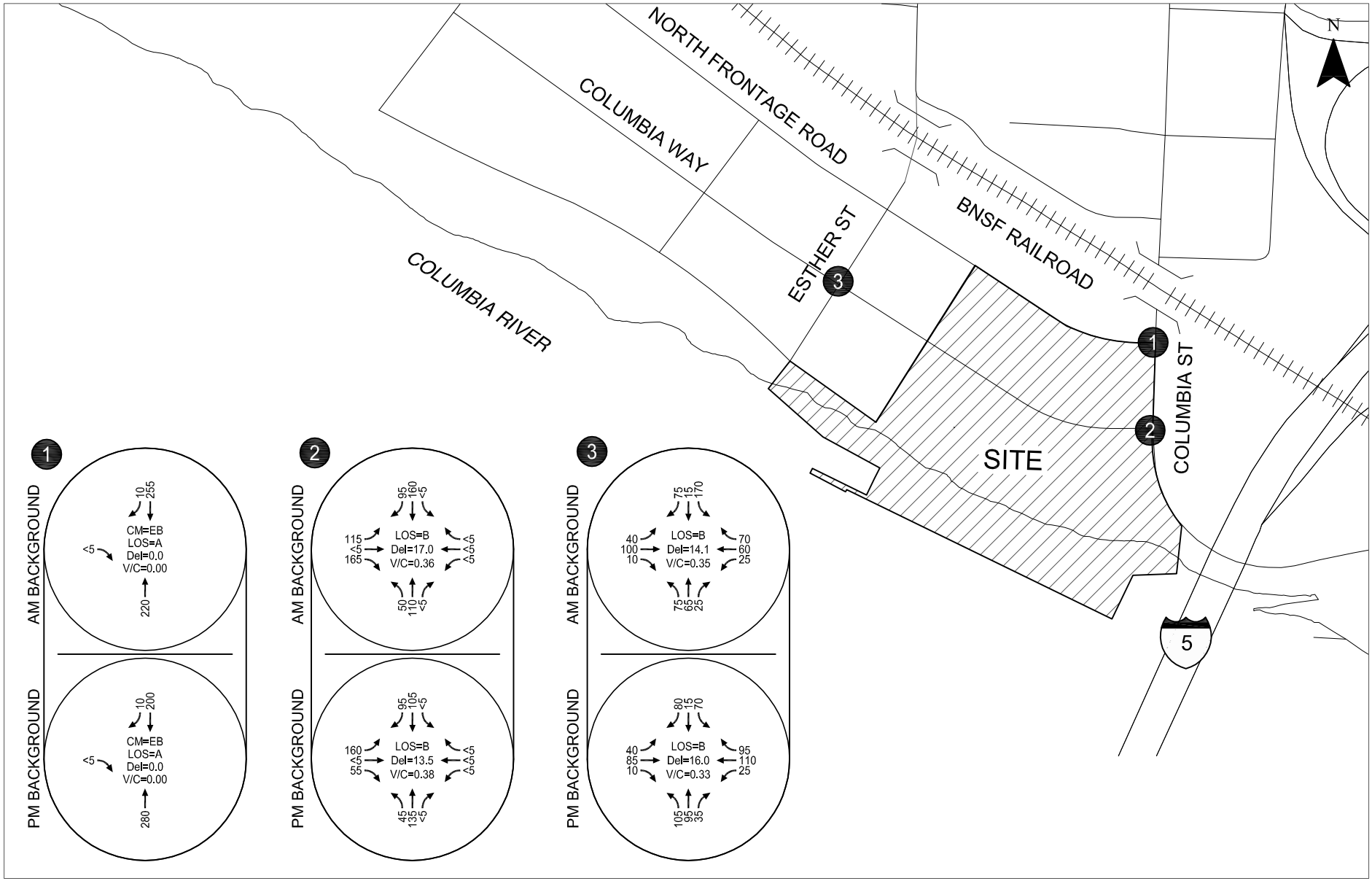
The year 2035 total traffic analysis forecasts how the study area's transportation system will operate with the inclusion of traffic from the proposed site redevelopment. The year 2035 background traffic volumes for the weekday AM and PM peak hours were added to the site-generated traffic to arrive at the total traffic volumes. As indicated in Figure 6, the operations analysis determined that all of the study intersections are projected to continue to operate acceptably with the proposed site development fully occupied. No additional capacity-based mitigations were identified for the study intersections.

CRASH DATA REVIEW

The crash history of an intersection is generally reviewed in an effort to identify potential intersection safety deficiencies. At the time this report was prepared, the SE Columbia Way/Columbia Street and SE Columbia Way/Esther Street study area intersections had only recently opened to public traffic after construction of Columbia Way. Further, the Northern Frontage Road/Columbia Street will be reconstructed with the proposed site development. As such, no crash data was available for review.

DRIVEWAY SAFETY REVIEW

The evaluation of site driveway safety and operations will be completed at the time of site plan application when more detailed site plan and roadway design elements are prepared. There is not sufficient site plan application level of detail available at this time to complete the review elements required by City of Vancouver Ordinance M-3833 Section 10.1.



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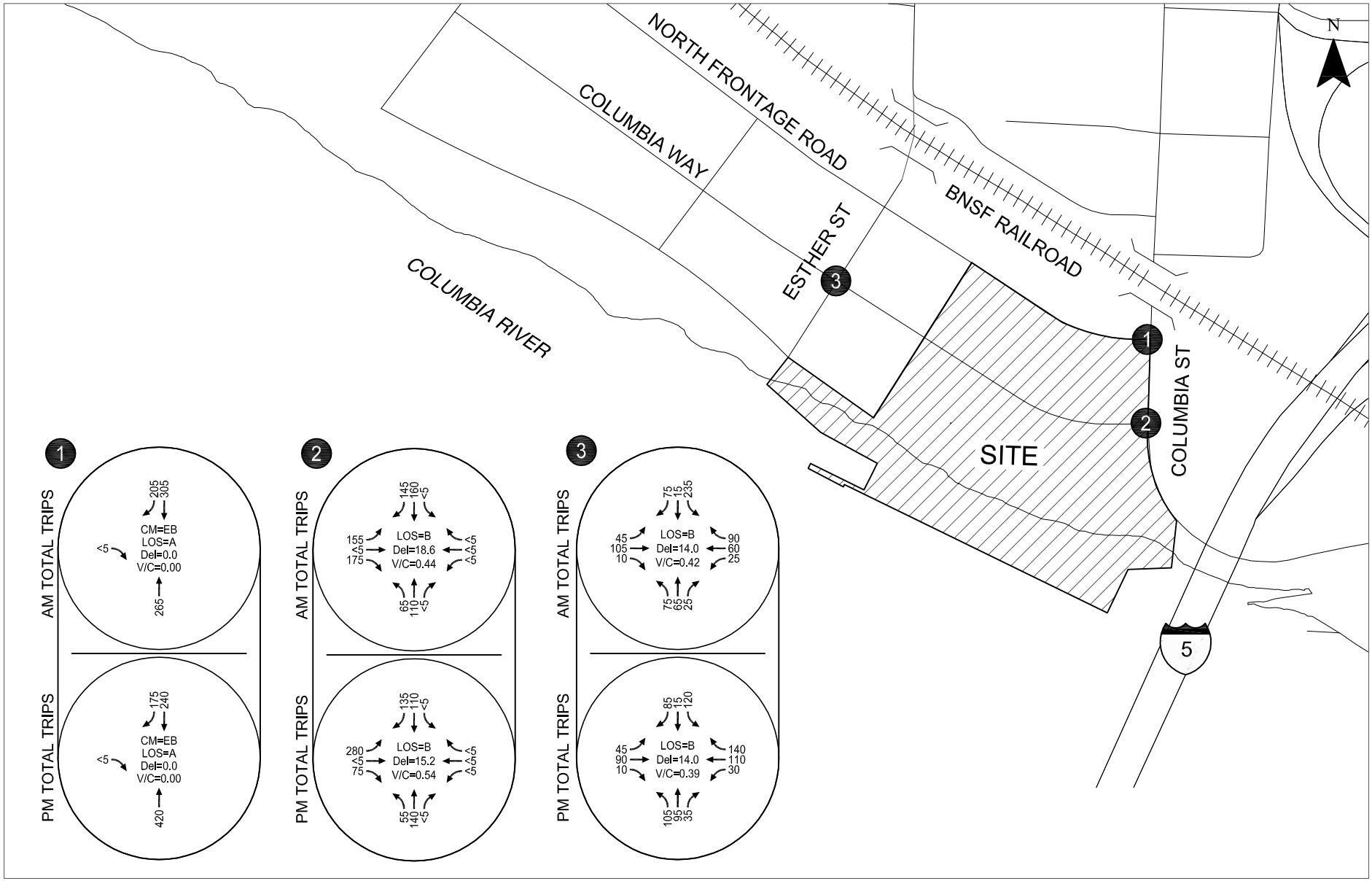
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2035 Background Traffic Conditions
Weekday Peak Hours
Vancouver, Washington

Figure **5**



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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2035 Total Traffic Conditions
Weekday Peak Hours
Vancouver, Washington

Figure **6**

FINDINGS AND RECOMMENDATIONS

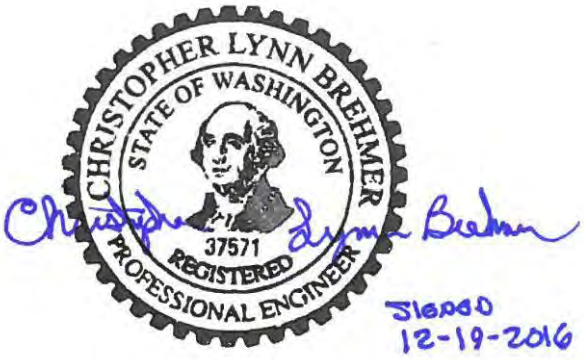
Based on the results of the transportation impact analysis, the proposed Terminal 1 Waterfront Development can be developed while maintaining acceptable levels of service and safety on the surrounding transportation system. The primary findings and recommendations of this study are summarized below.

- The land uses identified in the proposed conceptual plan are estimated to generate a total of 6,826 net new daily trips including 487 net new trips during the weekday AM peak hour (320 entering and 167 exiting) and 647 net new trips (260 entering, 387 exiting) during the weekday PM peak hour.
- There are sufficient PM peak hour trips remaining within the VCCV allocation to accommodate the proposed conceptual plan as well as future development within the VCCV subarea.
- The study area intersections were all forecast to operate acceptably through the year 2035, and no capacity-based mitigation needs were identified.
- Landscaping, signage, on-street parking and utilities should be located in a way that City sight distance standards are met at each driveway. Further, any new landscaping, signage or above-ground utilities along the site frontages should be installed and maintained to ensure they do not interfere with the vision clearance triangles.
- Future evaluation of site driveway safety and operations should be completed at the time of site plan application when more detailed site plan and roadway design elements are prepared.

We trust this letter adequately addresses the traffic impacts associated with the proposed Terminal 1 Waterfront Development. Please contact us if you have any questions.

Sincerely,
KITTELSON & ASSOCIATES, INC.

Chris Brehmer, P.E.
Principal Engineer



REFERENCES

1. Institute of Transportation Engineers. *Trip Generation, 9th Edition*. 2012.
2. VCCV Subarea Plan Final Supplemental Environmental Impact Statement, Appendix C. 2006.
3. Transportation Research Board. *2010 Highway Capacity Manual.* 2010.

ATTACHMENTS

Appendix A - Internal Trip Considerations

Appendix B - Traffic Counts

Appendix C - Traffic Analysis Worksheets

Appendix A Internal Trip Considerations

INTERNAL TRIP CONSIDERATIONS

Potential internal trip reductions to be used for estimating trips at Terminal 1 Waterfront Development were evaluated considering both the context offered by VCCV Documentation, the context of the project with respect to adjacent development to the west (The Waterfront), and the programmatic uses anticipated at Terminal 1 Waterfront Development. Specific factors considered are documented below and include:

- VCCV FEIS Internal/Transit Trip Reduction Factor information,
- South Waterfront District Transportation Improvements Evaluation Findings, and
- Emerging Trip Generation Research.

VCCV FEIS Internal/Transit Trip Reduction Factor

The transportation element of the *Vancouver City Center Vision Final Environmental Impact Statement* (VCCV FEIS) contains extensive documentation of potential internal/transit reductions. Key points include:

- The DKS Associates October 2006 Downtown Vancouver Traffic Analysis:
  - Documents research indicating the potential internal capture rate would be approximately 20 percent for a downtown area *and* that there could also be a potential for mode shift (transit) of 20 percent for a downtown environment (40% total reduction).
  - Further reports "DKS Associates conducted a trip generation study for two office and two residential (one owned and one rental) land use sites in the downtown Bellevue Washington area to establish trips generation rates to compare to ITE calculated rates on comparable sizes. Bellevue was selected as an area that would be representative of the type of density and amenities that Vancouver Washington projects would represent. Research indicated that a reduction in calculated trip generation could occur within the range of 20-40 percent because of the density of surrounding uses. This would include both an internal capture rate and mode shift. As a worst case scenario, the 20 percent was selected and was divided evenly between internal capture rate and mode shift. The technical appendix contains the research data."
- Reviewing the actual traffic counts and trip generation projections contained in the DKS report's technical appendix, the following actual trip reductions were recorded in Bellevue during the weekday PM peak hour after adjusting for actual building occupancy:

Location	Size	Percent Occupied	Percent Trip Reduction Compared to ITE
Plaza East Office Building	148,452 square feet	88%	40%
Main Street Office Building	38,729 square feet	100%	64%
Villa Firenza Residential	30 owned units	99%	71%
Sir Gallahad Apartments	127 units	98%	80%

- To ensure a conservative analysis across the VCCV area, the 20 percent internal capture and 20 percent transit reductions were not applied in calculating the trip generation. Instead, 10 percent reductions each were assumed for internal capture and transit, resulting in a net 20 percent reduction.

South Waterfront District Transportation Improvements Evaluation Findings (Portland, Oregon)

The South Waterfront project, now partially developed with construction on-going, was to include a mix of office/administrative towers, ground floor retail uses, apartments and condominiums, parking garages, a hotel, and other supporting land uses. Oregon Health Sciences University was expected to have administrative offices, research facilities, and labs within the project. While not identical to the Columbia Waterfront area, the South Waterfront transportation system was also constrained by a limited number of access points (Willamette River on one side and Interstate 5 on the other, with a limited number of access points to city streets). Of particular note to the Columbia Waterfront project, review of the Portland Waterfront project found:

- Planning studies prepared by the City of Portland indicated that the site trip generation estimate for traffic study purposes should be prepared assuming a 30 percent overall reduction for non-auto travel, with a 40 percent reduction assumed for home-based work trips, and travel patterns unique to the district.
- To ensure a conservative traffic analysis, a 30 percent mode split was assumed at full buildout of the district and an eight (8) percent reduction was made for internal trips. The net reduction for the area was 38 percent.
- Post-development experience with initial buildout of the South Waterfront indicates that the actual number of vehicular trips is lower than amount predicted assuming the traffic study's 38 percent reduction (meaning the 38 percent reduction was low, the actual reduction is higher). These high rates of non-SOV travel are being achieved prior to all of the infrastructure being in-place and prior to a true mixture of uses established in the district. Once increases in transit service (both bus and light rail) are implemented and the district matures, it is likely that even higher rates of internalization and mode split will occur.

Emerging Research

Multiple research projects are underway seeking a better understanding of trip generation in mixed-use developments and downtown environments. Two local research efforts have made findings that are applicable to urban environments and particularly to high-density mixed use developments such as the proposed Terminal 1 Waterfront Development.

Trip generation studies of apartment projects in the City of Portland, Oregon urban core have demonstrated markedly lower trip rates than the standard apartment trip rate in *Trip Generation*. An April 2015 report to the City of Portland Bureau of Transportation titled *Alternative Trip Generation Rates for Urban Residential Developments* (prepared by Kittelson & Associates, Inc.) presents the results of a comprehensive trip generation study performed regarding the trip characteristics of apartments and condominiums in the Portland Central City and Northwest District. This report documents that multi-family residential in these areas generate 2.23 daily vehicle trips per unit as compared to 6.65 trips per unit predicted by the rates cited in *Trip Generation*, as published by the Institute of Transportation Engineers (2012), a nearly 2/3 reduction of the ITE trip rates.

Case studies of Transit Oriented Development in Portland, Oregon prepared by PB Placemaking indicate 24-hour traffic volumes that are on average 40 percent lower than those estimated using ITE *Trip Generation* rates.

Considered in conjunction with the Bellevue, Washington data collected for the VCCV FEIS, the above data offers additional credence to making a large reduction to the base ITE *Trip Generation* trip rates in order to appropriately estimate impacts in a downtown urban environment.

Internal Trip Summary

Despite empirical evidence that would support more aggressive mode split and internalization, the VCCV conservatively assumed a 20 percent combined reduction in the downtown area. Intuitively, one would expect a comparatively higher reduction in site trip generation near the higher-density waterfront area and a comparatively lower reduction in site trip generation in peripheral areas to the north of downtown. Thus, on balance, use of a 20 percent internal trip reduction for the full VCCV area was reasonable, though conservative.

Documentation offered within the VCCV, the experience of the Portland South Waterfront, and actual trip data collected in Washington and Oregon (DKS study in a Bellevue, Washington, Kittelson & Associates, Inc. and PB Placemaking studies in Portland, Oregon) downtown settings indicates that a combined internal/mode split reduction could easily exceed 40 percent within the comparatively high-density Columbia Waterfront and Terminal 1 Waterfront Development Master Plan areas.

Note further that the approved Columbia Waterfront Master Plan reflects considerably more density than that assumed in the VCCV FEIS work. As density increases, the number of trips per unit of building size should decrease (reflecting a true integrated downtown, as opposed to the stand-alone suburban

land uses that the *Trip Generation* data is based on). Given these considerations, the trip generation estimates and traffic analysis for the Terminal 1 Waterfront Development shown in Table 1 were based on a combined internal and mode split reduction. The assumed reduction values in Table 1 for apartments remain lower than what was measured in Bellevue, Washington and Portland, Oregon and are likely less than what will actually be realized as the Terminal 1 Waterfront Development and Columbia Waterfront area builds out, particularly if high capacity transit service is someday realized in downtown Vancouver.

Appendix B Traffic Counts

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

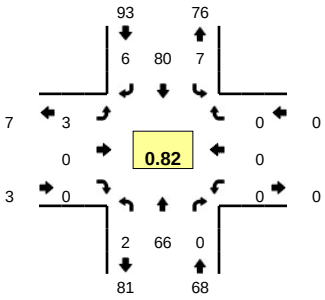
LOCATION: Columbia St -- Columbia Way (north)

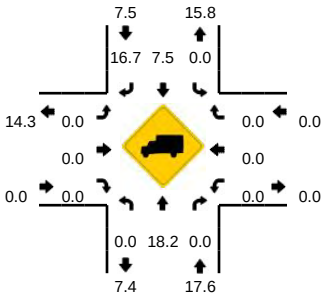
QC JOB #: 13648105

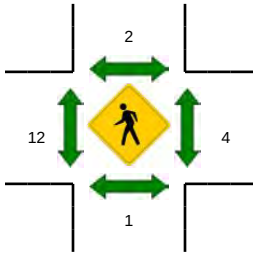
CITY/STATE: Vancouver, WA

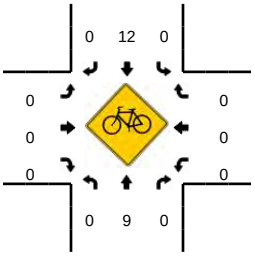
DATE: Wed, Nov 18 2015

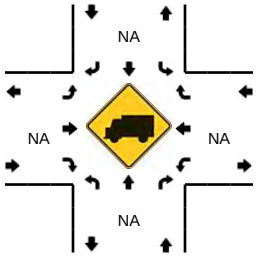
Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

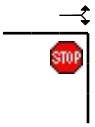


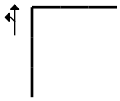


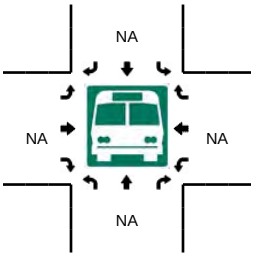












5-Min Count Period Beginning At	Columbia St (Northbound)				Columbia St (Southbound)				Columbia Way (north) (Eastbound)				Columbia Way (north) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	5	0	0	0	12	0	0	0	0	0	0	0	0	0	0	17	
7:05 AM	0	5	0	0	0	5	2	0	0	0	0	0	0	0	0	0	12	
7:10 AM	0	8	0	0	0	7	1	0	0	0	0	0	0	0	0	0	16	
7:15 AM	0	5	0	0	0	8	0	0	0	0	0	0	0	0	0	0	13	
7:20 AM	0	9	0	0	0	5	0	0	0	0	0	0	0	0	0	0	14	
7:25 AM	0	5	0	0	0	4	1	0	0	0	0	0	0	0	0	0	10	
7:30 AM	0	3	0	0	0	10	0	0	2	0	0	0	0	0	0	0	15	
7:35 AM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9	
7:40 AM	0	1	0	0	0	5	0	0	1	0	0	0	0	0	0	0	7	
7:45 AM	0	7	0	0	0	5	2	0	0	0	0	0	0	0	0	0	14	
7:50 AM	0	7	0	0	0	9	0	0	0	0	0	0	0	0	0	0	16	
7:55 AM	0	6	0	1	0	3	1	2	0	0	0	0	0	0	0	0	13	156
8:00 AM	1	7	0	0	0	7	1	1	0	0	0	0	0	0	0	0	17	156
8:05 AM	0	4	0	0	0	12	0	4	0	0	0	0	0	0	0	0	20	164
8:10 AM	1	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	8	156
8:15 AM	0	10	0	0	0	8	2	0	0	0	0	0	0	0	0	0	20	163
8:20 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4	153
8:25 AM	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7	150
8:30 AM	0	10	0	0	0	7	0	0	0	0	0	0	0	0	0	0	17	152
8:35 AM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9	152
8:40 AM	0	7	0	0	0	3	0	0	0	0	0	0	0	0	0	0	10	155
8:45 AM	0	5	0	0	0	1	1	0	0	0	0	0	0	0	0	0	7	148
8:50 AM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	143
8:55 AM	0	9	0	0	0	4	0	0	0	0	0	0	0	0	0	0	13	143

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	68	0	4	0	88	8	28	0	0	0	0	0	0	0	0	200
Heavy Trucks	0	16	0		0	12	0		0	0	0		0	0	0		28
Pedestrians		0				0				20				4			24
Bicycles	0	3	0		0	2	0		0	0	0		0	0	0		5
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/24/2015 2:24 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Columbia St -- Columbia Way (north)

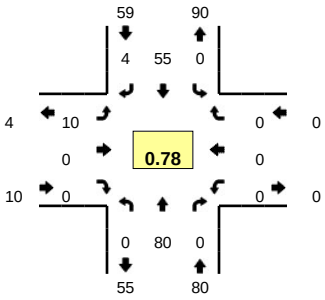
QC JOB #: 13648106

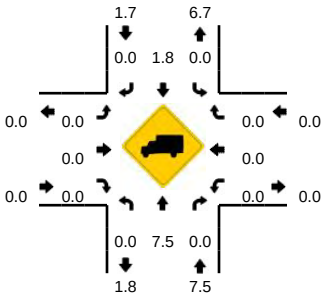
CITY/STATE: Vancouver, WA

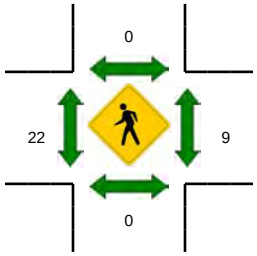
DATE: Wed, Nov 18 2015

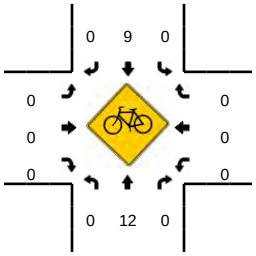
Peak-Hour: 4:35 PM -- 5:35 PM

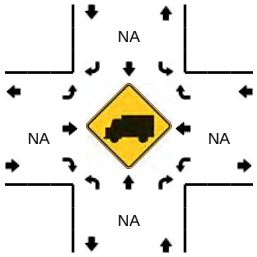
Peak 15-Min: 5:10 PM -- 5:25 PM

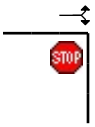


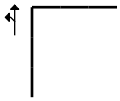


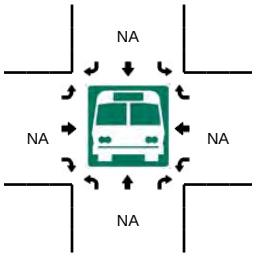












5-Min Count Period Beginning At	Columbia St (Northbound)				Columbia St (Southbound)				Columbia Way (north) (Eastbound)				Columbia Way (north) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	0	0	0	6	0	0	1	0	0	0	0	0	0	0	8	
4:05 PM	1	4	0	0	0	0	1	0	1	0	0	0	0	0	0	0	7	
4:10 PM	0	7	0	0	0	9	0	0	1	0	0	0	0	0	0	0	17	
4:15 PM	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	7	
4:20 PM	0	4	0	0	0	9	0	0	0	0	0	0	0	0	0	0	13	
4:25 PM	0	5	0	0	0	3	1	0	0	0	0	0	0	0	0	0	9	
4:30 PM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8	
4:35 PM	0	6	0	0	0	5	0	0	1	0	0	0	0	0	0	0	12	
4:40 PM	0	5	0	0	0	5	2	0	0	0	0	0	0	0	0	0	12	
4:45 PM	0	8	0	0	0	5	0	0	1	0	0	0	0	0	0	0	14	
4:50 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	
4:55 PM	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9	121
5:00 PM	0	7	0	0	0	2	1	0	1	0	0	0	0	0	0	0	11	124
5:05 PM	0	7	0	0	0	6	0	0	1	0	0	0	0	0	0	0	14	131
5:10 PM	0	8	0	0	0	2	1	0	6	0	0	0	0	0	0	0	17	131
5:15 PM	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	16	140
5:20 PM	0	7	0	0	0	8	0	0	0	0	0	0	0	0	0	0	15	142
5:25 PM	0	9	0	0	0	6	0	0	0	0	0	0	0	0	0	0	15	148
5:30 PM	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9	149
5:35 PM	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6	143
5:40 PM	0	3	0	0	0	7	0	0	0	0	0	0	0	0	0	0	10	141
5:45 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	130
5:50 PM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	10	135
5:55 PM	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9	135

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	92	0	0	0	72	4	0	24	0	0	0	0	0	0	0	192
Heavy Trucks	0	8	0		0	0	0		0	0	0		0	0	0		8
Pedestrians		0				0				16				16			32
Bicycles	0	5	0		0	3	0		0	0	0		0	0	0		8
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/24/2015 2:24 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

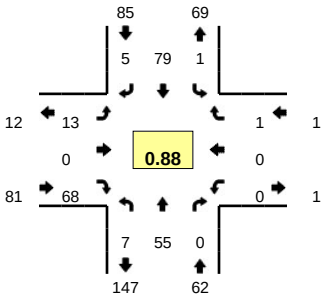
Type of peak hour being reported: Intersection Peak

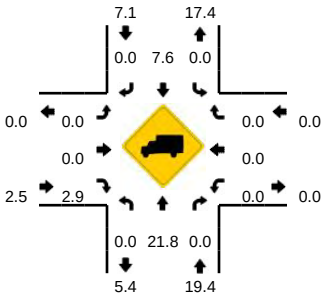
Method for determining peak hour: Total Entering Volume

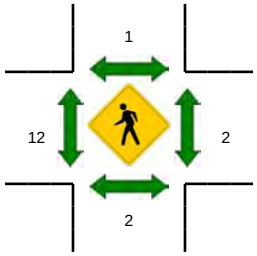
LOCATION: Columbia St -- Columbia Way (south)
CITY/STATE: Vancouver, WA

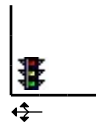
QC JOB #: 13648103
DATE: Wed, Nov 18 2015

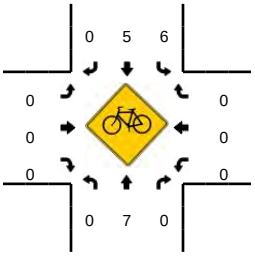
Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

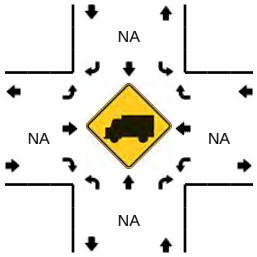


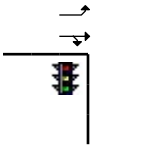


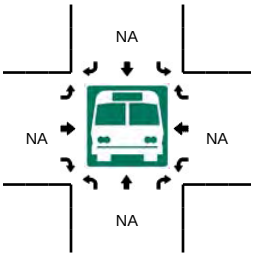












5-Min Count Period Beginning At	Columbia St (Northbound)				Columbia St (Southbound)				Columbia Way (south) (Eastbound)				Columbia Way (south) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	0	0	0	12	1	0	1	0	1	0	0	0	0	0	18	
7:05 AM	0	5	0	0	0	3	1	0	0	0	1	0	0	0	0	0	10	
7:10 AM	1	8	0	0	0	7	0	0	1	0	1	0	0	0	0	0	18	
7:15 AM	0	2	0	0	0	8	0	0	2	0	6	0	0	0	0	0	18	
7:20 AM	0	8	0	0	0	5	0	0	1	0	4	0	0	0	0	0	18	
7:25 AM	2	2	0	0	0	4	0	0	3	0	6	0	0	0	0	0	17	
7:30 AM	0	4	0	0	0	11	0	0	1	0	4	0	0	0	0	0	20	
7:35 AM	1	2	0	0	0	4	0	0	0	0	4	0	0	0	0	0	11	
7:40 AM	1	2	0	0	0	5	0	0	0	0	8	0	0	0	0	0	16	
7:45 AM	0	6	0	0	0	9	0	0	1	0	6	0	0	0	0	0	22	
7:50 AM	0	6	0	0	1	5	2	0	1	0	8	0	0	0	1	0	24	
7:55 AM	0	8	0	0	0	4	0	0	0	0	7	0	0	0	0	0	19	211
8:00 AM	1	4	0	0	0	5	2	0	2	0	7	0	0	0	0	0	21	214
8:05 AM	1	3	0	0	0	12	1	0	1	0	7	0	0	0	0	0	25	229
8:10 AM	0	6	0	0	0	3	0	0	0	0	2	0	0	0	0	0	11	222
8:15 AM	0	8	0	0	1	4	1	0	0	0	6	0	0	0	1	0	21	225
8:20 AM	0	0	0	0	0	4	0	0	1	0	3	0	0	0	0	0	8	215
8:25 AM	0	3	0	0	0	4	0	0	1	0	5	0	0	0	0	0	13	211
8:30 AM	1	8	0	0	0	6	0	0	2	1	4	0	0	0	0	0	22	213
8:35 AM	0	6	0	0	0	4	1	0	1	0	1	0	0	0	0	0	13	215
8:40 AM	1	4	0	0	0	3	0	0	2	0	0	0	0	0	0	0	10	209
8:45 AM	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4	191
8:50 AM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	178
8:55 AM	0	8	0	0	0	4	0	0	1	0	1	0	0	0	0	0	14	173

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	80	0	0	4	72	8	0	8	0	84	0	0	0	4	0	260
Heavy Trucks	0	20	0		0	8	0		0	0	8		0	0	0		36
Pedestrians		4				0				20				4			28
Bicycles	0	3	0		3	1	0		0	0	0		0	0	0		7
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/24/2015 2:24 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

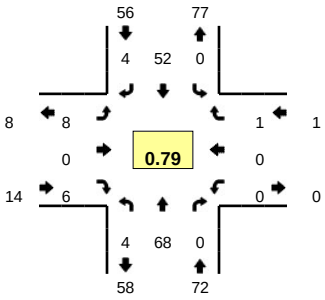
Type of peak hour being reported: Intersection Peak

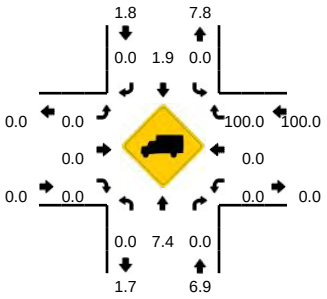
Method for determining peak hour: Total Entering Volume

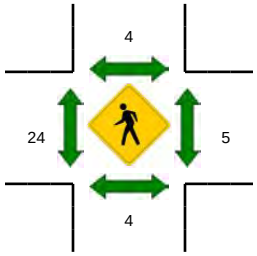
LOCATION: Columbia St -- Columbia Way (south)
CITY/STATE: Vancouver, WA

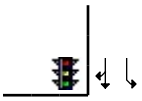
QC JOB #: 13648104
DATE: Wed, Nov 18 2015

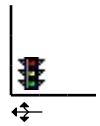
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

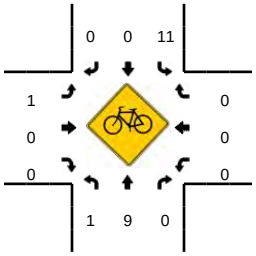


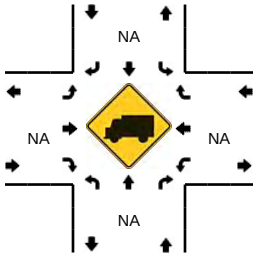


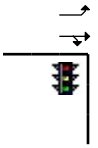


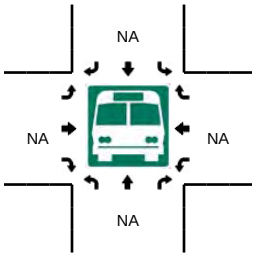












5-Min Count Period Beginning At	Columbia St (Northbound)				Columbia St (Southbound)				Columbia Way (south) (Eastbound)				Columbia Way (south) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	0	0	0	6	0	0	0	0	1	0	0	0	0	0	8	
4:05 PM	2	7	0	0	0	1	0	0	0	0	2	0	0	0	0	0	12	
4:10 PM	0	5	0	0	1	5	2	0	1	0	2	0	0	0	0	0	16	
4:15 PM	0	3	0	0	0	3	1	0	0	0	0	0	0	0	0	0	7	
4:20 PM	0	2	0	0	0	8	1	0	0	0	0	0	0	0	1	0	12	
4:25 PM	1	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	8	
4:30 PM	0	4	0	0	0	4	1	0	1	0	0	0	0	0	0	0	10	
4:35 PM	0	5	0	0	0	5	0	0	0	0	1	0	0	0	0	0	11	
4:40 PM	0	3	0	0	0	5	0	0	2	0	0	0	0	0	0	0	10	
4:45 PM	0	7	0	0	0	5	0	0	0	0	1	0	0	0	0	0	13	
4:50 PM	0	4	0	0	0	1	0	0	0	0	1	0	0	0	0	0	6	
4:55 PM	0	6	0	0	0	4	0	0	0	0	2	0	0	0	1	0	13	126
5:00 PM	0	4	0	0	0	2	0	0	1	0	0	0	0	0	0	0	7	125
5:05 PM	1	7	0	0	0	5	1	0	0	0	0	0	0	0	0	0	14	127
5:10 PM	2	7	0	0	0	3	0	0	2	0	0	0	0	0	0	0	14	125
5:15 PM	0	7	0	0	0	6	1	0	1	0	0	0	0	0	0	0	15	133
5:20 PM	0	6	0	0	0	7	1	0	1	0	1	0	0	0	0	0	16	137
5:25 PM	1	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	14	143
5:30 PM	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9	142
5:35 PM	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	8	139
5:40 PM	0	3	0	0	0	5	0	0	0	0	1	0	0	0	0	0	9	138
5:45 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	129
5:50 PM	1	3	0	0	0	5	0	0	1	0	0	0	0	0	0	0	10	133
5:55 PM	1	2	0	0	0	5	1	0	1	0	0	0	0	0	0	0	10	130

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	80	0	0	0	64	8	0	16	0	4	0	0	0	0	0	180
Heavy Trucks	0	8	0		0	0	0		0	0	0		0	0	0		8
Pedestrians		0				12				20				4			36
Bicycles	0	4	0		3	0	0		0	0	0		0	0	0		7
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/24/2015 2:24 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

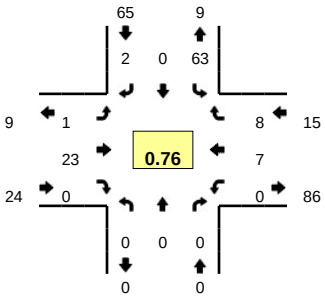
Type of peak hour being reported: Intersection Peak

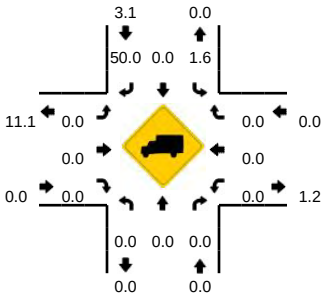
Method for determining peak hour: Total Entering Volume

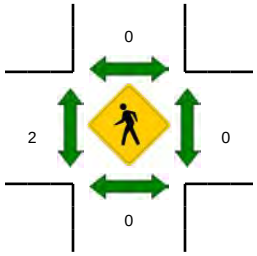
LOCATION: Site Dwy -- Columbia Way
CITY/STATE: Vancouver, WA

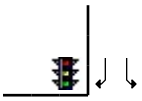
QC JOB #: 13648101
DATE: Wed, Nov 18 2015

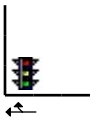
Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

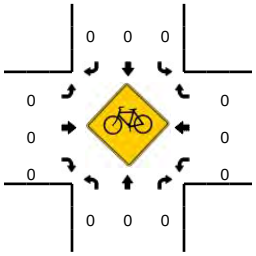


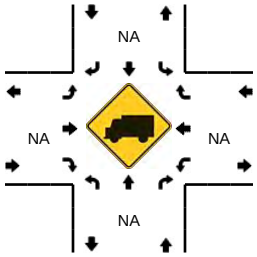


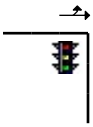


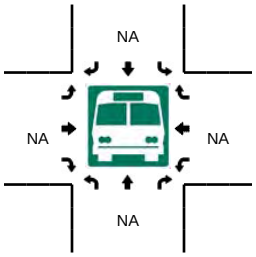












5-Min Count Period Beginning At	Site Dwy (Northbound)				Site Dwy (Southbound)				Columbia Way (Eastbound)				Columbia Way (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	0	0	0	1	0	0	0	0	2	0	0	5	
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
7:10 AM	0	0	0	0	1	0	0	0	1	2	0	0	0	0	1	0	5	
7:15 AM	0	0	0	0	7	0	0	0	0	1	0	0	0	1	0	0	9	
7:20 AM	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	5	
7:25 AM	0	0	0	0	9	0	0	0	0	1	0	0	0	2	0	0	12	
7:30 AM	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5	
7:35 AM	0	0	0	0	3	0	0	0	0	1	0	0	0	0	1	0	5	
7:40 AM	0	0	0	0	6	0	0	0	0	3	0	0	0	0	0	0	9	
7:45 AM	0	0	0	0	6	0	1	0	0	3	0	0	0	0	0	0	10	
7:50 AM	0	0	0	0	8	0	0	0	0	1	0	0	0	0	3	0	12	
7:55 AM	0	0	0	0	5	0	0	0	0	3	0	0	0	0	0	0	8	86
8:00 AM	0	0	0	0	3	0	1	0	0	6	0	0	0	3	1	0	14	95
8:05 AM	0	0	0	0	6	0	0	0	0	1	0	0	0	1	2	0	10	104
8:10 AM	0	0	0	0	3	0	1	0	0	0	0	0	0	0	1	0	5	104
8:15 AM	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	101
8:20 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	2	0	5	101
8:25 AM	0	0	0	0	5	0	0	0	0	2	0	0	0	0	0	0	7	96
8:30 AM	0	0	0	0	4	0	0	0	0	2	0	0	0	0	0	0	6	97
8:35 AM	0	0	0	0	1	0	0	0	1	2	0	0	0	1	0	0	5	97
8:40 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	90
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
8:55 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	62

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	64	0	4	0	0	40	0	0	0	12	16	0	136
Heavy Trucks	0	0	0		4	0	0		0	0	0		0	0	0		4
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/24/2015 2:24 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

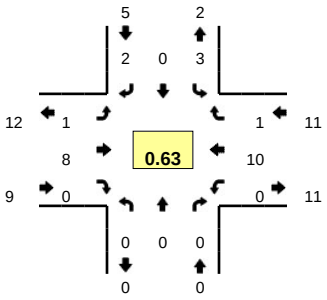
Type of peak hour being reported: Intersection Peak

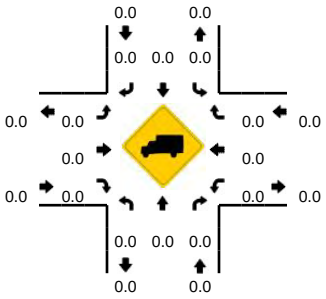
Method for determining peak hour: Total Entering Volume

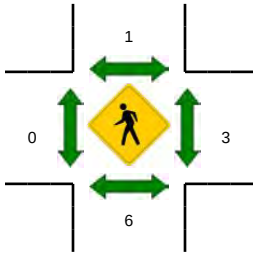
LOCATION: Site Dwy -- Columbia Way
CITY/STATE: Vancouver, WA

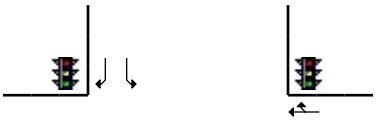
QC JOB #: 13648102
DATE: Wed, Nov 18 2015

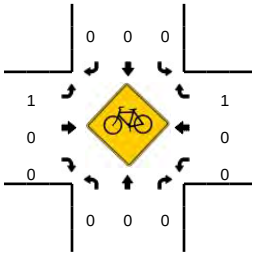
Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:05 PM -- 4:20 PM

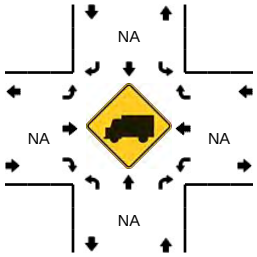


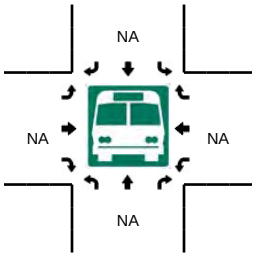












5-Min Count Period Beginning At	Site Dwy (Northbound)				Site Dwy (Southbound)				Columbia Way (Eastbound)				Columbia Way (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
4:05 PM	0	0	0	0	1	0	1	0	0	1	0	0	0	3	0	0	6	
4:10 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
4:35 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3	
4:40 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
4:50 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	3	
4:55 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	23
5:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	3	25
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	21
5:10 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	21
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	20
5:20 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	3	23
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	23
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
5:40 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	20
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	15

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	4	0	4	0	0	8	0	0	0	20	4	0	40
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/24/2015 2:24 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix C Traffic Analysis Worksheets

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	0	2	67	85	6
Future Volume (Veh/h)	3	0	2	67	85	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	4	0	2	82	104	7
Pedestrians	12			1	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	1			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				170		
pX, platoon unblocked						
vC, conflicting volume	208	120	123			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	208	120	123			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	774	925	1460			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	4	2	82	111
Volume Left	4	2	0	0
Volume Right	0	0	0	7
cSH	774	1460	1700	1700
Volume to Capacity	0.01	0.00	0.05	0.07
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	9.7	7.5	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	9.7	0.2		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	0	68	0	0	1	7	55	0	1	79	5
Future Volume (vph)	13	0	68	0	0	1	7	55	0	1	79	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0		4.5	5.0	
Lane Util. Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98			0.99			1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	0.85			0.86			1.00		1.00	0.99	
Flt Protected	0.95	1.00			1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1804	1535			1623			1580		1804	1747	
Flt Permitted	0.76	1.00			1.00			0.95		0.62	1.00	
Satd. Flow (perm)	1438	1535			1623			1511		1173	1747	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	15	0	77	0	0	1	8	62	0	1	90	6
RTOR Reduction (vph)	0	61	0	0	1	0	0	0	0	0	3	0
Lane Group Flow (vph)	15	16	0	0	0	0	0	71	0	1	93	0
Confl. Peds. (#/hr)	1		2	2		1	12		2	2		12
Confl. Bikes (#/hr)									7			5
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	22%	0%	0%	8%	0%
Turn Type	Perm	NA			NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	6.0	6.0			6.0			6.8		12.1	12.1	
Effective Green, g (s)	6.0	6.0			6.0			6.8		12.1	12.1	
Actuated g/C Ratio	0.21	0.21			0.21			0.24		0.43	0.43	
Clearance Time (s)	5.0	5.0			5.0			5.0		4.5	5.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	307	327			346			365		523	752	
v/s Ratio Prot		c0.01			0.00					0.00	c0.05	
v/s Ratio Perm	0.01							c0.05		0.00		
v/c Ratio	0.05	0.05			0.00			0.19		0.00	0.12	
Uniform Delay, d1	8.8	8.8			8.7			8.5		4.9	4.8	
Progression Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1			0.0			0.3		0.0	0.1	
Delay (s)	8.8	8.8			8.7			8.7		4.9	4.9	
Level of Service	A	A			A			A		A	A	
Approach Delay (s)		8.8			8.7			8.7			4.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	28.1	Sum of lost time (s)	14.5
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	23	7	8	63	2
Future Volume (vph)	1	23	7	8	63	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	0.93		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1897	1759		1770	1054
Flt Permitted		0.99	1.00		0.95	1.00
Satd. Flow (perm)		1878	1759		1770	1054
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	1	30	9	11	83	3
RTOR Reduction (vph)	0	0	8	0	0	2
Lane Group Flow (vph)	0	31	12	0	83	1
Confl. Peds. (#/hr)						2
Heavy Vehicles (%)	0%	0%	0%	0%	2%	50%
Turn Type	Perm	NA	NA		pm+pt	Perm
Protected Phases		2	6		3	
Permitted Phases	2				8	8
Actuated Green, G (s)		5.8	5.8		6.3	6.3
Effective Green, g (s)		5.8	5.8		6.3	6.3
Actuated g/C Ratio		0.26	0.26		0.29	0.29
Clearance Time (s)		5.0	5.0		5.0	5.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		492	461		504	300
v/s Ratio Prot			0.01		c0.05	
v/s Ratio Perm		c0.02				0.00
v/c Ratio		0.06	0.03		0.16	0.00
Uniform Delay, d1		6.1	6.1		5.9	5.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.0		0.2	0.0
Delay (s)		6.2	6.1		6.1	5.7
Level of Service		A	A		A	A
Approach Delay (s)		6.2	6.1		6.1	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	22.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	17.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	219	255	12
Future Volume (Veh/h)	0	0	0	219	255	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	243	283	13
Pedestrians	20			20	20	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	2			2	2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				170		
pX, platoon unblocked	0.93					
vC, conflicting volume	572	330	316			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	502	330	316			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	476	690	1232			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	243	296
Volume Left	0	0	0
Volume Right	0	0	13
cSH	1700	1700	1700
Volume to Capacity	0.00	0.14	0.17
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	0	166	0	0	2	52	110	0	2	158	95
Future Volume (vph)	117	0	166	0	0	2	52	110	0	2	158	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0		4.5	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.95			0.95		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	0.97	1.00			1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.85			0.86		1.00	1.00		1.00	0.94	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1575	1354			1405		1615	1527		1597	1531	
Flt Permitted	0.76	1.00			1.00		0.38	1.00		0.68	1.00	
Satd. Flow (perm)	1254	1354			1405		646	1527		1141	1531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	130	0	184	0	0	2	58	122	0	2	176	106
RTOR Reduction (vph)	0	103	0	0	1	0	0	0	0	0	37	0
Lane Group Flow (vph)	130	81	0	0	1	0	58	122	0	2	245	0
Confl. Peds. (#/hr)	20		20	20		20	20		20	20		20
Confl. Bikes (#/hr)									7			5
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	12%	0%	0%	5%	0%
Turn Type	Perm	NA			NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	28.2	28.2			28.2		24.6	20.1		18.0	16.8	
Effective Green, g (s)	28.2	28.2			28.2		24.6	20.1		18.0	16.8	
Actuated g/C Ratio	0.44	0.44			0.44		0.38	0.31		0.28	0.26	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0		4.5	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	552	596			619		316	479		329	401	
v/s Ratio Prot		0.06			0.00		c0.01	0.08		0.00	c0.16	
v/s Ratio Perm	c0.10						0.06			0.00		
v/c Ratio	0.24	0.14			0.00		0.18	0.25		0.01	0.61	
Uniform Delay, d1	11.2	10.7			10.0		13.0	16.4		16.6	20.7	
Progression Factor	1.13	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.4			0.0		0.3	0.3		0.0	2.8	
Delay (s)	13.5	11.1			10.0		13.3	16.6		16.6	23.5	
Level of Service	B	B			B		B	B		B	C	
Approach Delay (s)		12.1			10.0			15.6			23.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	101	10	25	59	71	75	65	25	171	15	74
Future Volume (vph)	42	101	10	25	59	71	75	65	25	171	15	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.98		1.00	0.99		1.00	0.96	
Flpb, ped/bikes		0.99			1.00		0.98	1.00		0.99	1.00	
Frt		0.99			0.94		1.00	0.96		1.00	0.88	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1656			1549		1595	1615		1575	1412	
Flt Permitted		0.89			0.94		0.69	1.00		0.49	1.00	
Satd. Flow (perm)		1500			1475		1164	1615		816	1412	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	112	11	28	66	79	83	72	28	190	17	82
RTOR Reduction (vph)	0	3	0	0	36	0	0	24	0	0	66	0
Lane Group Flow (vph)	0	167	0	0	137	0	83	76	0	190	33	0
Confl. Peds. (#/hr)	20		20	20		20	20		20	20		20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		31.2			31.2		15.1	9.1		22.5	12.8	
Effective Green, g (s)		31.2			31.2		15.1	9.1		22.5	12.8	
Actuated g/C Ratio		0.49			0.49		0.24	0.14		0.35	0.20	
Clearance Time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		731			719		315	229		401	282	
v/s Ratio Prot							0.02	0.05		c0.07	0.02	
v/s Ratio Perm		c0.11			0.09		0.04			c0.09		
v/c Ratio		0.23			0.19		0.26	0.33		0.47	0.12	
Uniform Delay, d1		9.5			9.3		19.7	24.7		15.4	21.0	
Progression Factor		1.00			0.21		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7			0.1		0.4	0.9		0.9	0.2	
Delay (s)		10.2			2.1		20.2	25.6		16.3	21.2	
Level of Service		B			A		C	C		B	C	
Approach Delay (s)		10.2			2.1			23.1			18.0	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	265	305	205
Future Volume (Veh/h)	0	0	0	265	305	205
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	294	339	228
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				170		
pX, platoon unblocked	0.91					
vC, conflicting volume	747	453	567			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	674	453	567			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	386	611	1015			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	294	567
Volume Left	0	0	0
Volume Right	0	0	228
cSH	1700	1700	1700
Volume to Capacity	0.00	0.17	0.33
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	0	175	0	0	0	65	110	0	0	160	145
Future Volume (vph)	155	0	175	0	0	0	65	110	0	0	160	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0					4.5	5.0			5.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.93	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1624	1425					1624	1527			1548	
Flt Permitted	0.76	1.00					0.27	1.00			1.00	
Satd. Flow (perm)	1295	1425					455	1527			1548	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	172	0	194	0	0	0	72	122	0	0	178	161
RTOR Reduction (vph)	0	106	0	0	0	0	0	0	0	0	57	0
Lane Group Flow (vph)	172	88	0	0	0	0	72	122	0	0	282	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	12%	0%	0%	5%	0%
Turn Type	Perm	NA					pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	29.1	29.1					24.9	24.9			15.9	
Effective Green, g (s)	29.1	29.1					24.9	24.9			15.9	
Actuated g/C Ratio	0.45	0.45					0.39	0.39			0.25	
Clearance Time (s)	5.0	5.0					4.5	5.0			5.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	588	647					259	594			384	
v/s Ratio Prot		0.06					c0.02	0.08			c0.18	
v/s Ratio Perm	c0.13						0.09					
v/c Ratio	0.29	0.14					0.28	0.21			0.73	
Uniform Delay, d1	11.0	10.1					13.5	13.0			22.1	
Progression Factor	1.04	1.00					1.00	1.00			1.00	
Incremental Delay, d2	1.1	0.4					0.6	0.2			7.1	
Delay (s)	12.5	10.5					14.0	13.2			29.2	
Level of Service	B	B					B	B			C	
Approach Delay (s)		11.5			0.0			13.5			29.2	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	105	10	25	60	90	75	65	25	235	15	75
Future Volume (vph)	45	105	10	25	60	90	75	65	25	235	15	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.93		1.00	0.96		1.00	0.88	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1672			1580		1624	1638		1624	1497	
Flt Permitted		0.88			0.95		0.69	1.00		0.46	1.00	
Satd. Flow (perm)		1498			1510		1184	1638		795	1497	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	117	11	28	67	100	83	72	28	261	17	83
RTOR Reduction (vph)	0	3	0	0	47	0	0	24	0	0	64	0
Lane Group Flow (vph)	0	175	0	0	148	0	83	76	0	261	36	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		29.5			29.5		15.2	9.2		25.0	14.5	
Effective Green, g (s)		29.5			29.5		15.2	9.2		25.0	14.5	
Actuated g/C Ratio		0.46			0.46		0.24	0.14		0.39	0.23	
Clearance Time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		690			696		322	235		456	339	
v/s Ratio Prot							0.02	0.05		c0.10	0.02	
v/s Ratio Perm		c0.12			0.10		0.04			c0.12		
v/c Ratio		0.25			0.21		0.26	0.32		0.57	0.11	
Uniform Delay, d1		10.5			10.3		19.6	24.6		14.4	19.6	
Progression Factor		1.00			0.20		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			0.1		0.4	0.8		1.7	0.1	
Delay (s)		11.4			2.2		20.0	25.4		16.1	19.7	
Level of Service		B			A		C	C		B	B	
Approach Delay (s)		11.4			2.2			23.0			17.1	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	77	57	4
Future Volume (Veh/h)	10	0	0	77	57	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	13	0	0	100	74	5
Pedestrians	20					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				170		
pX, platoon unblocked						
vC, conflicting volume	196	96	99			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	196	96	99			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	782	947	1478			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	13	0	100	79
Volume Left	13	0	0	0
Volume Right	0	0	0	5
cSH	782	1700	1700	1700
Volume to Capacity	0.02	0.00	0.06	0.05
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	9.7	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	9.7	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	6	0	0	1	4	68	0	0	53	4
Future Volume (vph)	8	0	6	0	0	1	4	68	0	0	53	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98			0.99			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.85			0.86			1.00			0.99	
Flt Protected	0.95	1.00			1.00			1.00			1.00	
Satd. Flow (prot)	1803	1579			811			1776			1842	
Flt Permitted	0.76	1.00			1.00			0.98			1.00	
Satd. Flow (perm)	1437	1579			811			1741			1842	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	10	0	8	0	0	1	5	86	0	0	67	5
RTOR Reduction (vph)	0	6	0	0	1	0	0	0	0	0	4	0
Lane Group Flow (vph)	10	2	0	0	0	0	0	91	0	0	68	0
Confl. Peds. (#/hr)	4		4	4		4	24		5	5		24
Confl. Bikes (#/hr)									9			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	100%	0%	7%	0%	0%	2%	0%
Turn Type	Perm	NA			NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	5.7	5.7			5.7			6.4			6.4	
Effective Green, g (s)	5.7	5.7			5.7			6.4			6.4	
Actuated g/C Ratio	0.26	0.26			0.26			0.29			0.29	
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	370	407			209			504			533	
v/s Ratio Prot		0.00			0.00						0.04	
v/s Ratio Perm	c0.01							c0.05				
v/c Ratio	0.03	0.01			0.00			0.18			0.13	
Uniform Delay, d1	6.1	6.1			6.1			5.9			5.8	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.0	0.0			0.0			0.2			0.1	
Delay (s)	6.2	6.1			6.1			6.1			5.9	
Level of Service	A	A			A			A			A	
Approach Delay (s)		6.1			6.1			6.1			5.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	22.1	Sum of lost time (s)	14.5
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	8	7	2	3	1
Future Volume (vph)	1	8	7	2	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		4.5	4.5
Lane Util. Factor		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	0.97		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1892	1832		1805	1615
Flt Permitted		0.99	1.00		0.95	1.00
Satd. Flow (perm)		1883	1832		1805	1615
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	1	11	10	3	4	1
RTOR Reduction (vph)	0	0	1	0	0	1
Lane Group Flow (vph)	0	12	12	0	4	0
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA		pm+pt	Perm
Protected Phases		2	6		3	
Permitted Phases	2				8	8
Actuated Green, G (s)		21.0	21.0		0.9	0.9
Effective Green, g (s)		21.0	21.0		0.9	0.9
Actuated g/C Ratio		0.67	0.67		0.03	0.03
Clearance Time (s)		5.0	5.0		4.5	4.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1259	1225		51	46
v/s Ratio Prot			c0.01		c0.00	
v/s Ratio Perm		0.01				0.00
v/c Ratio		0.01	0.01		0.08	0.00
Uniform Delay, d1		1.7	1.7		14.8	14.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.0		0.7	0.0
Delay (s)		1.7	1.7		15.5	14.8
Level of Service		A	A		B	B
Approach Delay (s)		1.7	1.7		15.4	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.01		
Actuated Cycle Length (s)	31.4	Sum of lost time (s)	9.5
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	278	202	8
Future Volume (Veh/h)	0	0	0	278	202	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	309	224	9
Pedestrians	20					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				170		
pX, platoon unblocked	0.91					
vC, conflicting volume	558	248	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465	248	253			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	500	780	1299			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	309	233
Volume Left	0	0	0
Volume Right	0	0	9
cSH	1700	1700	1700
Volume to Capacity	0.00	0.18	0.14
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	0	55	0	0	2	43	136	0	0	106	96
Future Volume (vph)	160	0	55	0	0	2	43	136	0	0	106	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.96			0.96		1.00	1.00			0.97	
Flpb, ped/bikes	0.98	1.00			1.00		0.99	1.00			1.00	
Frt	1.00	0.85			0.86		1.00	1.00			0.93	
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1585	1389			1400		1610	1644			1530	
Flt Permitted	0.76	1.00			1.00		0.41	1.00			1.00	
Satd. Flow (perm)	1262	1389			1400		698	1644			1530	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	178	0	61	0	0	2	48	151	0	0	118	107
RTOR Reduction (vph)	0	33	0	0	1	0	0	0	0	0	59	0
Lane Group Flow (vph)	178	28	0	0	1	0	48	151	0	0	166	0
Confl. Peds. (#/hr)	20		20	20		20	30		20	20		30
Confl. Bikes (#/hr)									9			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	4%	0%	0%	2%	0%
Turn Type	Perm	NA			NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.4	23.4			23.4		18.3	18.3			11.3	
Effective Green, g (s)	23.4	23.4			23.4		18.3	18.3			11.3	
Actuated g/C Ratio	0.45	0.45			0.45		0.35	0.35			0.22	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	571	628			633		291	581			334	
v/s Ratio Prot		0.02			0.00		0.01	c0.09			c0.11	
v/s Ratio Perm	c0.14						0.05					
v/c Ratio	0.31	0.04			0.00		0.16	0.26			0.50	
Uniform Delay, d1	9.0	7.9			7.8		11.4	11.9			17.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.4	0.1			0.0		0.3	0.2			1.2	
Delay (s)	10.4	8.0			7.8		11.7	12.1			18.9	
Level of Service	B	A			A		B	B			B	
Approach Delay (s)		9.8			7.8			12.0			18.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	51.7	Sum of lost time (s)	14.5
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	86	10	27	109	94	105	95	35	71	15	82
Future Volume (vph)	42	86	10	27	109	94	105	95	35	71	15	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.98		1.00	0.99		1.00	0.95	
Flpb, ped/bikes		0.99			1.00		0.98	1.00		0.98	1.00	
Frt		0.99			0.94		1.00	0.96		1.00	0.87	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1652			1569		1592	1617		1594	1425	
Flt Permitted		0.87			0.96		0.67	1.00		0.66	1.00	
Satd. Flow (perm)		1454			1516		1128	1617		1107	1425	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	96	11	30	121	104	117	106	39	79	17	91
RTOR Reduction (vph)	0	3	0	0	27	0	0	26	0	0	78	0
Lane Group Flow (vph)	0	151	0	0	228	0	117	119	0	79	30	0
Confl. Peds. (#/hr)	20		20	20		20	20		20	20		20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		34.6			34.6		15.6	9.6		15.2	9.4	
Effective Green, g (s)		34.6			34.6		15.6	9.6		15.2	9.4	
Actuated g/C Ratio		0.54			0.54		0.24	0.15		0.24	0.15	
Clearance Time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		786			819		318	242		307	209	
v/s Ratio Prot							c0.03	c0.07		0.02	0.02	
v/s Ratio Perm		0.10			c0.15		0.06			0.04		
v/c Ratio		0.19			0.28		0.37	0.49		0.26	0.15	
Uniform Delay, d1		7.5			8.0		19.8	25.0		19.6	23.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.2		0.7	1.6		0.4	0.3	
Delay (s)		8.1			8.1		20.5	26.5		20.0	24.1	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		8.1			8.1			23.8			22.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	420	240	175
Future Volume (Veh/h)	0	0	0	420	240	175
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	467	267	194
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				170		
pX, platoon unblocked	0.82					
vC, conflicting volume	831	364	461			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	688	364	461			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	342	685	1111			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	467	461
Volume Left	0	0	0
Volume Right	0	0	194
cSH	1700	1700	1700
Volume to Capacity	0.00	0.27	0.27
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	0	75	0	0	0	55	140	0	0	110	135
Future Volume (vph)	280	0	75	0	0	0	55	140	0	0	110	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0					4.5	5.0			5.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.92	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1624	1454					1624	1644			1555	
Flt Permitted	0.76	1.00					0.34	1.00			1.00	
Satd. Flow (perm)	1295	1454					590	1644			1555	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	311	0	83	0	0	0	61	156	0	0	122	150
RTOR Reduction (vph)	0	48	0	0	0	0	0	0	0	0	80	0
Lane Group Flow (vph)	311	35	0	0	0	0	61	156	0	0	192	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	4%	0%	0%	2%	0%
Turn Type	Perm	NA					pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	22.4	22.4					20.1	20.1			11.7	
Effective Green, g (s)	22.4	22.4					20.1	20.1			11.7	
Actuated g/C Ratio	0.43	0.43					0.38	0.38			0.22	
Clearance Time (s)	5.0	5.0					4.5	5.0			5.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	552	620					302	629			346	
v/s Ratio Prot		0.02					0.01	c0.09			c0.12	
v/s Ratio Perm	c0.24						0.06					
v/c Ratio	0.56	0.06					0.20	0.25			0.55	
Uniform Delay, d1	11.4	8.8					10.9	11.0			18.1	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	4.1	0.2					0.3	0.2			1.9	
Delay (s)	15.5	9.0					11.2	11.3			20.0	
Level of Service	B	A					B	B			C	
Approach Delay (s)		14.1			0.0			11.2			20.0	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	52.5	Sum of lost time (s)	14.5
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	90	10	30	110	140	105	95	35	120	15	85
Future Volume (vph)	45	90	10	30	110	140	105	95	35	120	15	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.93		1.00	0.96		1.00	0.87	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1668			1586		1624	1641		1624	1493	
Flt Permitted		0.85			0.96		0.69	1.00		0.66	1.00	
Satd. Flow (perm)		1432			1532		1172	1641		1123	1493	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	100	11	33	122	156	117	106	39	133	17	94
RTOR Reduction (vph)	0	3	0	0	44	0	0	26	0	0	79	0
Lane Group Flow (vph)	0	158	0	0	267	0	117	119	0	133	32	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		25.1			25.1		13.9	8.3		14.1	8.4	
Effective Green, g (s)		25.1			25.1		13.9	8.3		14.1	8.4	
Actuated g/C Ratio		0.47			0.47		0.26	0.16		0.27	0.16	
Clearance Time (s)		5.0			5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		676			724		354	256		351	236	
v/s Ratio Prot							0.03	c0.07		c0.04	0.02	
v/s Ratio Perm		0.11			c0.17		0.05			0.06		
v/c Ratio		0.23			0.37		0.33	0.46		0.38	0.14	
Uniform Delay, d1		8.3			8.9		15.6	20.4		15.6	19.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			0.3		0.6	1.3		0.7	0.3	
Delay (s)		9.1			9.3		16.1	21.7		16.3	19.5	
Level of Service		A			A		B	C		B	B	
Approach Delay (s)		9.1			9.3			19.2			17.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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BergerABAM
360-823-6127

Subject Property Account Number(s):

48843000
48841000
48844000
502240000
502245000
502246000
502250000

PDF # 162752

Printed: July 06, 2016

Expires: July 06, 2017

CLARK COUNTY
WASHINGTON
proud past, promising future

Table of Contents

General Location Map

Printed on: July 06, 2016

Account No: 48843000, 48841000, 48844000, 502240000

Owner: PORT OF VANCOUVER

Address: 3103 NW LOWER RIVER RD

C/S/Z: VANCOUVER, WA 98660

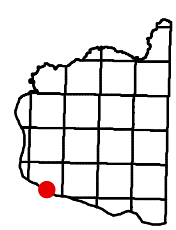
CLARK COUNTY, WASHINGTON

Geographic Information System

1:24,000

0 0.1 0.2 0.3 0.4 0.5 Miles

● Subject Property Location



Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

Property Information Fact Sheet

Mailing Information:

Account No.: 48843000, 48841000, 48844000, 502240000, 502245000, 502246000, 502250000
Owner: PORT OF VANCOUVER
Address: 3103 NW LOWER RIVER RD
C/S/Z: VANCOUVER, WA 98660

Assessed Parcel Size: 12.12 Ac
Property Type: Multiple Property Types

PARCEL LOCATION FINDINGS:

Quarter Section(s): SE 1/4,S28,T2N,R1E,
SW 1/4,S27,T2N,R1E
Municipal Jurisdiction: Vancouver
Urban Growth Area: Vancouver
Zoning: CX
Zoning Overlay: AirportApproachZone20.560,
BlankWalls20.630,
BuildingLines20.630,
CentralCityPlanDistrict20.265,
CityCenterWaterfront20.630,
MaxBldgHeight(100-200)20.630,
MaxBldgHeight(125-250)20.630,
MaxBldgHeight(60-120)20.630,
MaxBldgHeight(80-160)20.630,
NoiseImpactOverlayDistrict20.520,
RainProtection20.630,
ShorelinePlanDistrict20.620
Comprehensive Plan Designation: COM
Trans. Impact Fee Area: Columbia
Park Impact Fee District: 1
Neighborhood Association: Esther Short

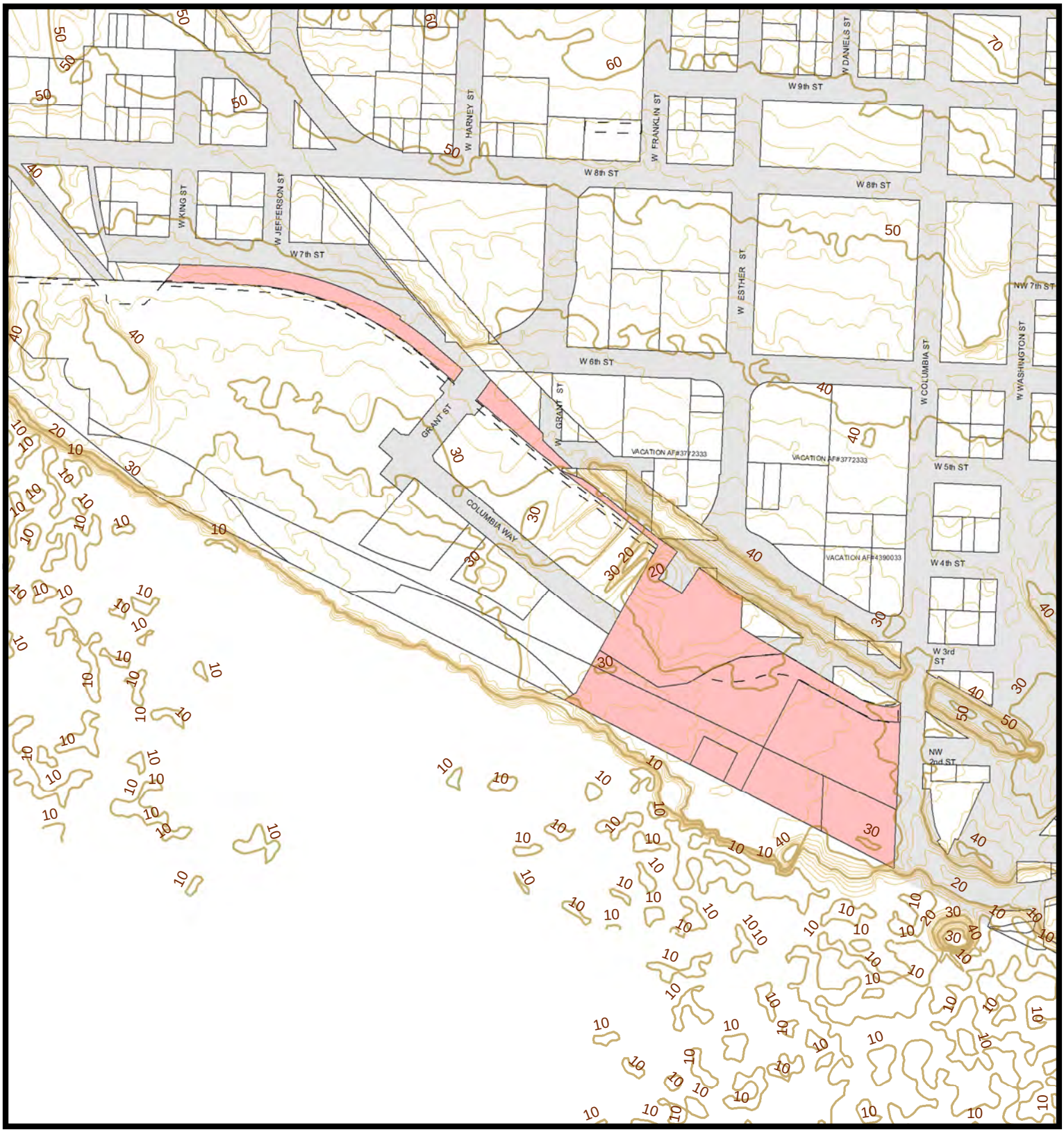
School District: Vancouver
Elementary School: Hough
Junior High School: Discovery
Senior High School: Hudsons Bay
Fire District: Vancouver Fire
Sewer District: Vancouver
Water District: Vancouver
Wildland: No Mapping Indicators
Trans. Analysis Zone: 20
Trans. Management Zone: No Mapping Indicators
Historic Sites: No Mapping Indicators

ENVIRONMENTAL CONSTRAINTS:

Soil Type(s): Fn, 86.2% of parcel
LgB, 13.8%
Hydric Soils: Non-Hydric, 100.0% of parcel
Flood Zone Designation: 500 Year Flood Area,
Floodway Fringe,
Outside Flood Area
Liquefaction Susceptibility: Moderate to High, Very Low
NEHRP: B-C, C, WATER
Slope: 0 - 5 percent, 92.4% of parcel
10 - 15 percent, 0.2%
15 - 25 percent, 2.0%
5 - 10 percent, 5.3%
Slopes > 25% + 100 ft buffer: No Mapping Indicators
Unstable Slopes + 100 ft buffer: No Mapping Indicators
Riparian Habitat Conservation Area: Mapping Indicators Found
200 ft Shoreline buffer: Mapping Indicators Found
Special Wellhead Protection Area: No Mapping Indicators
Priority Species: No Mapping Indicators
Priority Habitat: No Mapping Indicators

Archeological Predictive: Level A - Higher Probability, 100.0% of parcel
Archeological Site Buffers: Mapping Indicators Found

NOTE
This data is compiled from many sources and scales. Clark county makes this information available as a service, and accepts no responsibility for any inaccuracy, actual or implied.



CLARK COUNTY, WASHINGTON
Geographic Information System

1:4,800

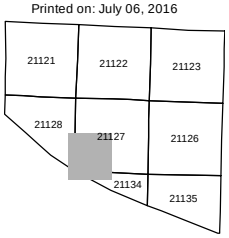
0 190 380 570 Feet

Elevation Contours

Account No: 48843000, 48841000, 48844000, 502240000
Owner: PORT OF VANCOUVER
Address: 3103 NW LOWER RIVER RD
C/S/Z: VANCOUVER, WA 98660

- Proposed Development Area
- Public Road
- Transportation or Major Utility Easement
- 2' Elevation Contour

Printed on: July 06, 2016



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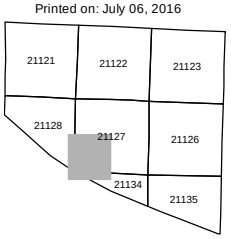
2014 Aerial Photography

Account No: 48843000, 48841000, 48844000, 502240000
Owner: PORT OF VANCOUVER
Address: 3103 NW LOWER RIVER RD
C/S/Z: VANCOUVER, WA 98660

Proposed Development Area

Printed on: July 06, 2016



Geographic Information System

1:4,800

0 200 400 600 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

CLARK COUNTY, WASHINGTON
Geographic Information System

1:3,600

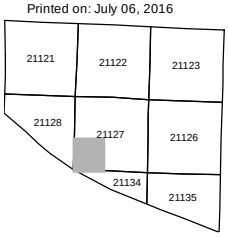
0 150 300 450 Feet

2014 Aerial Photography with Contours

Account No: 48843000, 48841000, 48844000, 502240000
Owner: PORT OF VANCOUVER
Address: 3103 NW LOWER RIVER RD
C/S/Z: VANCOUVER, WA 98660

Proposed Development Area
2' Elevation Contours

Printed on: July 06, 2016



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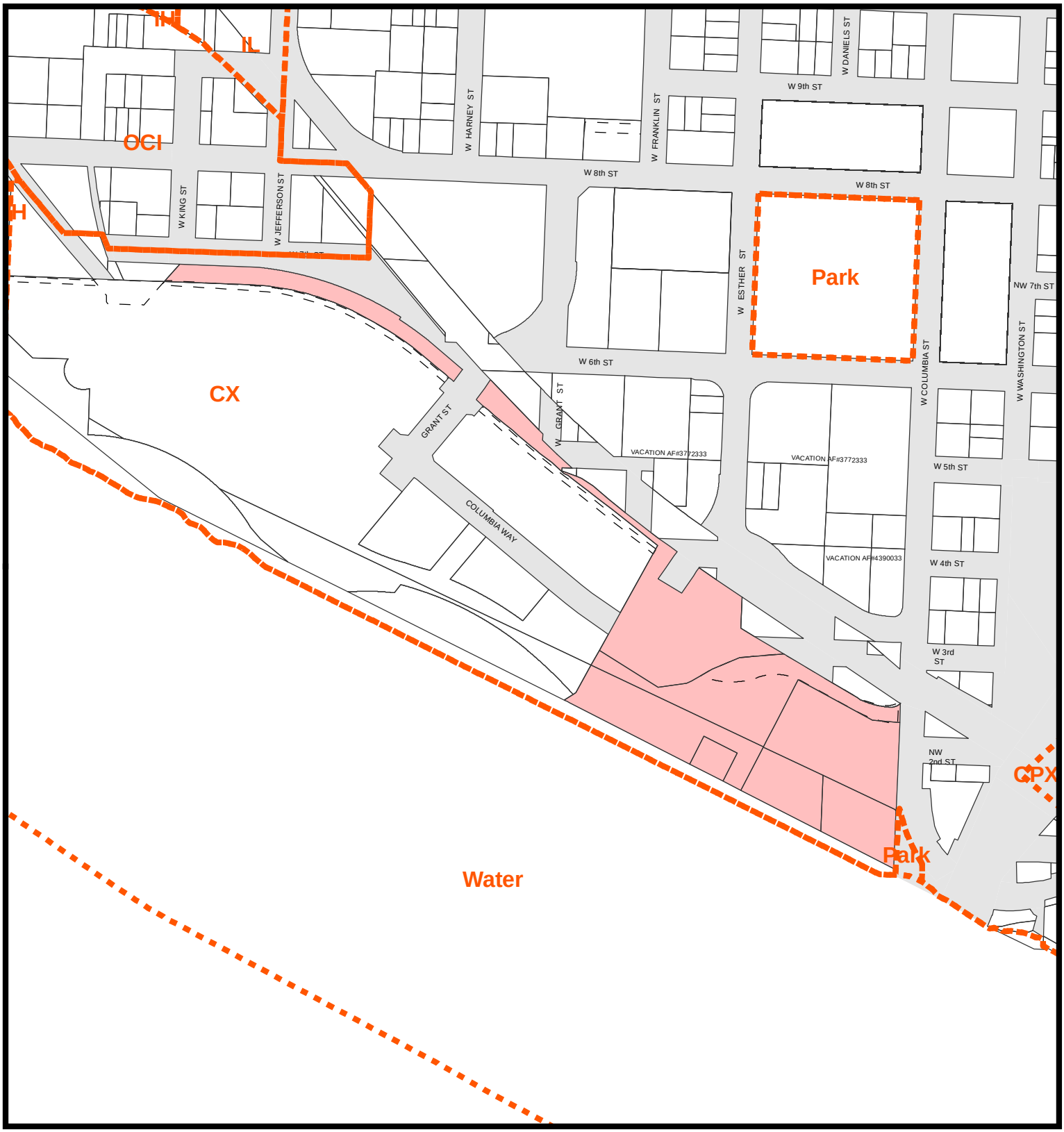


CLARK COUNTY, WASHINGTON

Geographic Information System

1:4,800

0 200 400 600 Feet

N

Zoning Designation

Account No: 48843000, 48841000, 48844000, 502240000

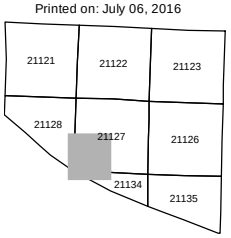
Owner: PORT OF VANCOUVER

Address: 3103 NW LOWER RIVER RD

C/S/Z: VANCOUVER, WA 98660

- Subject Parcel
- Public Road
- Transportation or Major Utility Easement
- Zoning Boundary
- Urban Holding - 10 (UH-10)
- Urban Holding - 20 (UH-20)
- Urban Holding - 40 (UH-40)
- Surface Mining Overlay District

Printed on: July 06, 2016



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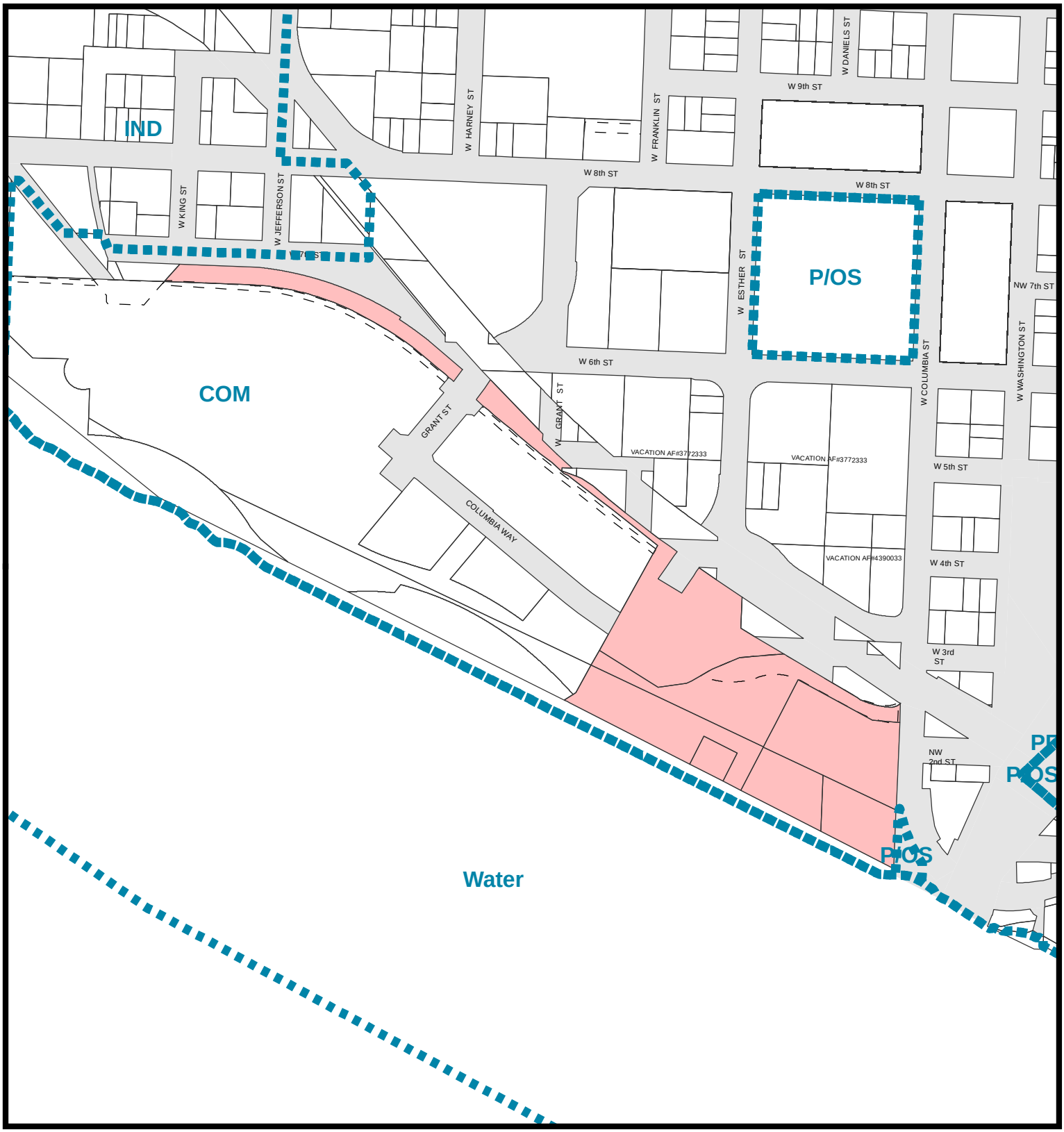


CLARK COUNTY, WASHINGTON

Geographic Information System

1:4,800

0 200 400 600 Feet

N

Comprehensive Plan Designation

Account No: 48843000, 48841000, 48844000, 502240000

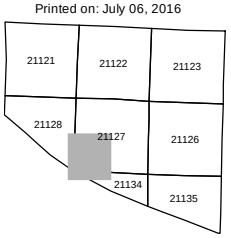
Owner: PORT OF VANCOUVER

Address: 3103 NW LOWER RIVER RD

C/S/Z: VANCOUVER, WA 98660

- Subject Parcel
- Public Road
- Transportation or Major Utility Easement
- Comprehensive Plan Boundary
- Urban Reserve
- Industrial Reserve
- Railroad Industrial Reserve
- Mining
- Rural Center Mixed Use
- Columbia River Gorge Scenic Area

Printed on: July 06, 2016



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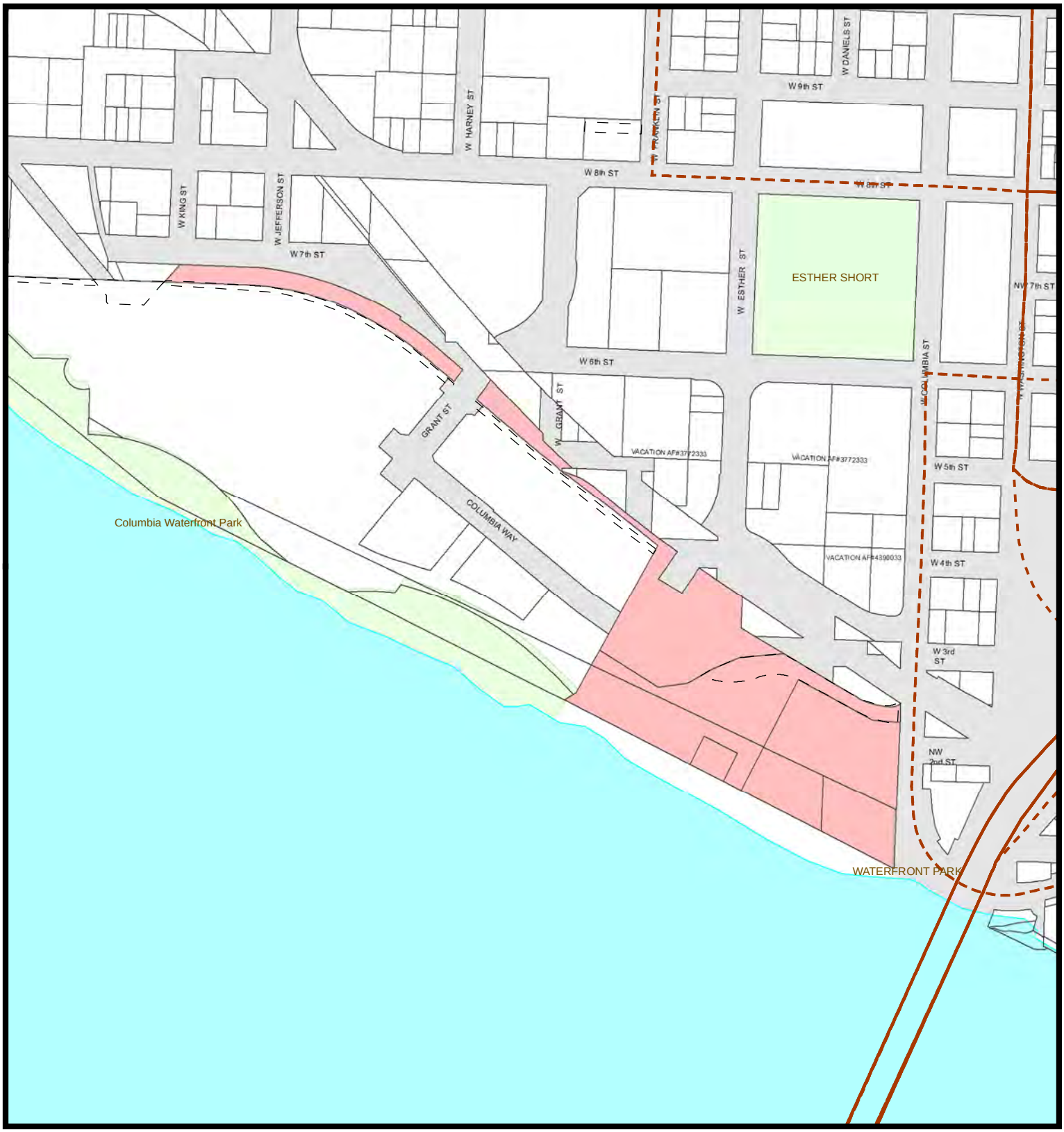


CLARK COUNTY, WASHINGTON

Geographic Information System

1:4,800

0 190 380 570 Feet

Arterials C-Tran Routes Parks & Trails

Account No: 48843000, 48841000, 48844000, 502240000

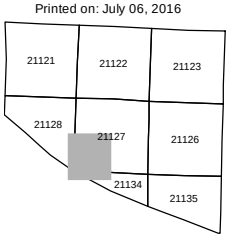
Owner: PORT OF VANCOUVER

Address: 3103 NW LOWER RIVER RD

C/S/Z: VANCOUVER, WA 98660

- Subject Parcel
- Public Road
- Transportation or Major Utility Easement
- Parks
- Trails
- C-Tran Route
- Principal Arterial
- Minor Arterial
- Collector
- Rural Major Collector
- Rural Minor Collector
- State Route
- Other
- Proposed Arterial
- Scenic Highway

Printed on: July 06, 2016



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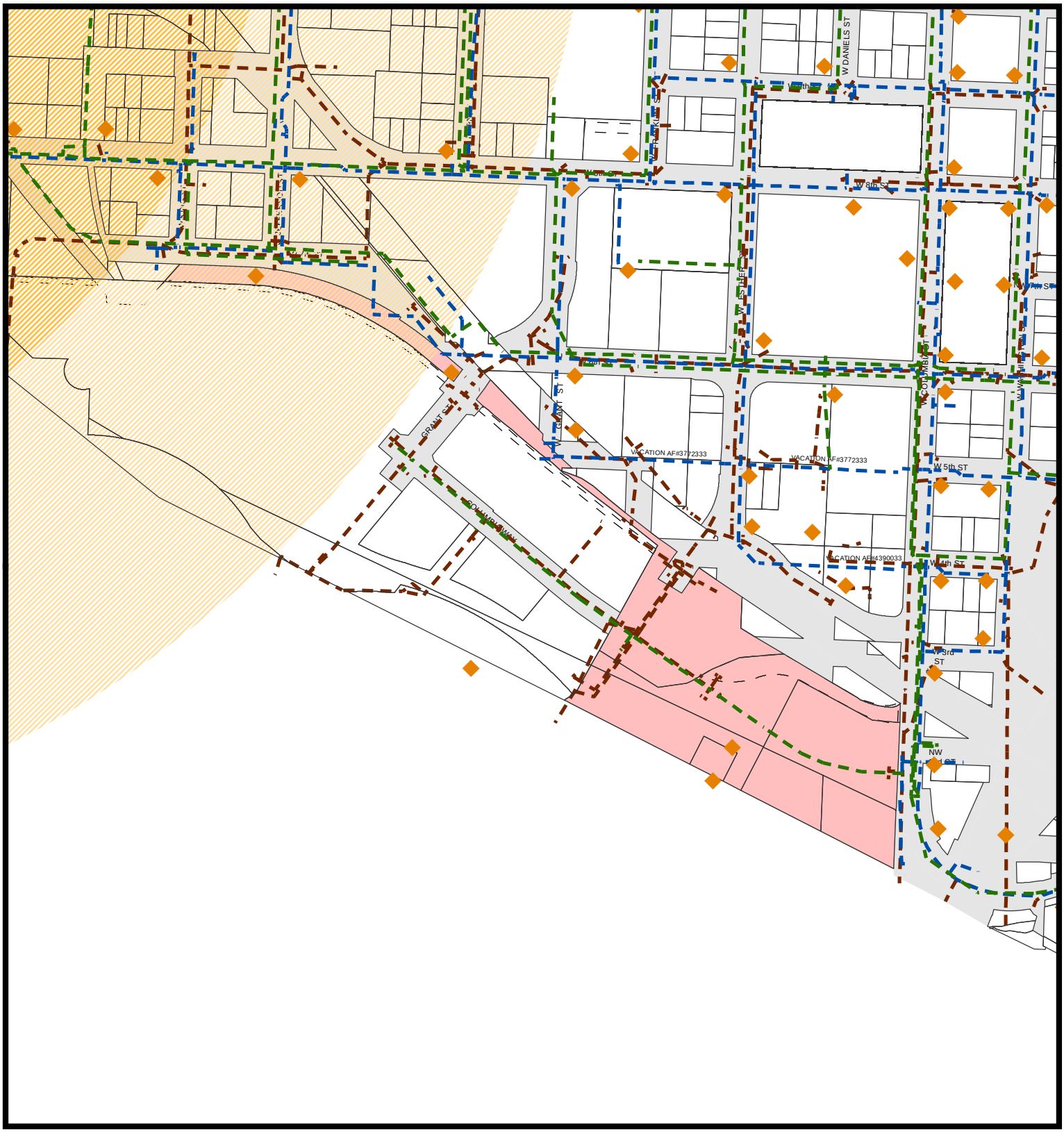


CLARK COUNTY, WASHINGTON

Geographic Information System

N

1:4,800

0 190 380 570 Feet

Water Sewer and Storm Systems

Account No: 48843000, 48841000, 48844000, 502240000

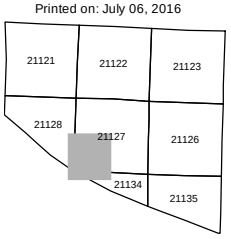
Owner: PORT OF VANCOUVER

Address: 3103 NW LOWER RIVER RD

C/S/Z: VANCOUVER, WA 98660

- Subject Parcel
- Public Road
- Transportation or Major Utility Easement
- Storm Water Lines
- Water Lines
- Sewer Lines
- 1-year Wellhead ZOC
- 5-year Wellhead ZOC
- 10-year Wellhead ZOC
- Hydrants

Printed on: July 06, 2016



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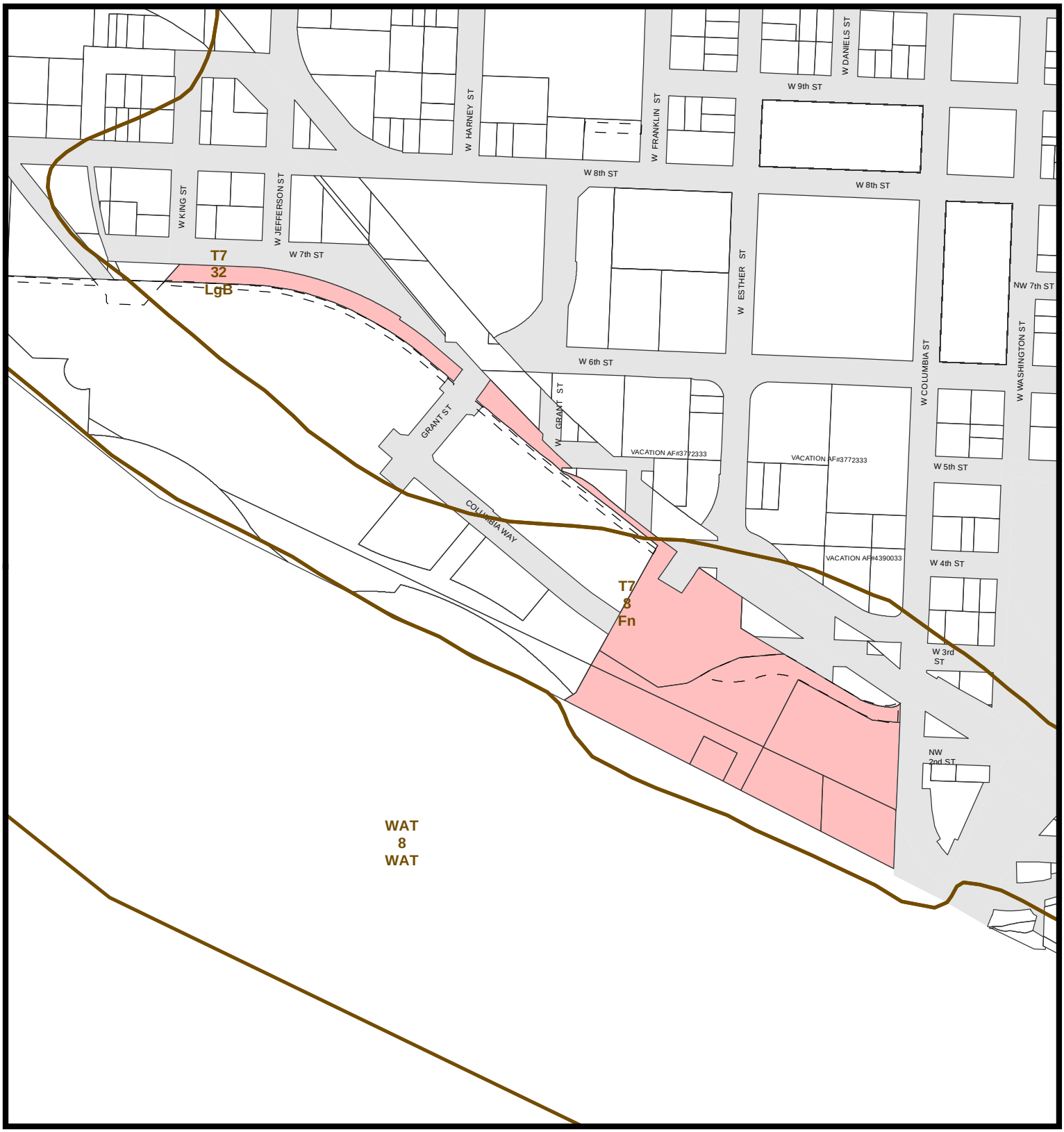


CLARK COUNTY, WASHINGTON
Geographic Information System

1:4,800

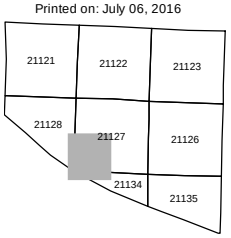
0 190 380 570 Feet

Soil Types

Account No: 48843000, 48841000, 48844000, 502240000
Owner: PORT OF VANCOUVER
Address: 3103 NW LOWER RIVER RD
C/S/Z: VANCOUVER, WA 98660

Subject Parcel
Public Road
Transportation or Major Utility Easement
Soil Type Boundary

Printed on: July 06, 2016



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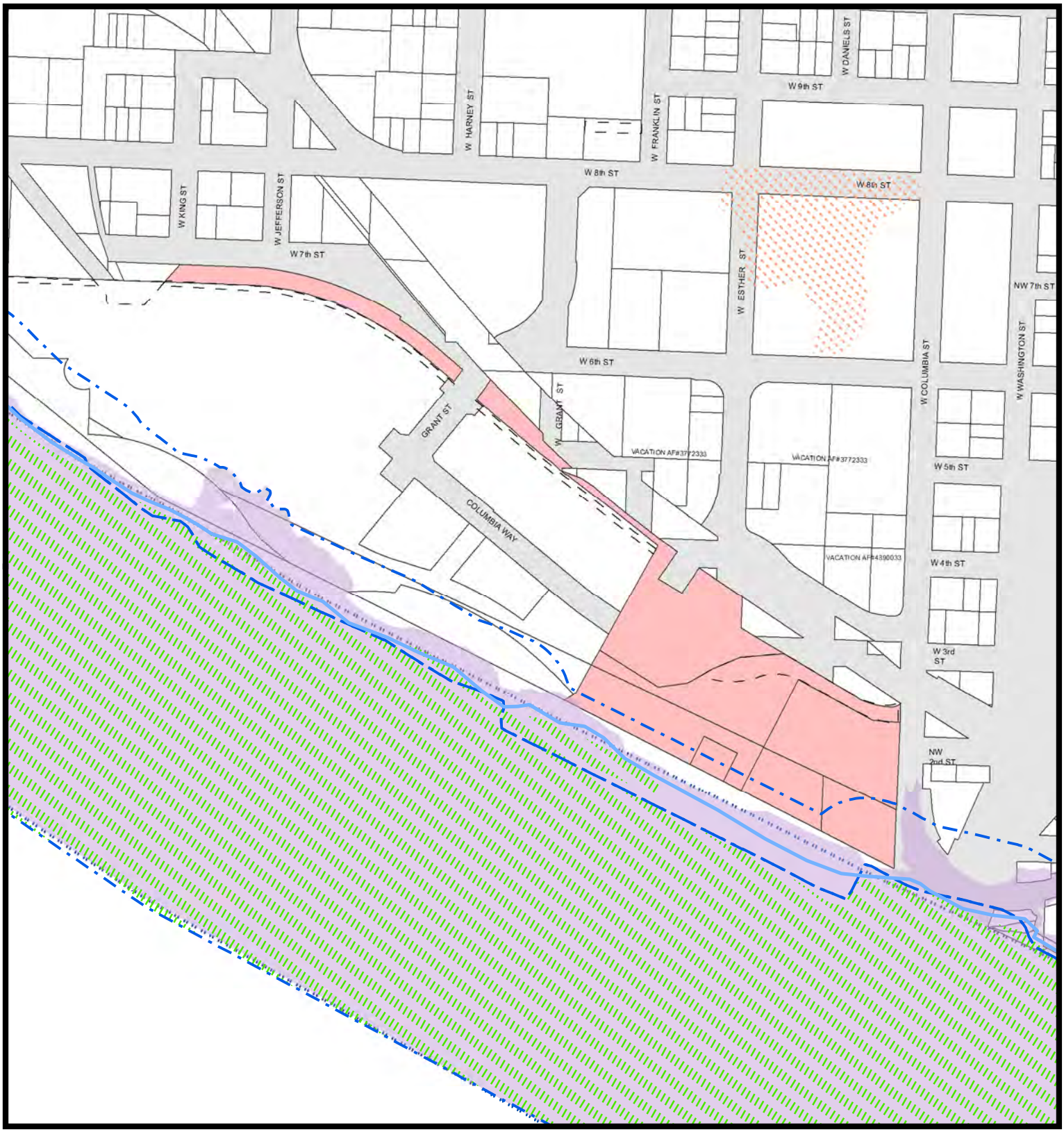


CLARK COUNTY, WASHINGTON

Geographic Information System

N

1:4,800

0 190 380 570 Feet

Environmental Constraints I

Account No: 48843000, 48841000, 48844000, 502240000

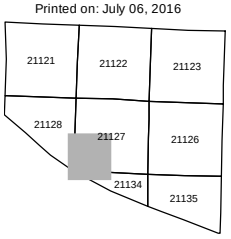
Owner: PORT OF VANCOUVER

Address: 3103 NW LOWER RIVER RD

C/S/Z: VANCOUVER, WA 98660

- Subject Parcel
- Public Road
- Transportation or Major Utility Easement
- Hydric Soils
- Wetland Inventory
- Non-riparian Habitat or Species Area
- CARA Category 1
- 100 year Floodplains
- Floodway
- Shorelines
- Stream

Printed on: July 06, 2016



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NOTICE: DEVELOPER'S PACKETS CONTAIN THE UPDATED SHORELINE DESIGNATION MAP LAYER

Mapping of Shoreline Master Program (SMP) Shoreline Designations (SDs)

Clark County jurisdictions formed a coalition and worked together, with oversight from the Washington State Department of Ecology, to update their local SMPs and Shoreline Designation (SD) Maps. Updated shoreline designations have been mapped countywide and are now shown in Developer's Packets. However, because the coalition jurisdictions are proceeding individually toward local adoption and Ecology approval of their SMPs and SD Maps, their SD Maps will become effective at different times throughout the rest of 2012 and into 2013. Therefore, it is important to understand that some projects fall under the new designations and some are still regulated based on prior designations.

Interim and newly adopted Shorelines Master Program (SMP) Shoreline Designation (SD) Map layers can be viewed in MapsOnline until the SMP update process for Clark County jurisdictions is complete. The interim map layer entitled *Interim Shoreline Designations* applies to projects in jurisdictions where the newly adopted SD Maps are not yet effective. The *Shoreline Designation* map layer applies to jurisdictions where the newly adopted SD maps have become effective.

It is important to review the SMP status for the jurisdiction in which your project is located to determine which map layer and shoreline designations apply.

The appropriate shoreline map layer and a link to each jurisdiction's SMP website is listed below:

Clark County - As of September 12, 2012, newly adopted shoreline designations are represented in the Shoreline Designations map layer in Developer's Packets

http://www.clark.wa.gov/planning/land_use/shoreline.html

Vancouver and Camas – As of September 24, 2012, new SMP designations took effect for both Camas and Vancouver. New Shoreline Designations are represented in Developer's Packets.

Vancouver - http://www.cityofvancouver.us/environmentalOrd.asp?menuid=10463&submenuid=10487

Camas - http://www.ci.camas.wa.us/index.php/planning/planningcurrentissues

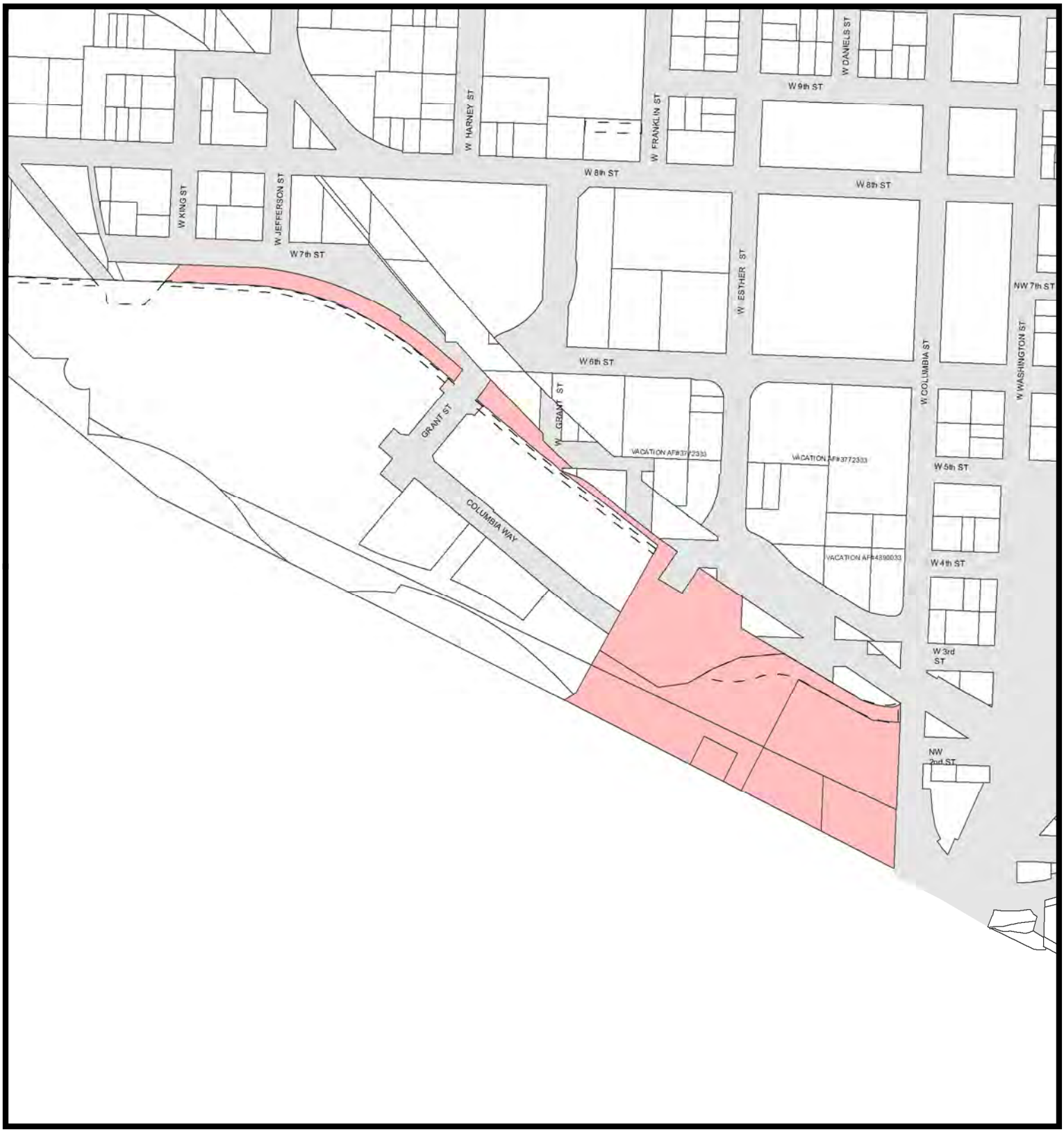
Other jurisdictions – Refer to the Interim Shoreline Designations map layer in MapsOnline until the updated Shoreline Designation Map becomes effective, at which time the Shoreline Designations map layer will take effect.

Battle Ground - http://www.cityofbg.org/index.aspx?nid=374

La Center - http://www.ci.lacenter.wa.us/city_departments/city_planner.html

Ridgefield - http://www.ci.ridgefield.wa.us/resources/documents/SMPAdoptedApril122012.pdf

Washougal - http://www.cityofwashougal.us/city-services/community-development2/planning-division2/services/shoreline-master-program-update.html



CLARK COUNTY, WASHINGTON
Geographic Information System

N

1:4,800

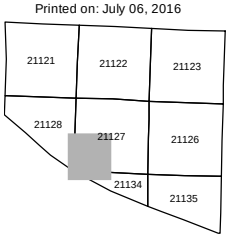
0 190 380 570 Feet

Environmental Constraints II

Account No: 48843000, 48841000, 48844000, 502240000
Owner: PORT OF VANCOUVER
Address: 3103 NW LOWER RIVER RD
C/S/Z: VANCOUVER, WA 98660

- Subject Parcel
- Public Road
- Transportation or Major Utility Easement
- Slopes > 15%
- Potentially Unstable Slope
- Historic or Active Landslide
- Severe Erosion Hazard Areas
- CCHR Historic Site
- NRHP Historic Site
- INV Historic Site

Printed on: July 06, 2016



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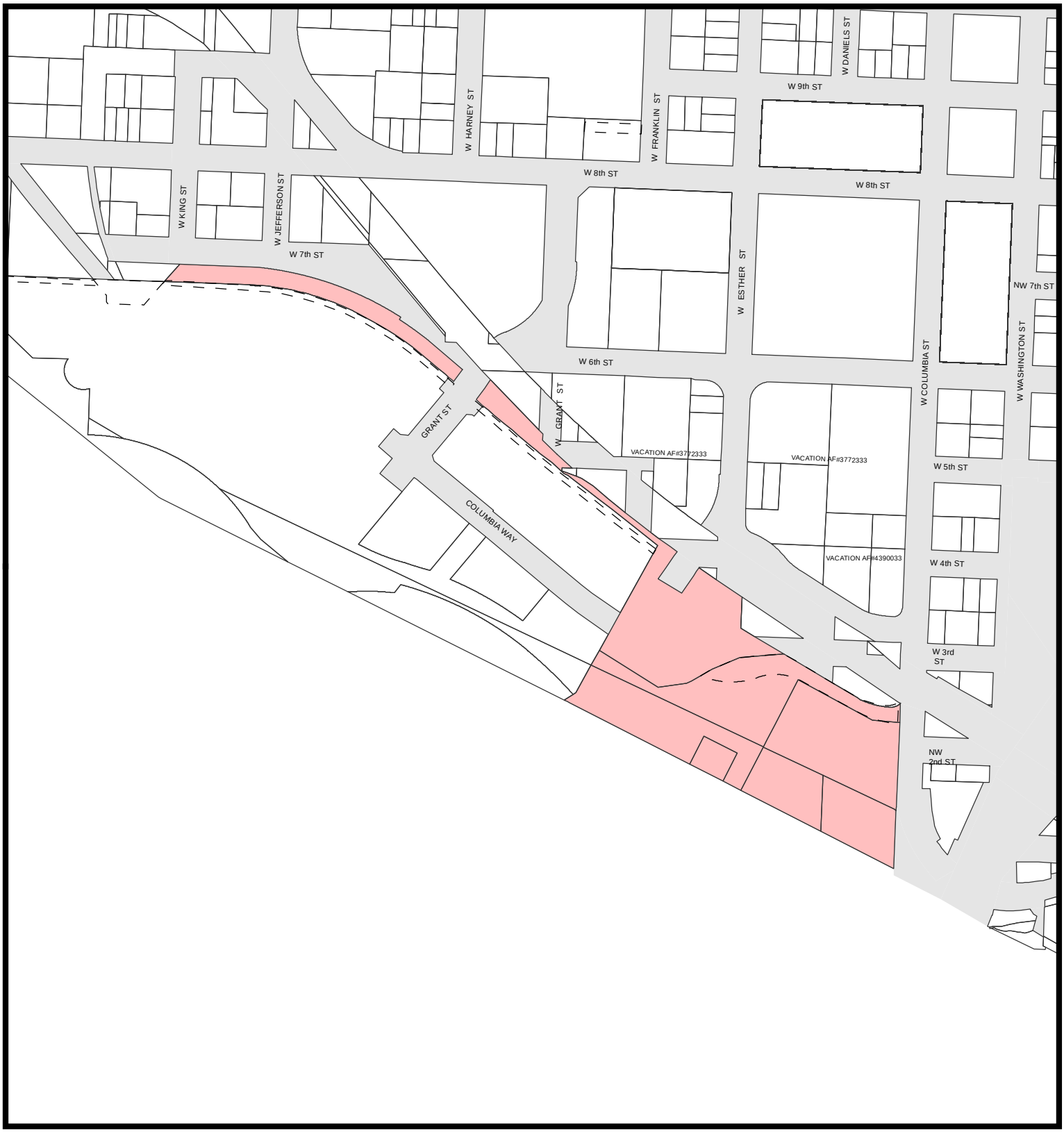


CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

1:4,800

0 200 400 600 Feet

N

Adjacent Development

Account No: 48843000, 48841000, 48844000, 502240000

Owner: PORT OF VANCOUVER

Address: 3103 NW LOWER RIVER RD

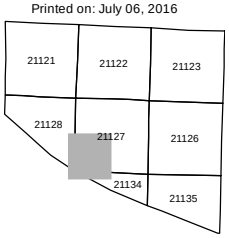
C/S/Z: VANCOUVER, WA 98660

Proposed Development Area

Public Road

Transportation or Major Utility Easement

Printed on: July 06, 2016



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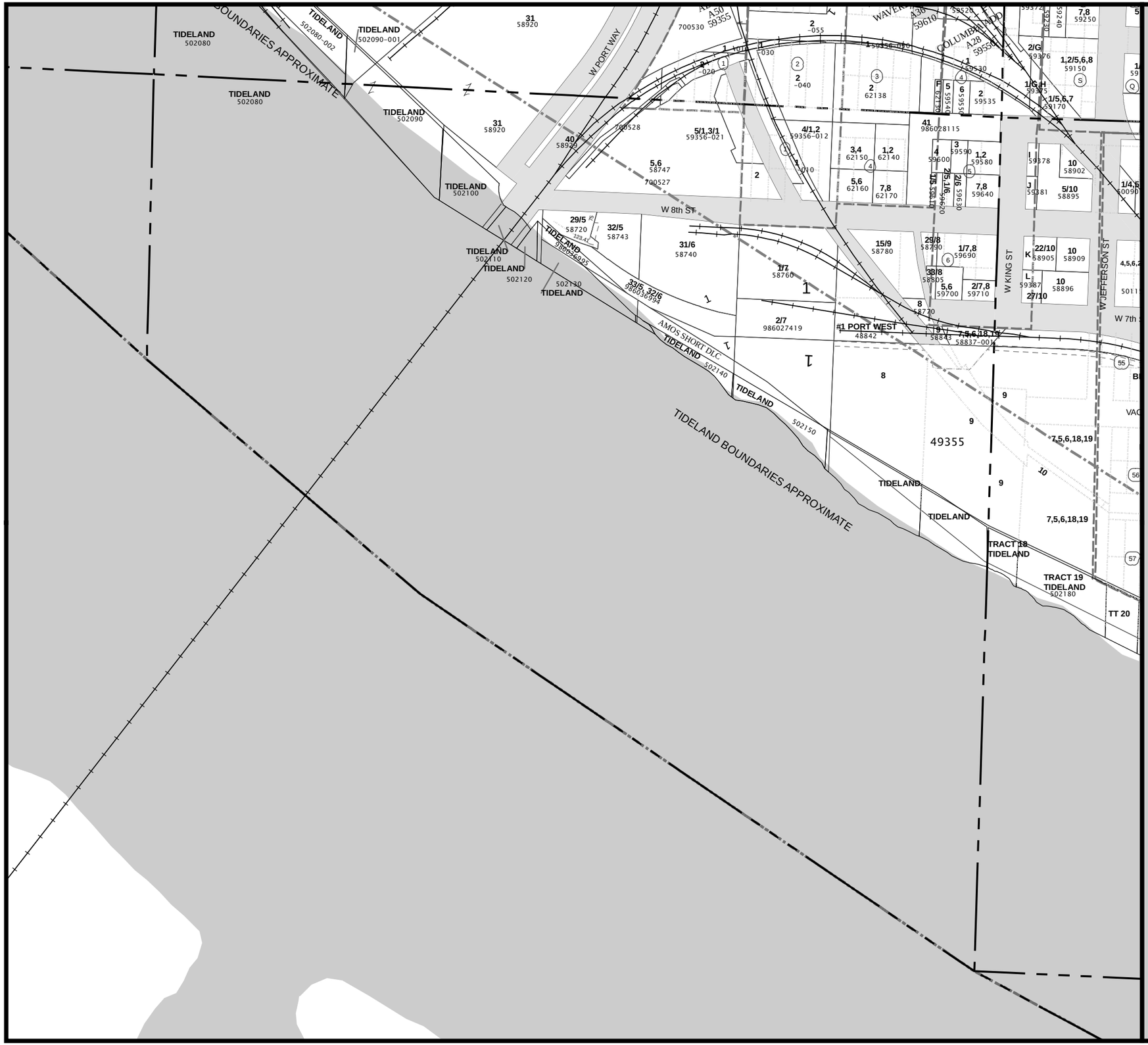

Clark County
Washington
SE Qtr of Section 28 T2N R1E WM

Legend

- History
- Railroad
- Utility Line
- Pipelines
- Streams
- Easements
- Control Lines
- City Boundaries
- Donation Land Claim
- Tax Code Lines
- Donation Land Claim
- Subdivision Lines
- Road Right of Way - Actual Road May not Exist
- Water

1:3,600

0 125 250 500 750 1,000 1,250 Feet

proud past, promising future
CLARK COUNTY WASHINGTON Geographic Information System

N

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Printed on: December 10, 2015

Clark County
Washington
SW Qtr of Section 27 T2N R1E WM

Legend

- History
- Railroad
- Utility Line
- Pipelines
- Streams
- Easements
- Control Lines
- City Boundaries
- Donation Land Claim
- Tax Code Lines
- Donation Land Claim
- Subdivision Lines
- Road Right of Way - Actual Road May not Exist
- Water

1:3,600

0 125 250 500 750 1,000 1,250 Feet

proud past, promising future

CLARK COUNTY WASHINGTON Geographic Information System

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

Printed on: January 11, 2016

CHICAGO TITLE **Fidelity National Title**

TWO COMPANIES ONE UNITED TEAM

This map/plat is being furnished as an aid in locating the herein described land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

geoAdvantage

Chicago Title and/or Fidelity National Title certify that the properties contained in this electronic search of the records of the Department of Assessment and Geographic Information Systems (GIS) of Clark County, WA is a true and accurate list of properties within 500 feet of the subject property. This search contains records recorded as of DECEMBER 15, 2016. This is not a title product therefore this company assumes no liability for the content therein.

Signed _____

Nate Hidalgo - Property Information Specialist

Columbia Fourth Building LLC
or Current Resident
215 W 4th St Suite # 200
Vancouver, WA 98660

Hurley Dev LLC
or Current Resident
915 Broadway St Ste 250
Vancouver, WA 98660

Esther Condo LLC
or Current Resident
PO Box 3933
Portland, OR 97208

Housing Authority Vancouver
or Current Resident
2500 Main St
Vancouver, WA 98660

Columbian Inc The
or Current Resident
PO Box 180
Vancouver, WA 98666

West Esther Partners LLC
or Current Resident
610 Esther St Ste 202
Vancouver, WA 98660

D & D Sunrise Inc
or Current Resident
PO Box 61649
Vancouver, WA 98666

Airgas Usa LLC
or Current Resident
3737 Worsham Ave
Long Beach, CA 90808

Burlington Northern Inc (sp
or Current Resident
1700 E Golf Rd 4th Flr
Schaumburg, IL 60173

Steve Palodichuk
or Current Resident
1005 W 8th St
Vancouver, WA 98660

Lafarge Canada Inc (c/B)
or Current Resident
200, 7455 - 132 Street
Surrey, BC V3W 1JB

Boise Cascade LLC
or Current Resident
PO Box 50
Boise, ID 83728

Burlington Northern Inc
or Current Resident
PO Box 961089
Fort Worth, TX 76161

Wilton Family Partnership Lp
or Current Resident
PO Box 116
North Lakewood, WA 98259

Cardinal Real Estate LLC
or Current Resident
1000 W 8th St
Vancouver, WA 98666

Cfsp Properties LLC
or Current Resident
1306 SE Chelsea Ave
Vancouver, WA 98664

Clark Public Utilities
or Current Resident
PO Box 8900
Vancouver, WA 98668

Port Of Vancouver
or Current Resident
3103 NW Lower River Rd
Vancouver, WA 98660

8th Street Cannery LLC
or Current Resident
801 Main St
Vancouver, WA 98660

Columbia Waterfront LLC
or Current Resident
19767 SW 72nd Ave Ste 100
Tualatin, OR 97062

Block 8 Investment LLC
or Current Resident
915 W 11th St
Vancouver, WA 98660

City Of Vancouver
or Current Resident
PO Box 1995
Vancouver, WA 98668

2 copies

Non-owner occupied

Columbia Fourth Building LLC
or Current Resident
215 W 4th St
Vancouver, WA 98660

K2sm Investments LLC
or Current Resident
210 W 3rd St
Vancouver, WA 98660

West Park Partners LLC
or Current Resident
610 Esther St
Vancouver, WA 98660

Lighthouse Community Credit Union
or Current Resident
702 Jefferson St
Vancouver, WA 98660

Donald & Dana Meacham
or Current Resident
1005 W 8th St
Vancouver, WA 98660

Cardinal Real Estate LLC
or Current Resident
1000 W 8th St
Vancouver, WA 98660

2 COPIES

OWNER OCCUPIED.

BergerABAM

210 East 13th Street, Suite 300, Vancouver, Washington 98660-3231
360/823-6100 • 360/823-6101 Fax • www.abam.com

Transmittal Memorandum

To: Greg Turner

415 W 6th Street

Vancouver, WA 98660

Date: December 23, 2016

Project: Terminal No.1 Waterfront Development

Our Number: A16.0262.01

Your Number: LUP-58917

Regarding: Clark County Health District Review

☒ **Prints** ☐ **Originals** ☐ **Reproducibles** ☐ **Photocopies** ☐ **Other** _____

Quantity	ID Number	Date	Description
1			Completed Clark County Public Health Development Review Application Form

Remarks:

A completed draft of the Clark County Public Health Development Review application form has been included with this application package. This form will be submitted to the Clark County Public Health Department during the submittal of subsequent development review applications for individual development projects. Clark County's Health Department review of the proposed development will occur once the Applicant's plans have been developed beyond conceptual design.

Thank you.

Brian Carrico
360-823-6100
Brian.Carrico@abam.com

cc: _____

By: Brian Carrico

Title: Natural Resources, Senior Project Manager

CLARK COUNTY PUBLIC HEALTH
1601 E. Fourth Plain Blvd.
PO Box 9825 • Vancouver, WA 98666-8825
(360) 397-8428 • Fax (360) 397-8084

For Office Use Only:

DEVELOPMENT REVIEW APPLICATION

ALL FEES ARE NON-REFUNDABLE; FEES MAY BE CHANGED WITHOUT NOTICE BY BOARD OF HEALTH ID # _____

PROJECT NAME: Terminal No.1 Waterfront Development

PROJECT ADDRESS: 100 Columbia Street, Vancouver, WA ZIP: 98660

APPLICANT NAME: Port of Vancouver (Matt Harding) PHONE: (360) 693-3611

APPLICANT ADDRESS: 3103 NW Lower River Road, Vancouver, WA ZIP: 98660

CONTACT PERSON: Brian Carrico PHONE: (360) 823-6100

CONTACT ADDRESS: 210 East 13th St, Suite 300, Vancouver, WA ZIP: 98660

Directions to site: (from nearest arterial) The project site is located west of the intersection of Columbia Street and Columbia Way.

Property dimensions: The project site consists of 7 parcels, totaling 10.37 acres of area.

Tax Serial #(s): 48843-000, 48841-000, 48844-000, 502240-000, 502245-000, 502246-000, 502250-000 Legal description: Quarter SE 1/4 SW 1/4 Sec. 28 27 Twn. 2N Range 1E

Development Type: Short Plat (# of lots ____); Subdivision (# of lots ____); Conditional Use Permit ____;

Site Plan Review ____; Other (specify) Master Plan

County/City File #s City of Vancouver, LUP-58917

Existing Water Supply: Municipal X ; Community well (# homes served ____); Individual well ____; Supply owner ____

Proposed Water Supply: Municipal ____; Community well (# homes served ____); Individual well ____; Supply owner ____

Existing Sewage System: Public Sewer X ; (Purveyor ____); Individual ____; Other ____

Proposed Sewage System: Public Sewer ____; (Purveyor ____); Individual ____; Other ____

Land Use: Current use: Warehouse 23 is the current tenant in the decommissioned Red Lion Inn at the Quay, other uses on the site include the Columbia Bussiness Center, and adjacent vacant parcels.

Historical uses of this property (for example, dairy farm, landfill, gas station, etc.): Historical uses on the site include but are not limited to port, hotel, office, and commercial uses.

Present Property owner/s: Port of Vancouver

Past owners, names on existing septic permits, etc. (if known): N/A

I VERIFY THAT ALL INFORMATION SUBMITTED BY ME IS ACCURATE :

APPLICANT'S SIGNATURE: _____ *DATE:* _____

Note: Applicant's signature grants Clark County Public Health permission to enter the site and non-residential buildings.

****HEALTH DEPARTMENT USE ONLY****

Fee: _____ AR#: _____ INV #: _____ SR#: _____

Application Packet Received by _____ Date _____

EHS site visit date(s): _____ by _____

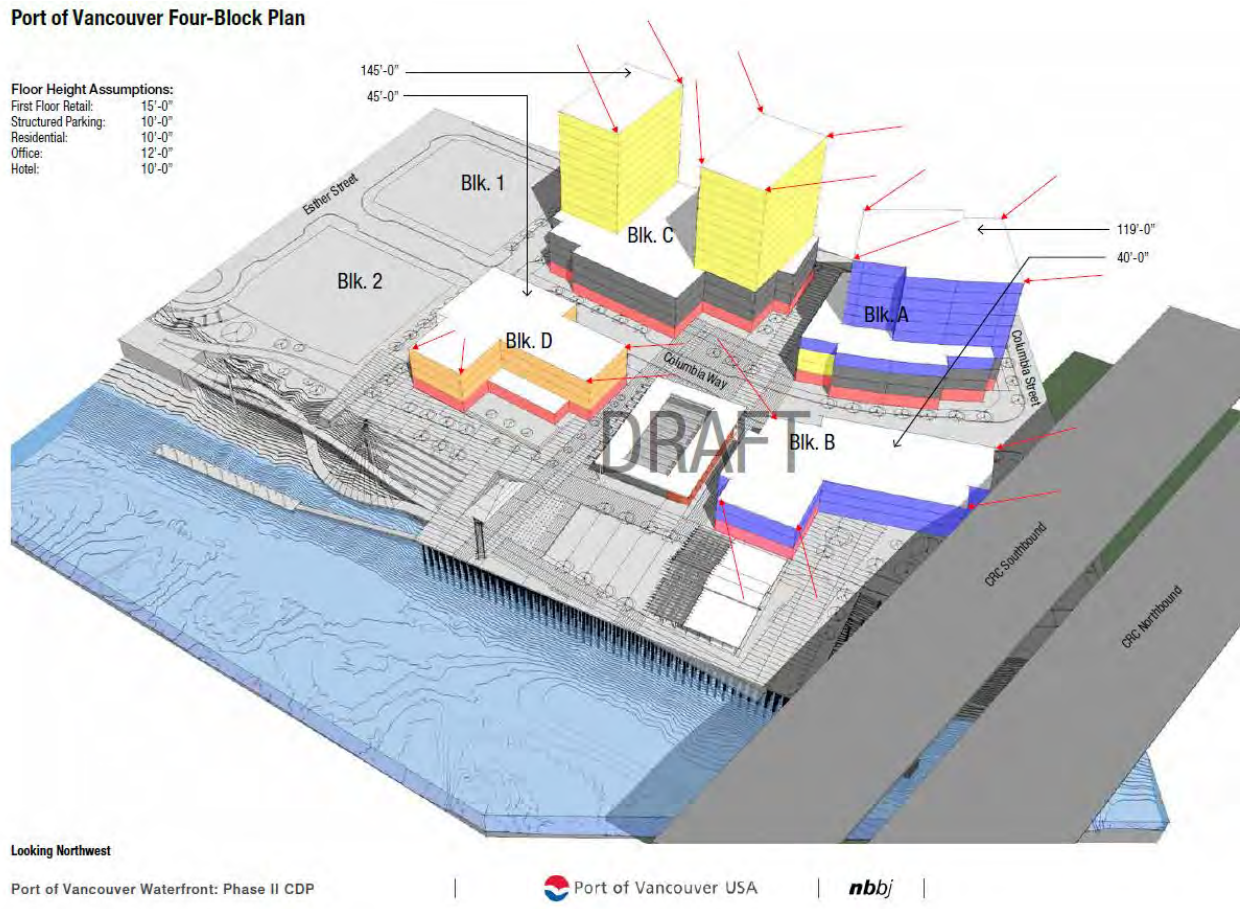
Project Description

Port of Vancouver Port Development Project

This paper is a description of improvements proposed for the Port of Vancouver (port) Development Project consisting of buildings to be constructed on four blocks on the north bank of the Columbia River and west of the southbound lanes of Interstate 5.

This 7460 submittal will input latitude and longitude for corners of three buildings; Building A, Building C East, and Building C West, and also includes a housing for mechanical equipment on top of each of the three buildings. The buildings on Blocks B and D are too low to be of any airspace concern. Please see layout for the project below and on the survey control sheet also submitted with this project information.

1 Excerpt from the Port of Vancouver, Waterfront Phase II Concept Development Plan



The nearest affected airport is Pearson Field. This project is within the airspace shadow caused by the north bound I5 interstate draw bridge. The June 2013 Pearson Airport Master Plan[1] shows an obstacle

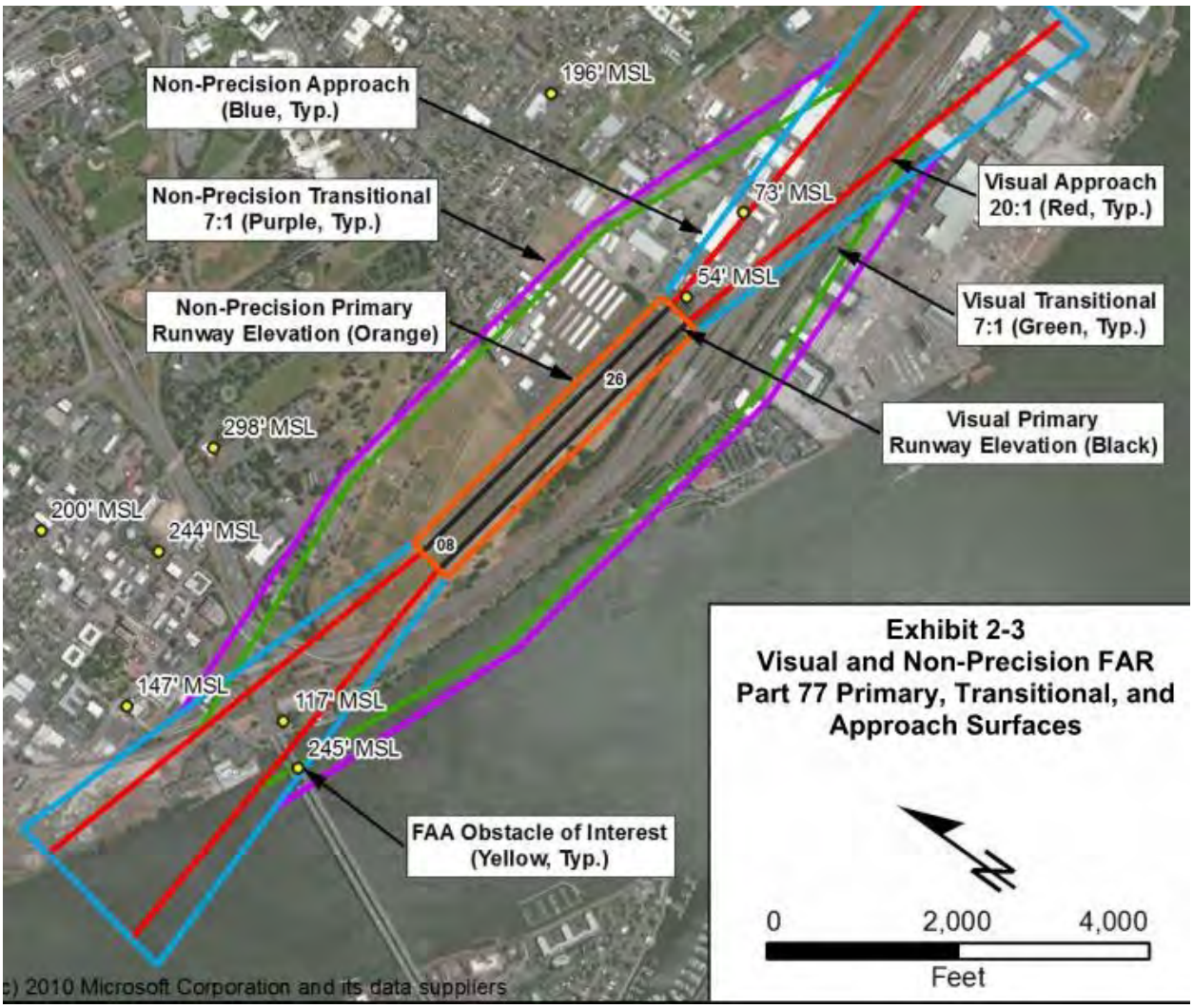
[1] Pierson Field Airport Master Plan, Pearson Field, Vancouver, WA, Prepared by Mead and Hunt, June 2013

of interest on the I-5 bridge at an elevation of 245 feet MSL. Sheet 8 of the Airport Layout Plan shows the draw bridge tower at elevation 277 MSL and the bridge at 244 feet. (See exhibit 2-3 and an excerpt from sheet 5 of the airport master plan below) Our port project lies 580 feet north of the 277 foot bridge tower, or put another way our project is 12 degrees north of the bridge tower as measured from the threshold of runway 8 and as such for the purpose of this airspace study is shadowed by the bridge tower. According to the Airport Master Plan the lift span tower on the I-5 bridge penetrates 98 feet into the Part 77 20:1 imaginary surface slope and is 70 feet above the horizontal surface.

2 Excerpt from Pearson ALP, sheet 5

Excerpt from Pearson ALP, sheet 5

3 Exhibit 2-3 from the Airport Master Plan



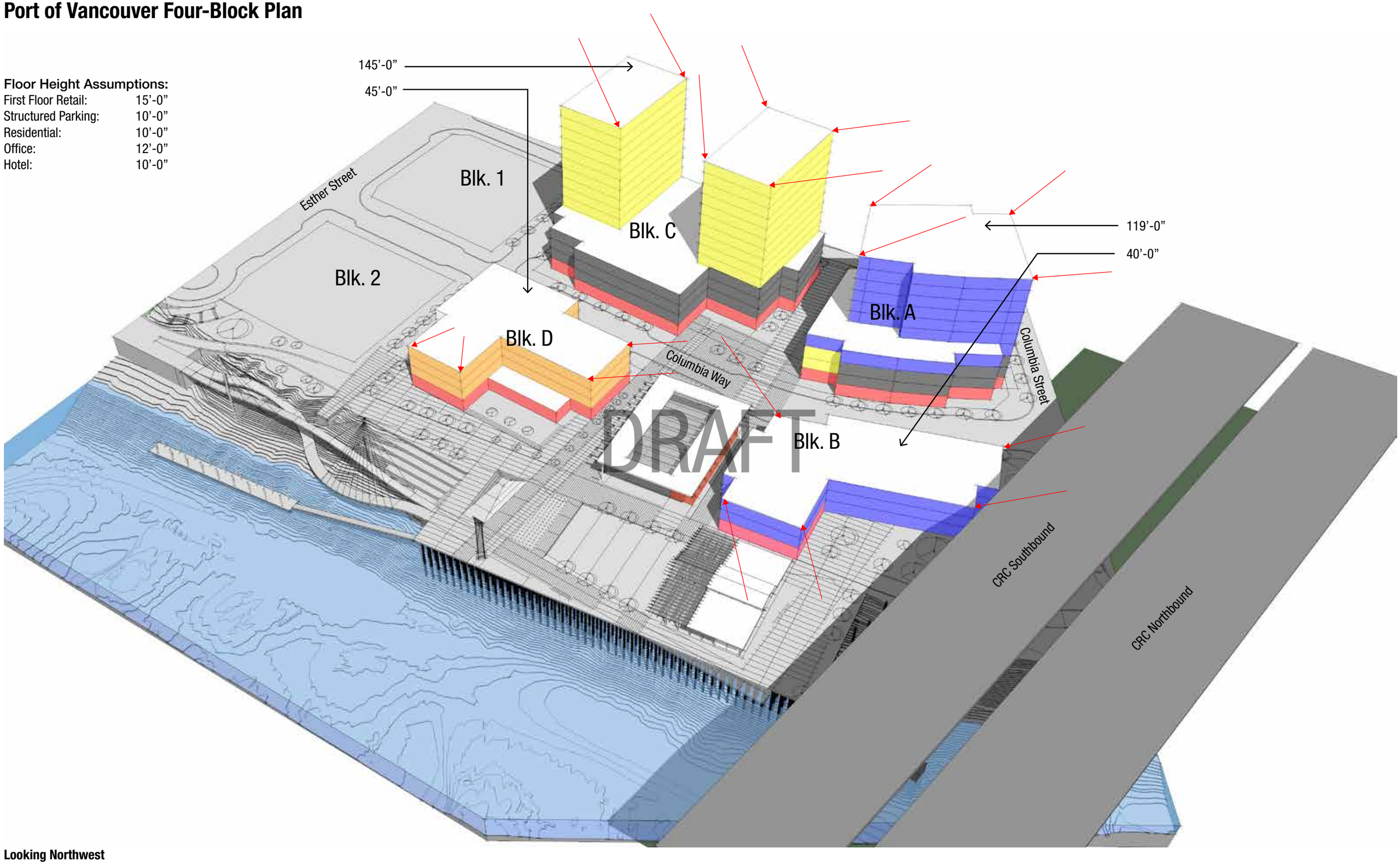
A preliminary aeronautical study was performed by the FAA in which they determined that the existing departure gradient is 650 feet/NM due to the lift towers on the existing I-5 bridge.[2]

[2] Interstate 5 Columbia River Crossing, Aviation Technical Report, May 2008

Port of Vancouver Four-Block Plan

Floor Height Assumptions:

First Floor Retail:	15’-0”
Structured Parking:	10’-0”
Residential:	10’-0”
Office:	12’-0”
Hotel:	10’-0”



Looking Northwest

Cleveland, Leandra L.

Subject: FW: POV2: Survey State Plane vs Lat/Long

AMServiceURLStr: https://slingshot.hdrinc.com/CFSS/control?view=services/FTService

---

From: John Blaikie [johnb@olsonengr.com]
Sent: Monday, August 08, 2016 1:31 PM
To: Siebe, Carl F.; Daren Crabill
Cc: Keith Walzak; Brian Carrico; Matt Harding
Subject: RE: POV2: Survey State Plane vs Lat/Long

Attached is a copy of the updated coordinate transformation list from Washington South (NAD83(12), 4602 US Survey Feet to Latitude and Longitude. Please let me know if you have any questions.

John Blaikie, PLS, CFedS
Associate Principal, Survey Project Manager

OLSON ENGINEERING INC.

222 E. Evergreen Blvd.
Vancouver, Washington 98660
Direct: (360) 713-6266
Office: (360) 695-1385
Cell: (360) 910-8644
Fax: (360) 695-8117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Point ID	Northing	Easting	Latitude(Global)	Longitude(Global)
1	112945.39	1084101.64	N45°37'19.28220"	W122°40'27.74628"
2	113026.44	1084143.29	N45°37'20.09335"	W122°40'27.19188"
3	113068.144	1083924.71	N45°37'20.44542"	W122°40'30.28213"
4	112954.811	1083866.63	N45°37'19.31121"	W122°40'31.05499"
5	112918.256	1083937.96	N45°37'18.96988"	W122°40'30.03764"
6	113104.897	1083742.59	N45°37'20.75854"	W122°40'32.85761"
7	113162.443	1083782.45	N45°37'21.33727"	W122°40'32.31941"
8	113297.362	1083632.6	N45°37'22.62789"	W122°40'34.47914"
9	113156.421	1083552.15	N45°37'21.21512"	W122°40'35.55595"
10	113116.393	1083609.57	N45°37'20.83576"	W122°40'34.73279"
11	113357.504	1083771.28	N45°37'23.25915"	W122°40'32.55222"
12	113463.123	1083845.59	N45°37'24.32166"	W122°40'31.54812"
13	113509.106	1083780.12	N45°37'24.75762"	W122°40'32.48664"
14	113403.481	1083705.93	N45°37'23.69507"	W122°40'33.48912"
15	113250.469	1083923.33	N45°37'22.24429"	W122°40'30.37225"
16	113356.325	1083997.3	N45°37'23.30904"	W122°40'29.37303"
17	113402.308	1083931.83	N45°37'23.74500"	W122°40'30.31154"
18	113296.682	1083857.64	N45°37'22.68246"	W122°40'31.31402"
19	113157.644	1084177.05	N45°37'21.39731"	W122°40'26.76792"
20	113266.644	1084177.05	N45°37'22.47296"	W122°40'26.81019"
21	113281.644	1084021.78	N45°37'22.57873"	W122°40'28.99971"
22	113201.175	1083980.54	N45°37'21.77341"	W122°40'29.54847"
23	112979.049	1083896.08	N45°37'19.55841"	W122°40'30.65025"
24	112951.684	1083949.47	N45°37'19.30290"	W122°40'29.88869"
25	113022.879	1083985.96	N45°37'20.01540"	W122°40'29.40317"
26	113050.244	1083932.56	N45°37'20.27092"	W122°40'30.16473"
27	113202.609	1084051.74	N45°37'21.80694"	W122°40'28.54776"
28	113202.609	1084151.61	N45°37'21.83411"	W122°40'27.14313"
29	113247.462	1084151.61	N45°37'22.27674"	W122°40'27.16053"
30	113247.462	1084051.74	N45°37'22.24957"	W122°40'28.56516"
31	113311.019	1083896.32	N45°37'22.83447"	W122°40'30.77553"
32	113291.511	1083924.08	N45°37'22.64951"	W122°40'30.37757"
33	113341.494	1083959.25	N45°37'23.15234"	W122°40'29.90239"
34	113361.029	1083931.45	N45°37'23.33755"	W122°40'30.30089"
35	113418.054	1083744.27	N45°37'23.84933"	W122°40'32.95551"
36	113398.545	1083772.03	N45°37'23.66437"	W122°40'32.55755"
37	113448.529	1083807.2	N45°37'24.16720"	W122°40'32.08237"
38	113468.064	1083779.4	N45°37'24.35241"	W122°40'32.48087"
39	113195.153	1083621.85	N45°37'21.61633"	W122°40'34.59074"
40	113155.126	1083679.28	N45°37'21.23697"	W122°40'33.76758"
41	113195.089	1083707.87	N45°37'21.63912"	W122°40'33.38097"
42	113235.817	1083650.94	N45°37'22.02554"	W122°40'34.19735"

Federal Aviation Administration

Note: Effective 10/28/2016, the format of the FAA Determination of No Hazard to Air Navigation for Temporary Structure letter has changed. Please be sure to review all pages of the determination issued for your ASN and adhere to all conditions stated in the letter.

« OE/AAA

Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000393249-16 **Sponsor:** Port of Vancouver

Details for Case : Building B Point 3

Show Project Summary

Case Status

ASN:	2016-ANM-3523-OE	**Date Accepted:**	11/23/2016
Status:	Accepted	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building B Point 3
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 20.45'' N
Longitude:	122° 40' 30.28'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	82 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

Previous Back to Search Result Next

Federal Aviation Administration

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« OE/AAA

Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000393250-16 **Sponsor:** Port of Vancouver

Details for Case : Building B Point 4

Show Project Summary

Case Status

ASN:	2016-ANM-3524-OE	**Date Accepted:**	11/23/2016
Status:	Accepted	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building B Point 4
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 19.31'' N
Longitude:	122° 40' 31.05'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	82 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

Previous Back to Search Result Next

Federal Aviation Administration

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« OE/AAA

Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000393293-16 **Sponsor:** Port of Vancouver

Details for Case : Building B Point 44 New Point

Show Project Summary

Case Status

ASN:	2016-ANM-3532-OE	**Date Accepted:**	11/23/2016
Status:	Accepted	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building B Point 44 New Point
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 19.59'' N
Longitude:	122° 40' 29.61'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	82 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

Previous Back to Search Result Next

Federal Aviation Administration

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« OE/AAA

Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000393247-16 **Sponsor:** Port of Vancouver

Details for Case : Building D Point 8

Show Project Summary

Case Status

ASN:	2016-ANM-3521-OE	**Date Accepted:**	11/23/2016
Status:	Accepted	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building D Point 8
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.63'' N
Longitude:	122° 40' 34.48'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	110 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

Previous Back to Search Result Next

Federal Aviation Administration

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« OE/AAA

Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000393248-16 **Sponsor:** Port of Vancouver

Details for Case : Building D Point 9

Show Project Summary

Case Status

ASN:	2016-ANM-3522-OE	**Date Accepted:**	11/23/2016
Status:	Accepted	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building D Point 9
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 21.22'' N
Longitude:	122° 40' 35.56'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	110 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

Previous Back to Search Result Next

Federal Aviation Administration

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« OE/AAA

Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000393292-16 **Sponsor:** Port of Vancouver

Details for Case : Building D Point 43 New Point

Show Project Summary

Case Status

ASN:	2016-ANM-3531-OE	**Date Accepted:**	11/23/2016
Status:	Accepted	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building D Point 43 New Point
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 21.39" N
Longitude:	122° 40' 34.21" W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	110 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382378-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East, point 15

Show Project Summary

Case Status

ASN:	2016-ANM-2518-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East, point 15
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.24'' N
Longitude:	122° 40' 30.37'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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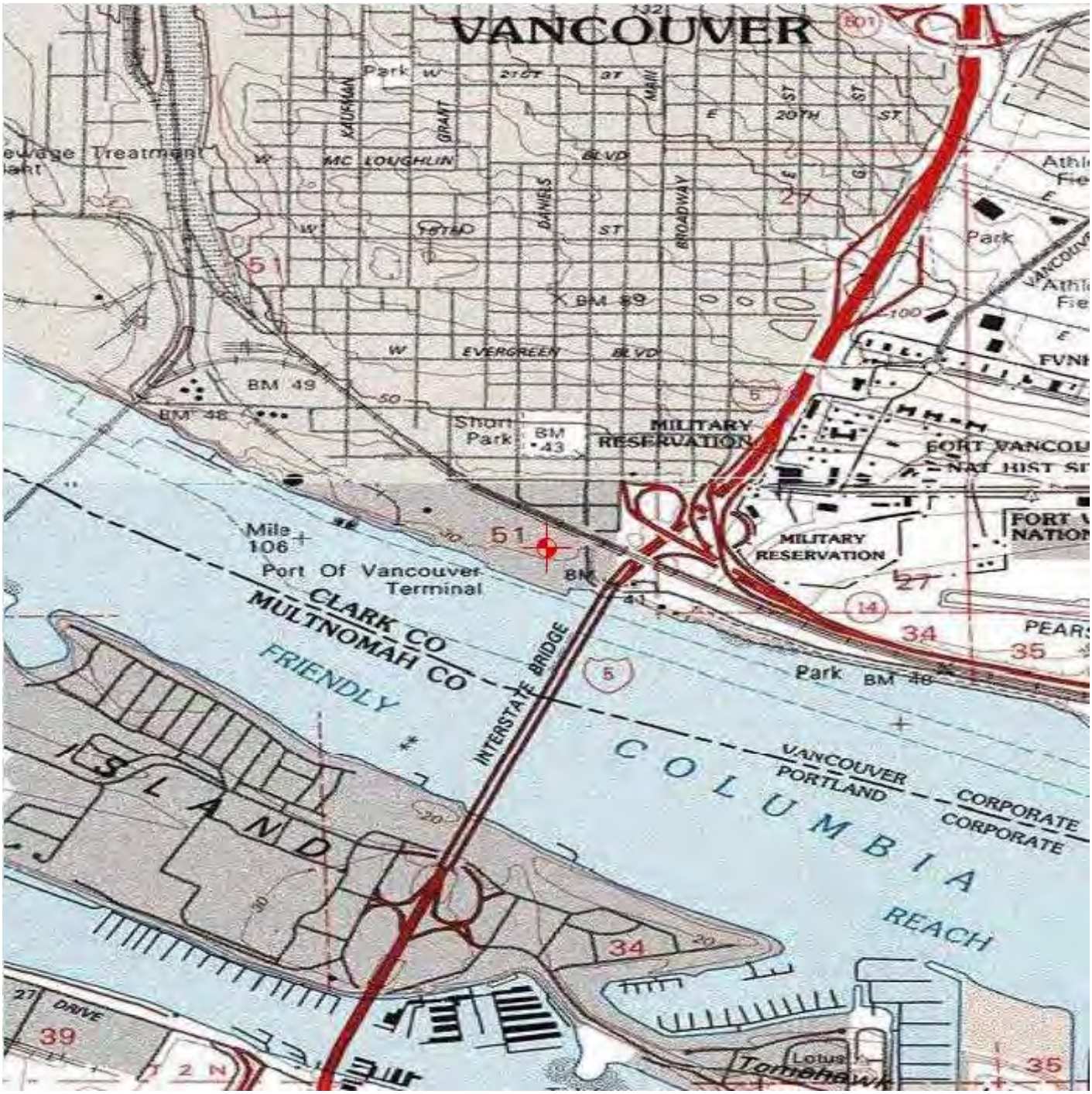
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Sewage Treatment
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Port Of Vancouver Terminal
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COLUMBIA
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Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382378-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East, point 16

Show Project Summary

Case Status

ASN:	2016-ANM-2519-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East, point 16
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.31'' N
Longitude:	122° 40' 29.37'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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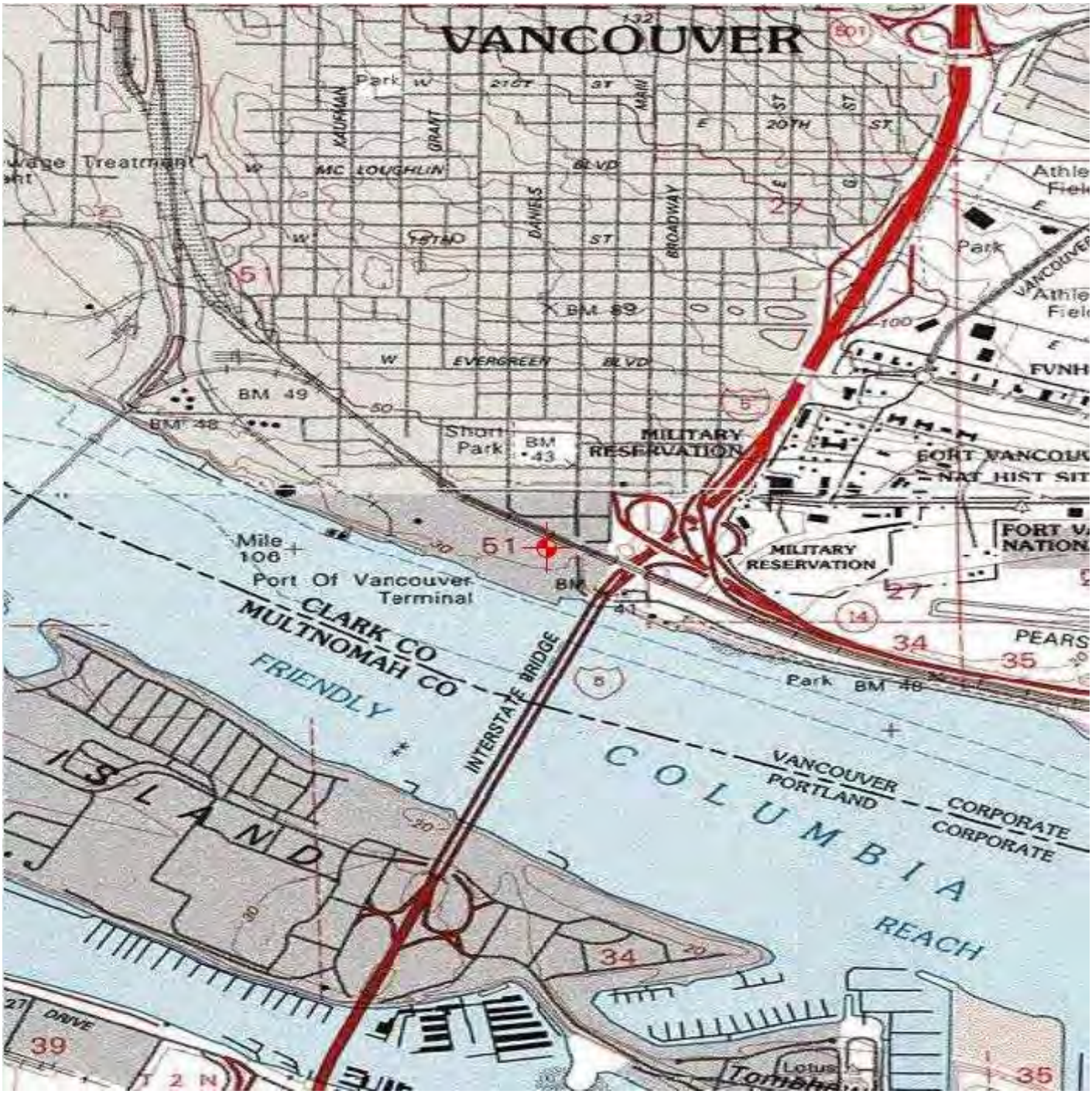
VANCOUVER
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REACH
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Lotus
PEARS

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382378-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East, point 17

Show Project Summary

Case Status

ASN:	2016-ANM-2520-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East, point 17
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.74'' N
Longitude:	122° 40' 30.31'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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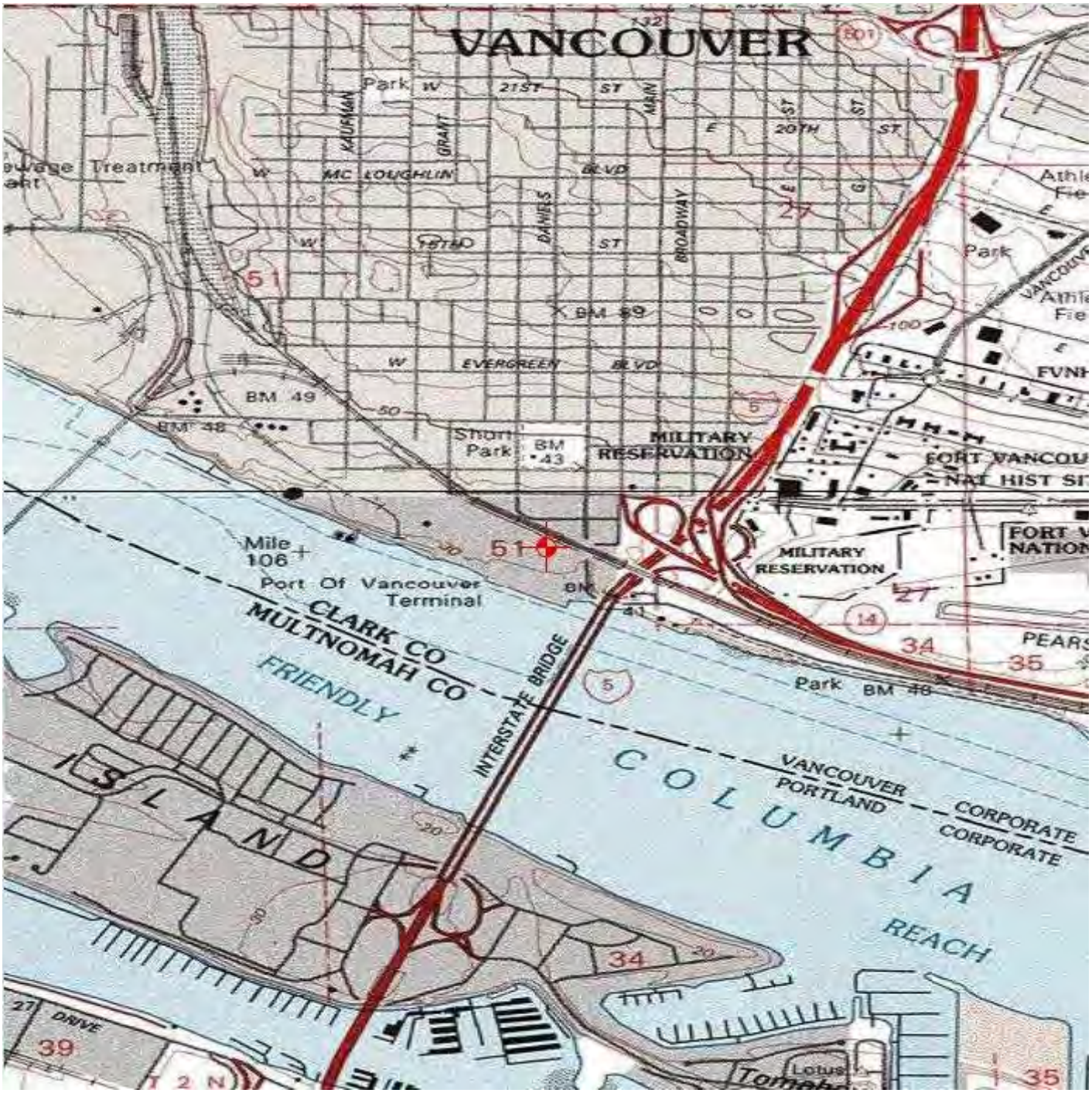
VANCOUVER
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FRIENDLY
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CORPORATE
CORPORATE
Park BM 48
PEARS
Lotus
DRIVE

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382378-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East, point 18

Show Project Summary

Case Status

ASN:	2016-ANM-2521-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East, point 18
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.68'' N
Longitude:	122° 40' 31.31'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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VANCOUVER
Park
W 21ST ST
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KAUFMAN
GRANT
Sewage Treatment Plant
W MC LOUGHLIN BLVD
DANIELS
BROADWAY
W 15TH ST
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BM 48
W EVERGREEN BLVD
Short Park
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MILITARY RESERVATION
FORT VANCOUVER NAT HIST SITE
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Port Of Vancouver Terminal
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MULTNOMAH CO
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Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382365-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East, Point 31 Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2735-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East, Point 31 Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.83'' N
Longitude:	122° 40' 30.78'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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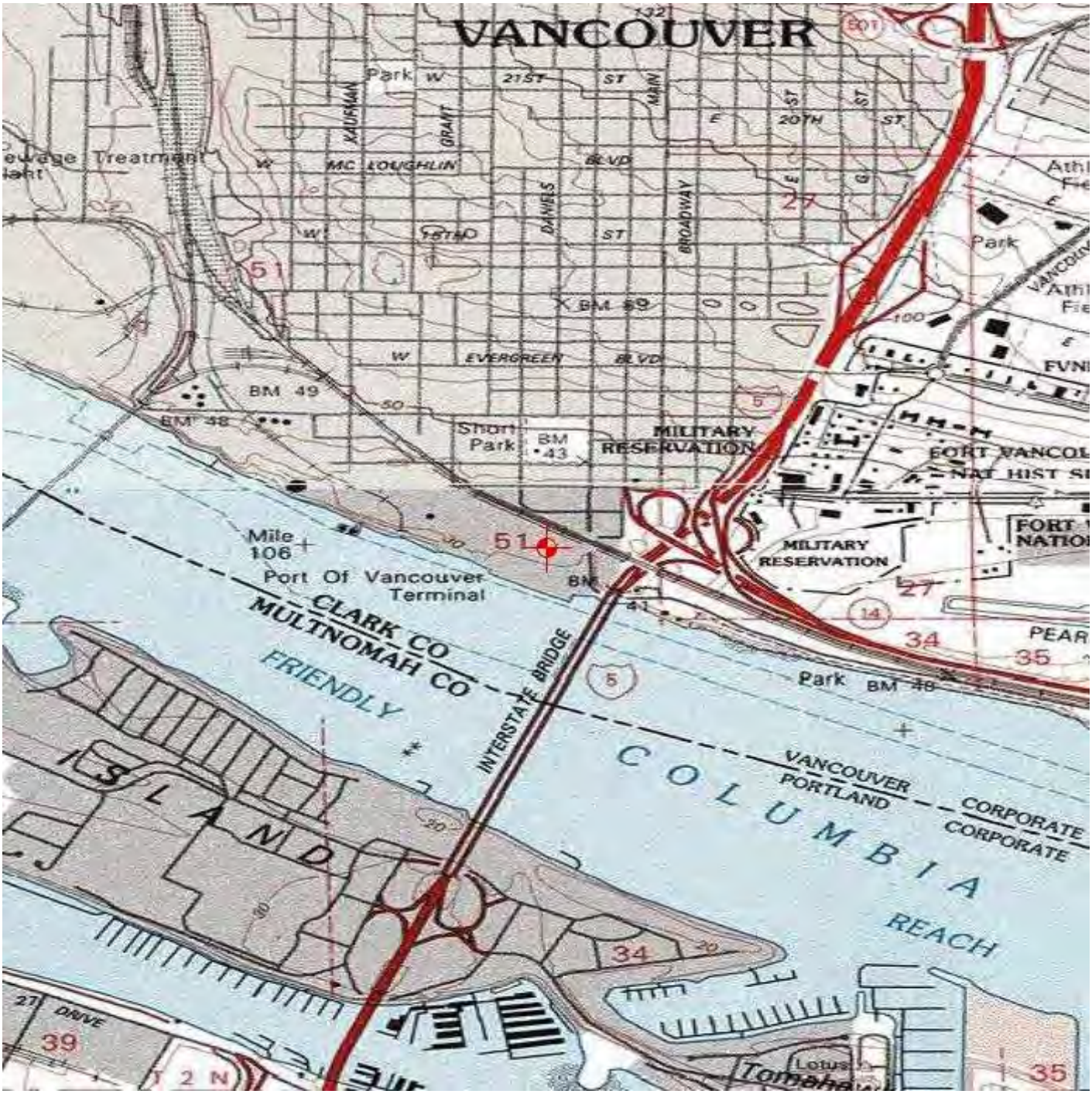
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Short Park
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MILITARY RESERVATION
FORT VANCOUVER
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CORPORATE
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Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382366-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East Point 32 Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2737-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East Point 32 Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.65'' N
Longitude:	122° 40' 30.38'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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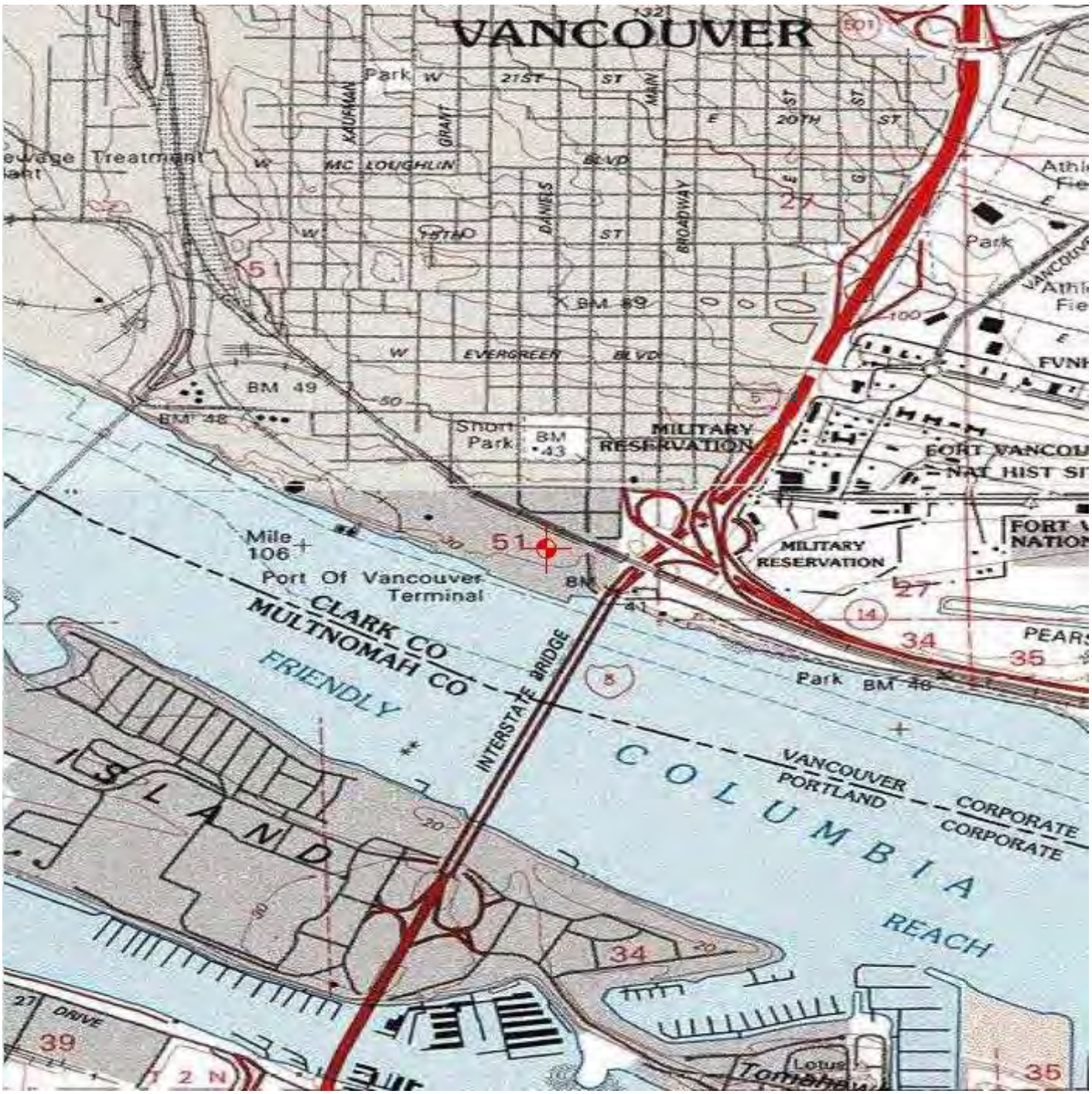
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MILITARY RESERVATION
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Port Of Vancouver Terminal
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INTERSTATE BRIDGE
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382367-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East Point 33, Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2736-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East Point 33, Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.15'' N
Longitude:	122° 40' 29.90'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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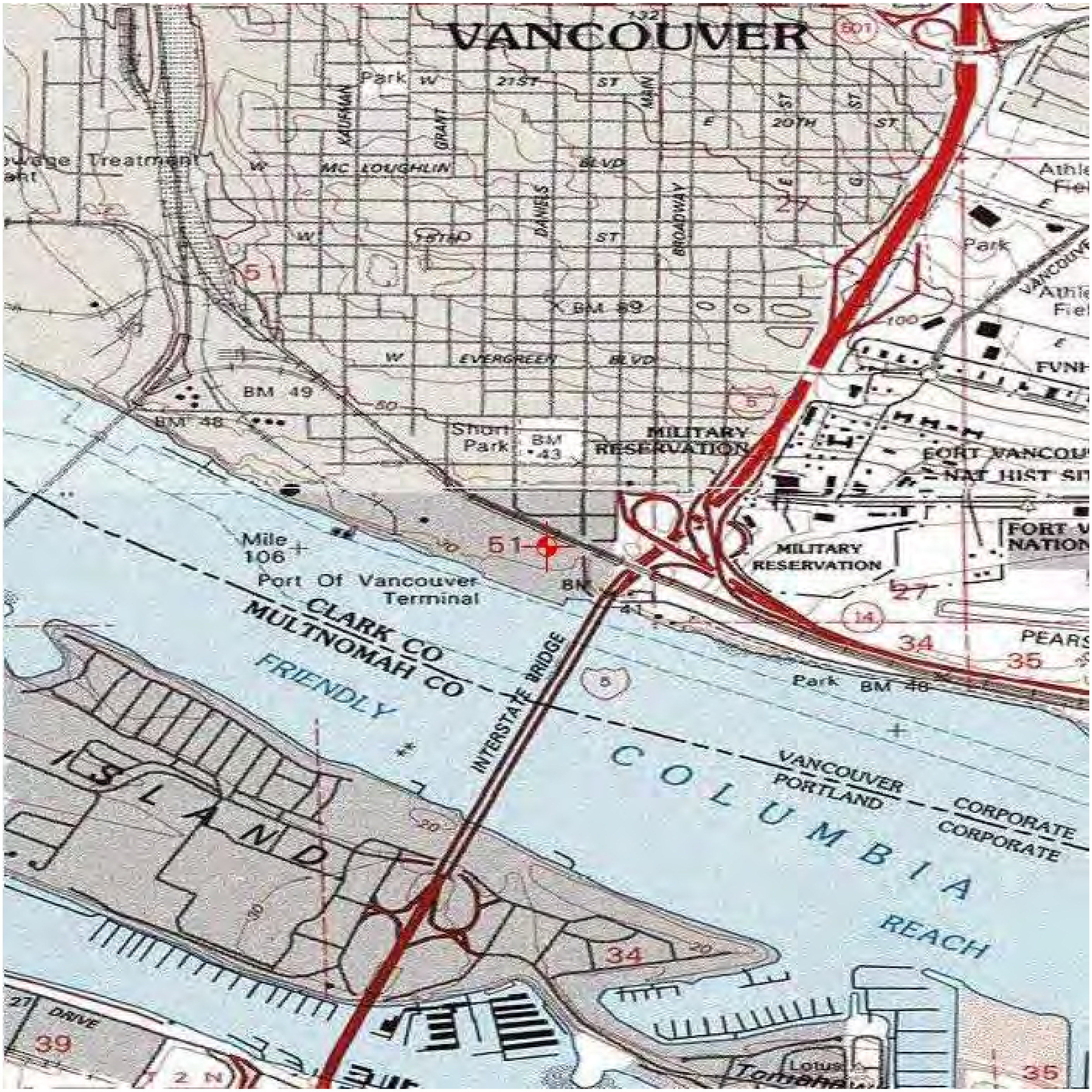
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PORTLAND CORPORATE
ISLAND
Park
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PEARS
Lotus

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382378-16 **Sponsor:** Port of Vancouver

Details for Case : Building C East Point 34 Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2685-OE	**Date Accepted:**	08/26/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	07/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C East Point 34 Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.34'' N
Longitude:	122° 40' 30.30'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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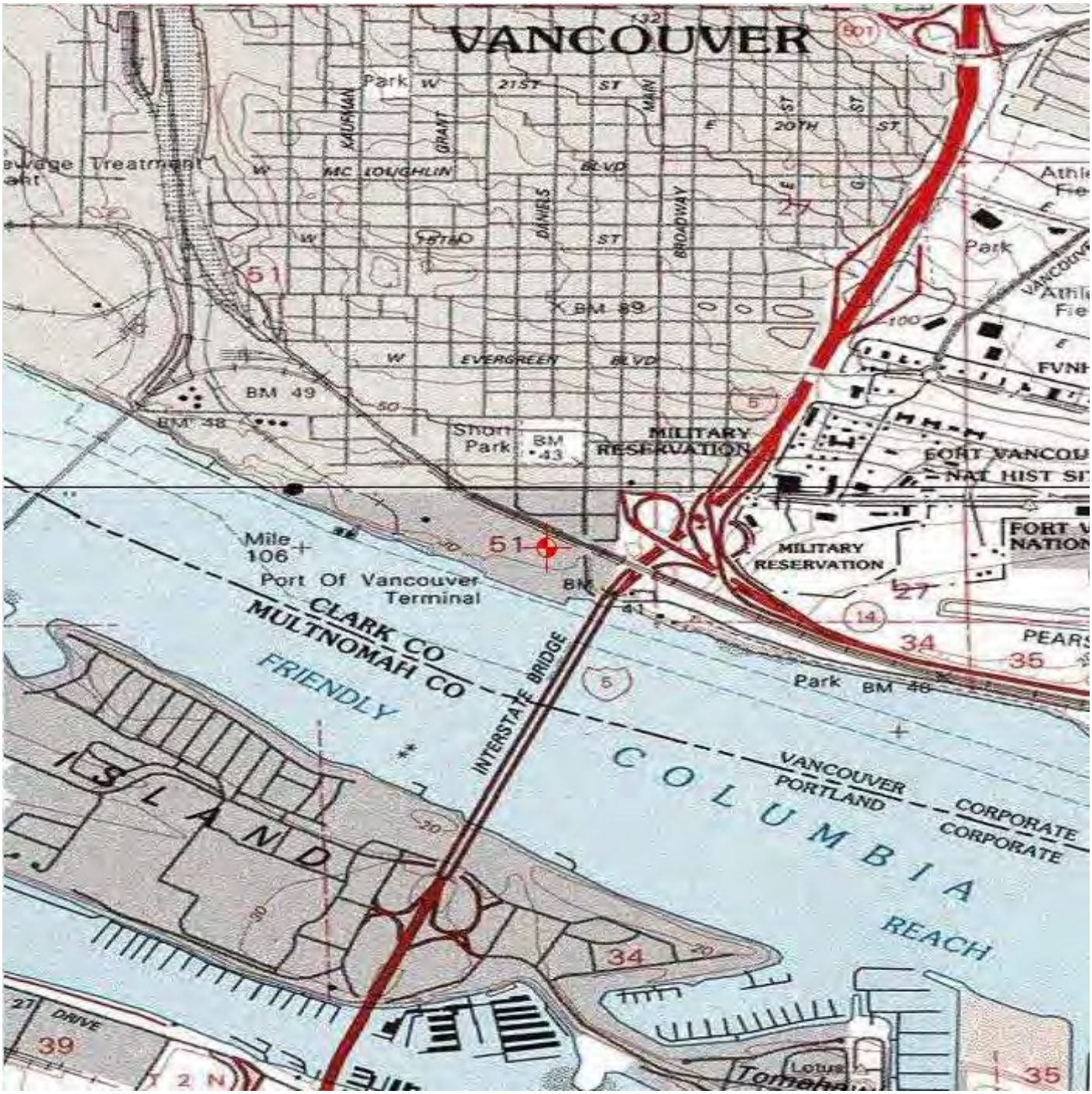
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382364-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, point 19

Show Project Summary

Case Status

ASN:	2016-ANM-2526-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, point 19
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 21.40'' N
Longitude:	122° 40' 26.77'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	119 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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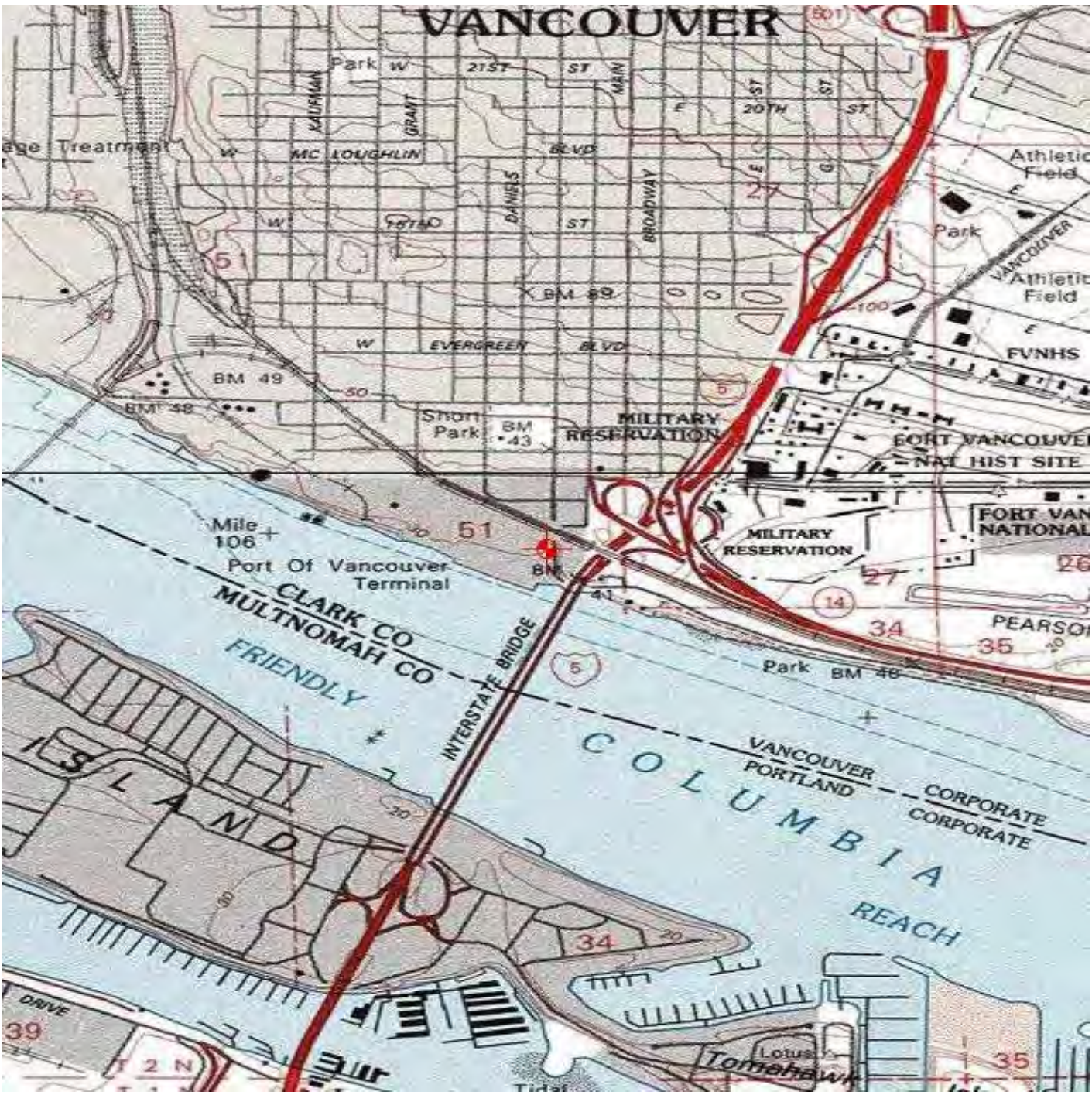
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382364-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, point 20

Show Project Summary

Case Status

ASN:	2016-ANM-2527-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, point 20
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.47" N
Longitude:	122° 40' 26.81" W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	119 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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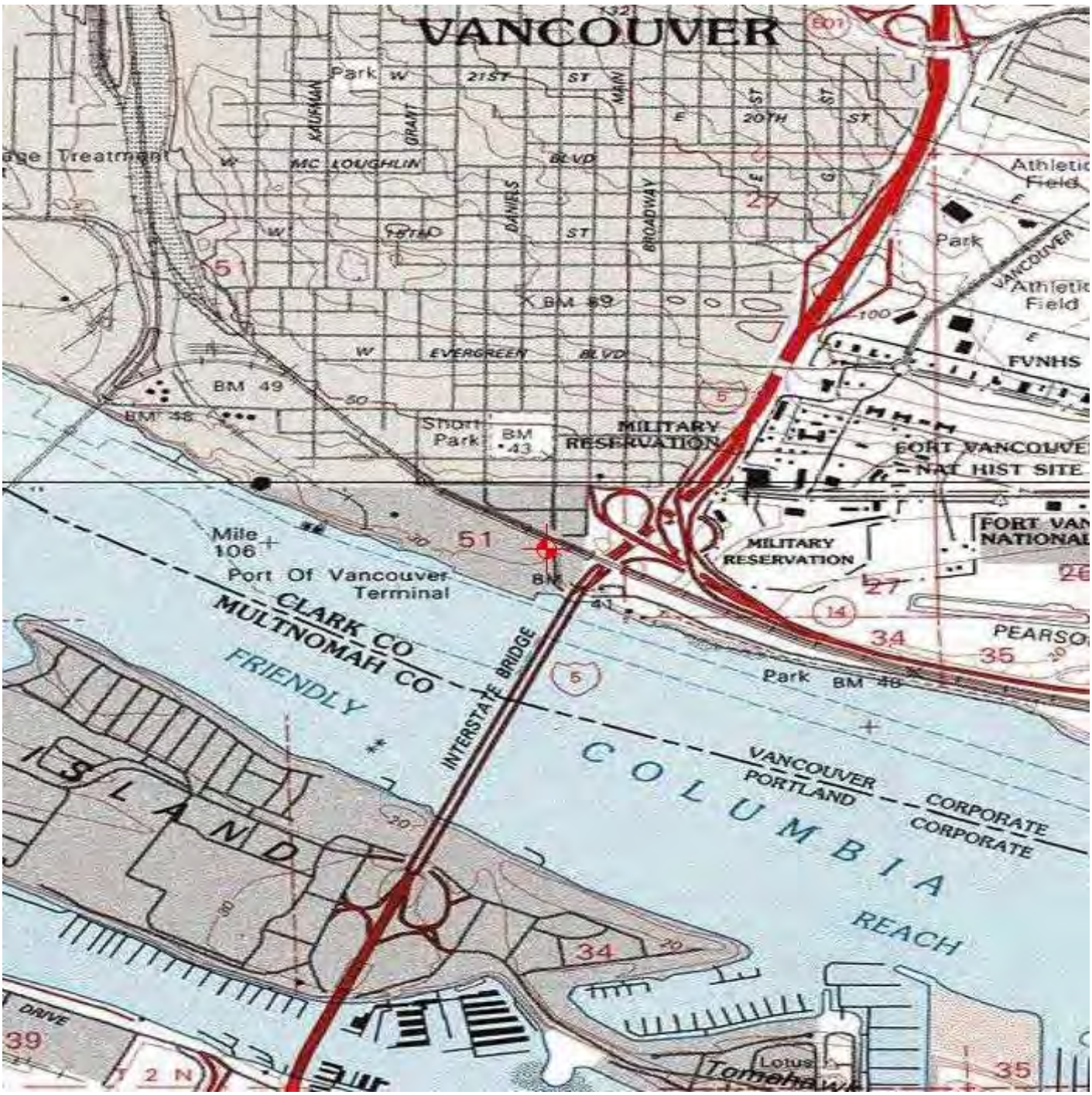
VANCOUVER
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EVERGREEN BLVD
MILITARY RESERVATION
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382364-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, point 21

Show Project Summary

Case Status

ASN:	2016-ANM-2528-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, point 21
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.58" N
Longitude:	122° 40' 29.00" W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	119 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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Short Park
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INTERSTATE BRIDGE
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Park BM 48
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382364-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, point 22

Show Project Summary

Case Status

ASN:	2016-ANM-2529-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, point 22
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 21.77" N
Longitude:	122° 40' 29.55" W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	119 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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VANCOUVER
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DRIVE
Lotus
Tomahawk

Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382357-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, point 27 Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2742-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, point 27 Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 21.81'' N
Longitude:	122° 40' 28.55'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	133 (nearest foot)
Current Height (AGL): **** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal***	(nearest foot)
Minimum Operating Height (AGL): **** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.***	(nearest foot)
Nacelle Height (AGL): **** For Wind Turbines 500ft AGL or greater***	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: ***On the Project Summary page upload any certified survey.***	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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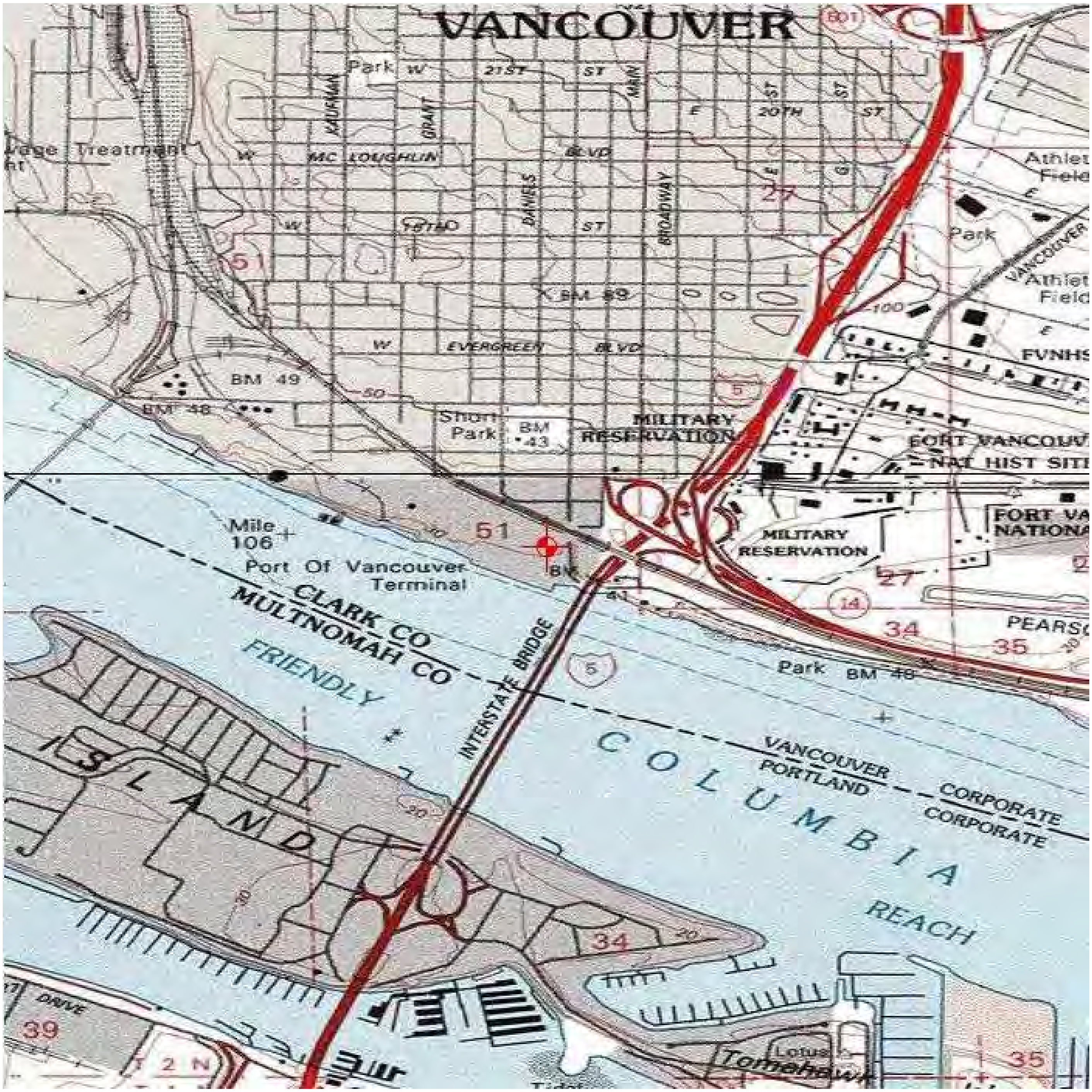
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382360-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, point 28 Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2734-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, point 28 Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 21.83'' N
Longitude:	122° 40' 27.14'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	133 (nearest foot)
Current Height (AGL): **** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal***	(nearest foot)
Minimum Operating Height (AGL): **** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.***	(nearest foot)
Nacelle Height (AGL): **** For Wind Turbines 500ft AGL or greater***	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: ***On the Project Summary page upload any certified survey.***	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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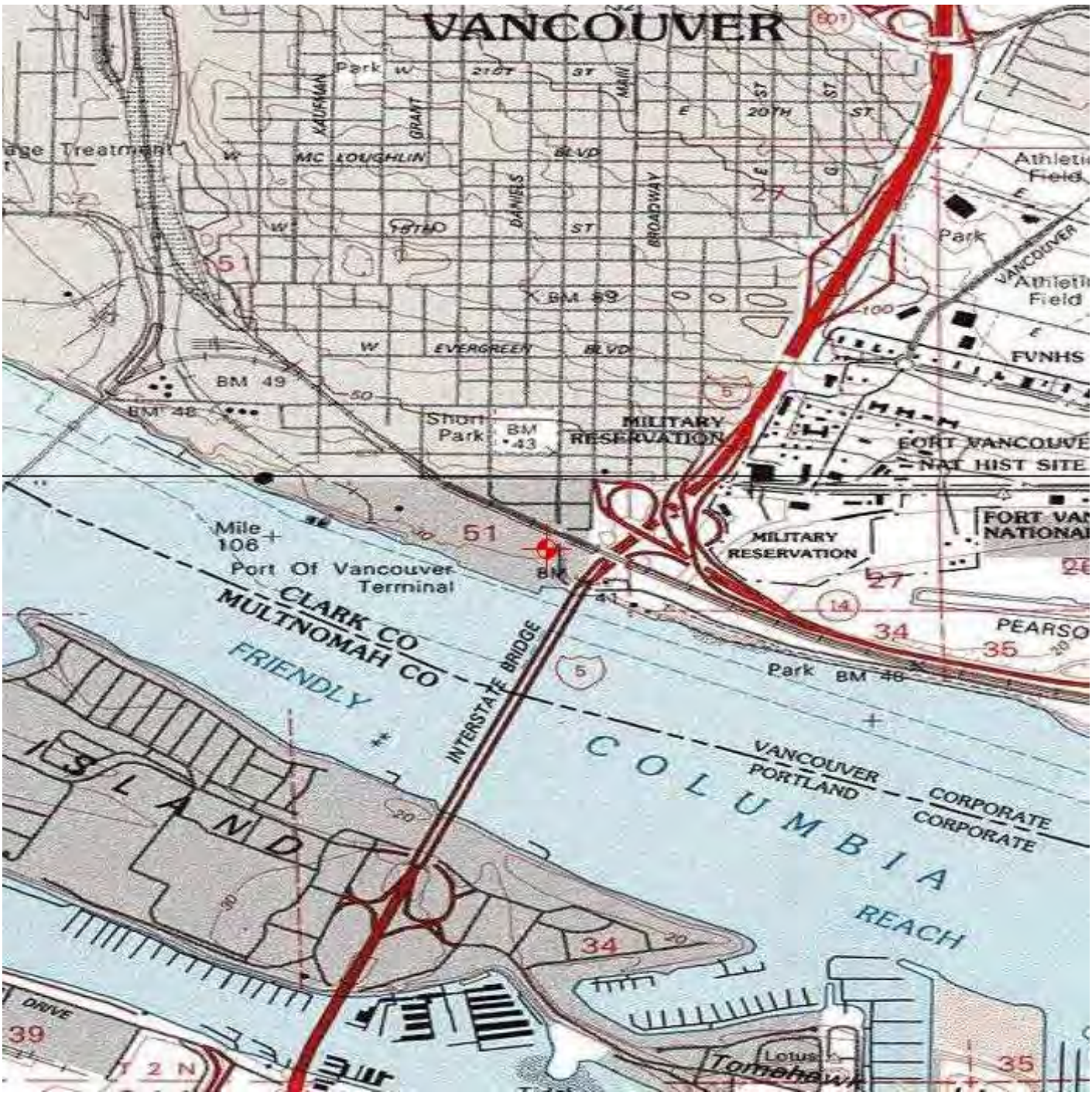
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382361-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, point 29 Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2743-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, point 29 Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.28'' N
Longitude:	122° 40' 27.16'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	133 (nearest foot)
Current Height (AGL): **** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal***	(nearest foot)
Minimum Operating Height (AGL): **** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.***	(nearest foot)
Nacelle Height (AGL): **** For Wind Turbines 500ft AGL or greater***	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: ***On the Project Summary page upload any certified survey.***	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382362-16 **Sponsor:** Port of Vancouver

Details for Case : Building A, Point 30 Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2744-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building A, Point 30 Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 22.25'' N
Longitude:	122° 40' 28.57'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	133 (nearest foot)
Current Height (AGL): **** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal***	(nearest foot)
Minimum Operating Height (AGL): **** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.***	(nearest foot)
Nacelle Height (AGL): **** For Wind Turbines 500ft AGL or greater***	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: ***On the Project Summary page upload any certified survey.***	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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BM 48
BM 43
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382375-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West, point 11

Show Project Summary

Case Status

ASN:	2016-ANM-2510-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West, point 11
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.26'' N
Longitude:	122° 40' 32.55'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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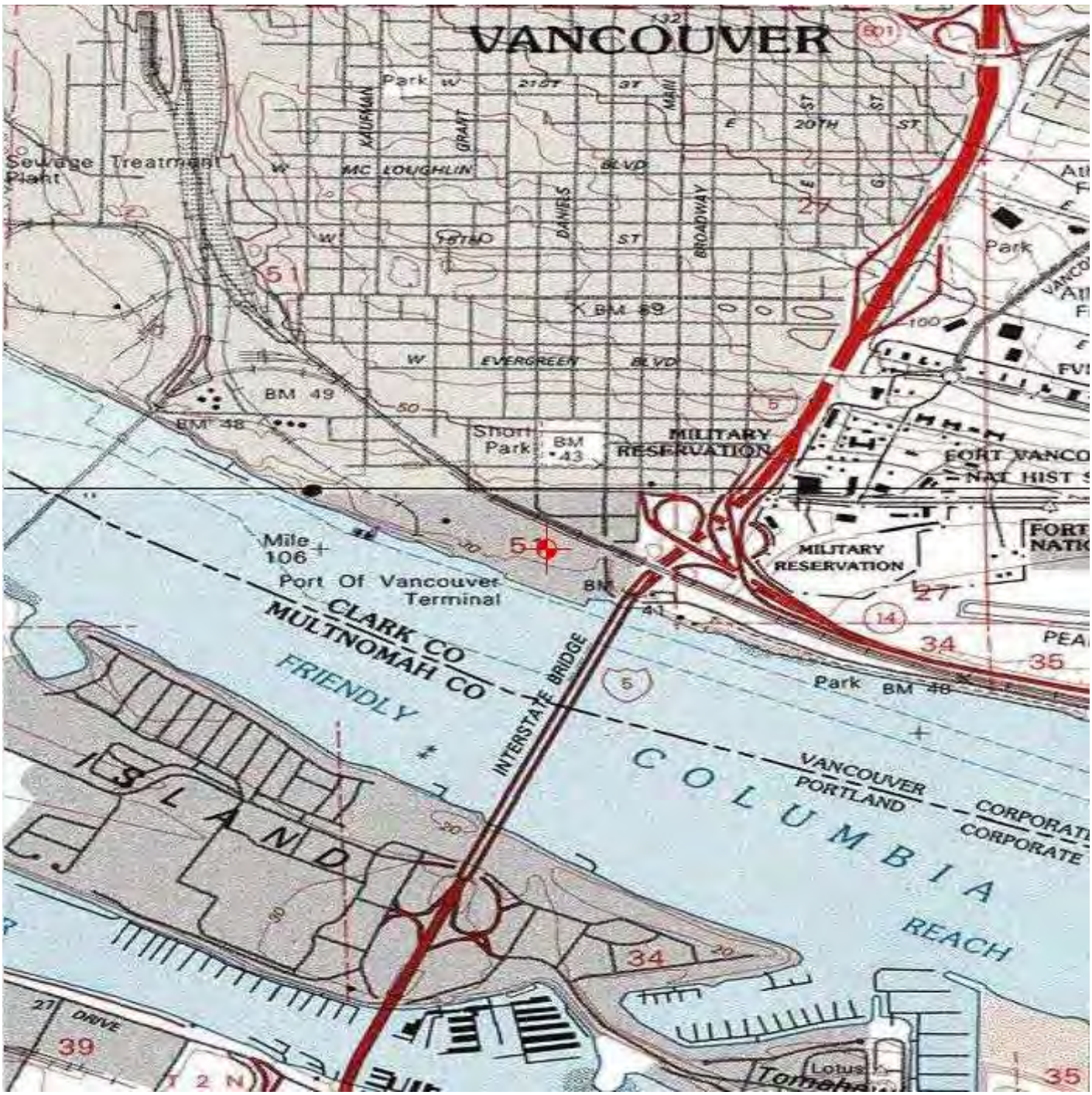
VANCOUVER
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Short Park
BM 43
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NAT HIST
Mile 106
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Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382375-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West, point 12

Show Project Summary

Case Status

ASN:	2016-ANM-2511-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West, point 12
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 24.32'' N
Longitude:	122° 40' 31.55'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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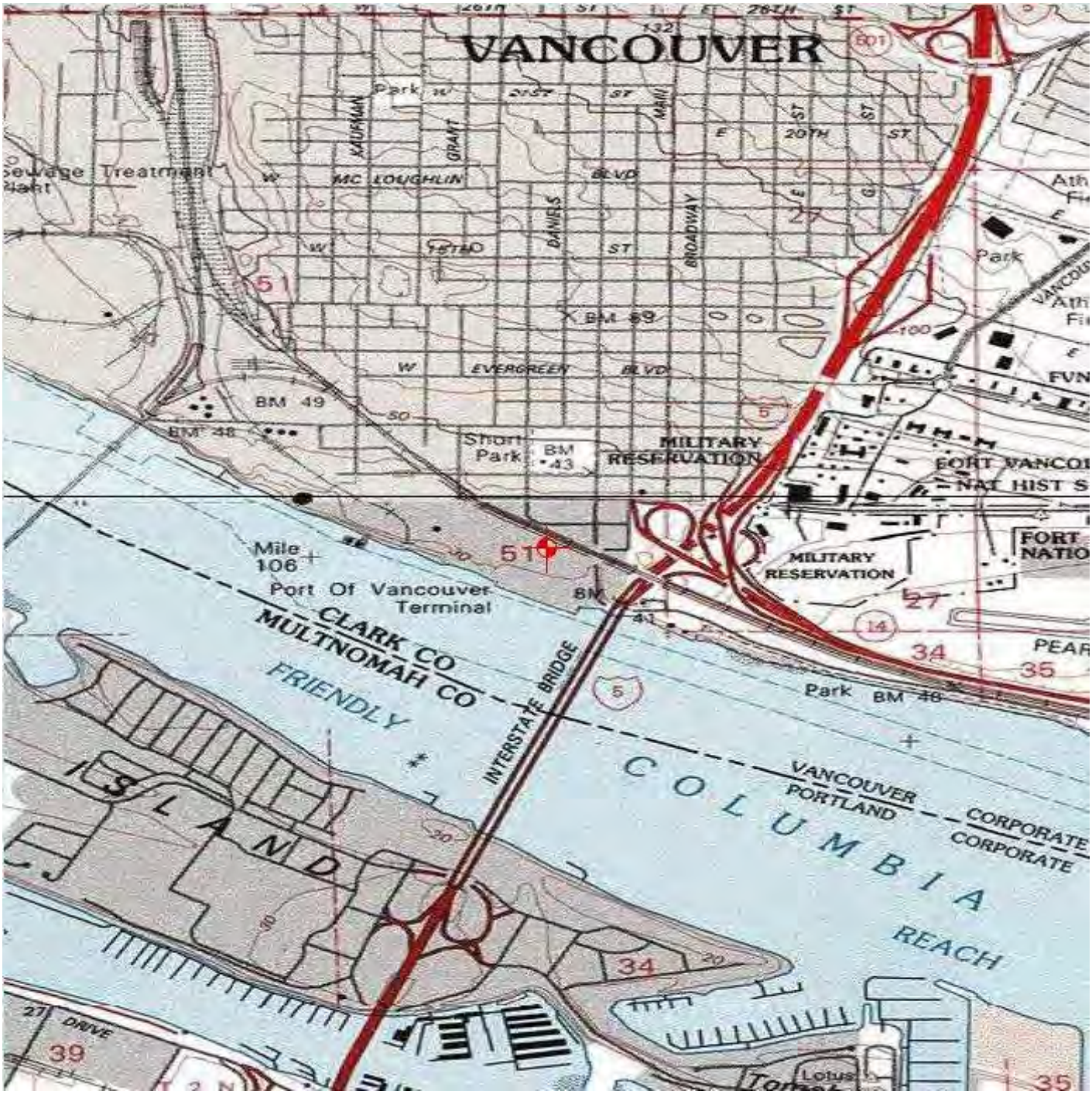
VANCOUVER
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Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382375-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West, point 13

Show Project Summary

Case Status

ASN:	2016-ANM-2512-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West, point 13
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 24.76'' N
Longitude:	122° 40' 32.49'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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BM 40
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Federal Aviation Administration

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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382375-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West, point 14

Show Project Summary

Case Status

ASN:	2016-ANM-2513-OE	**Date Accepted:**	08/11/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	08/29/2016 ADD
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West, point 14
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.70'' N
Longitude:	122° 40' 33.49'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	145 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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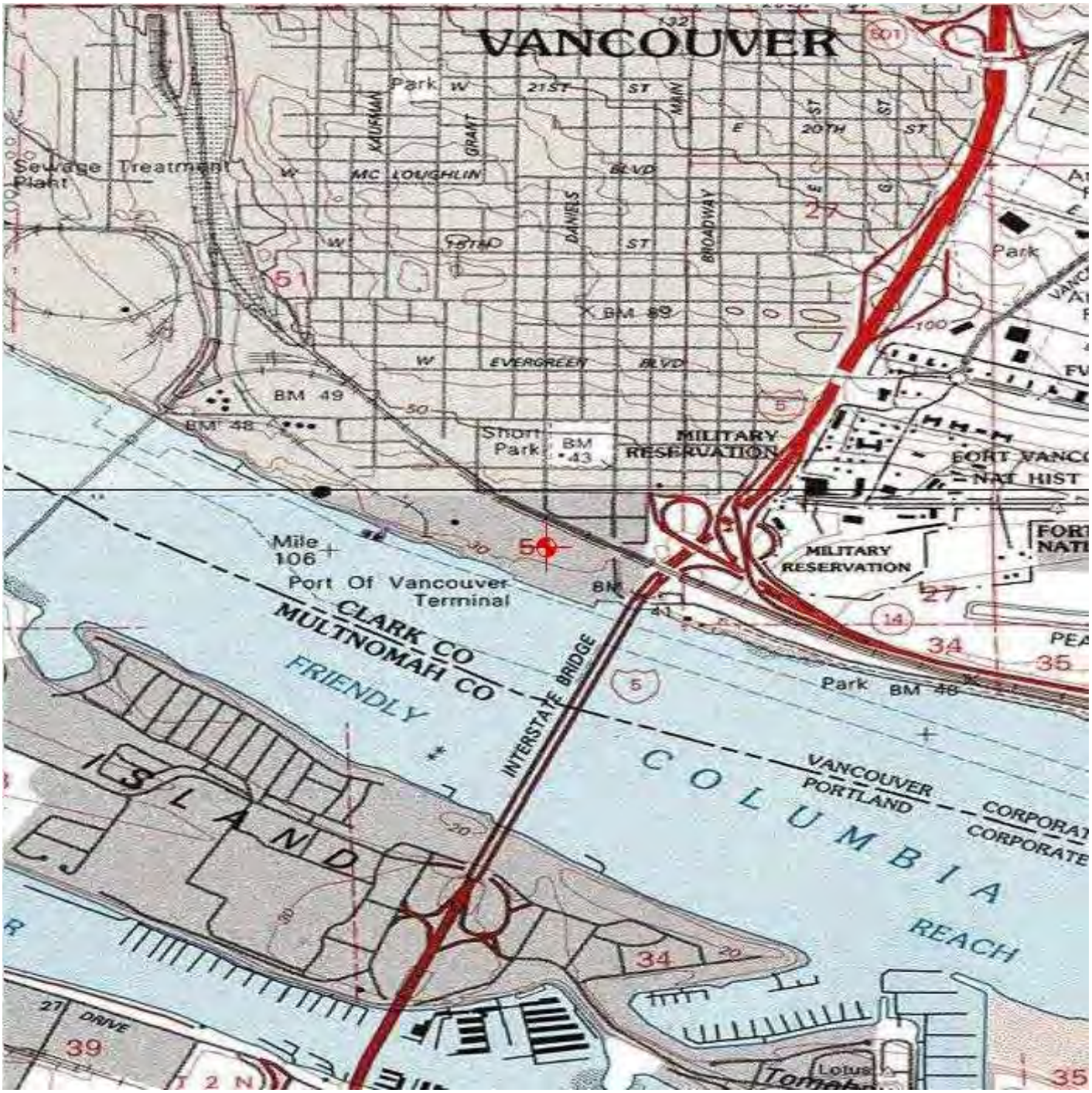
VANCOUVER
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382371-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West Point 35, Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2738-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West Point 35, Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.85'' N
Longitude:	122° 40' 32.96'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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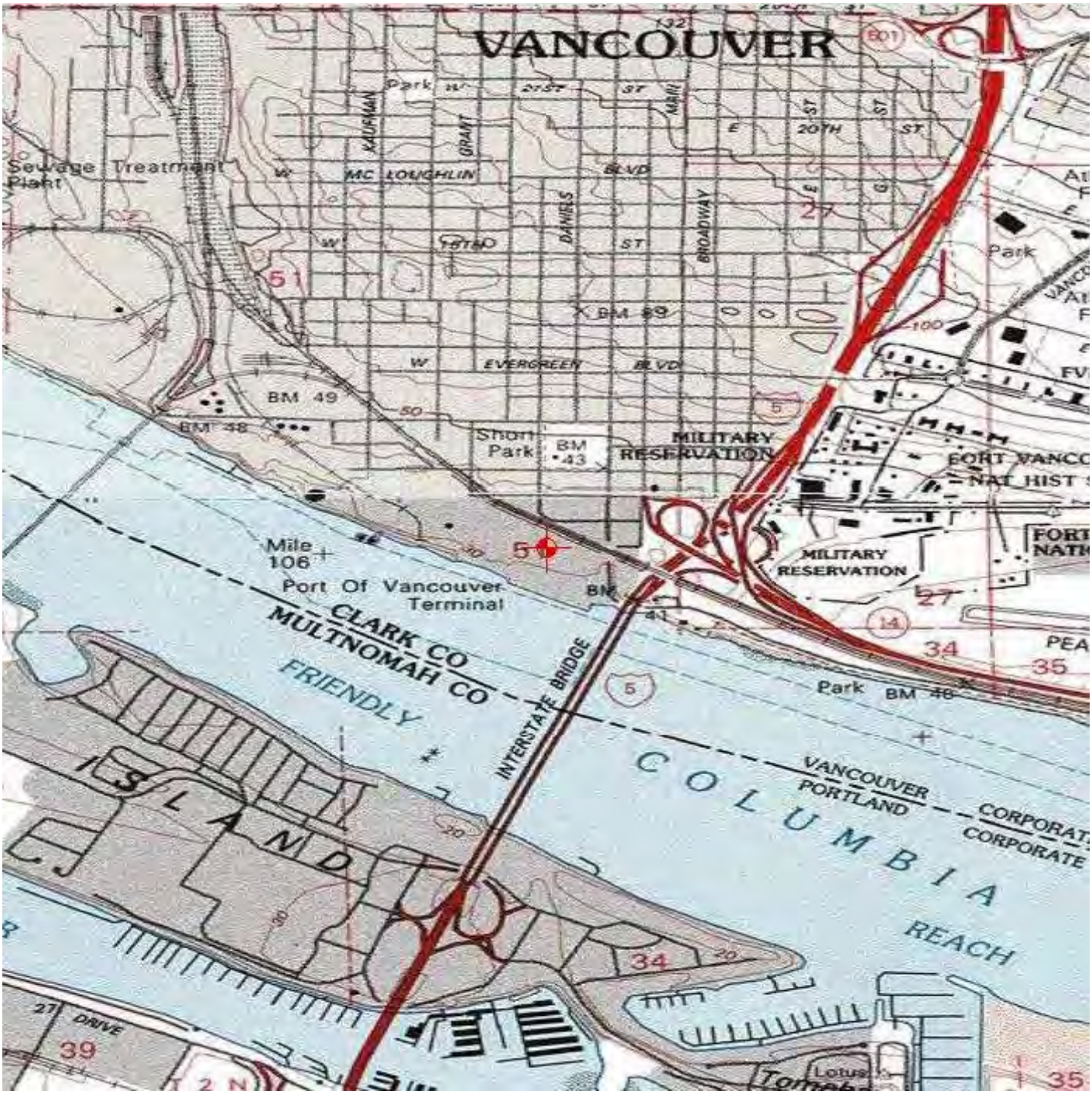
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382372-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West Point 36, Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2739-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West Point 36, Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 23.66'' N
Longitude:	122° 40' 32.56'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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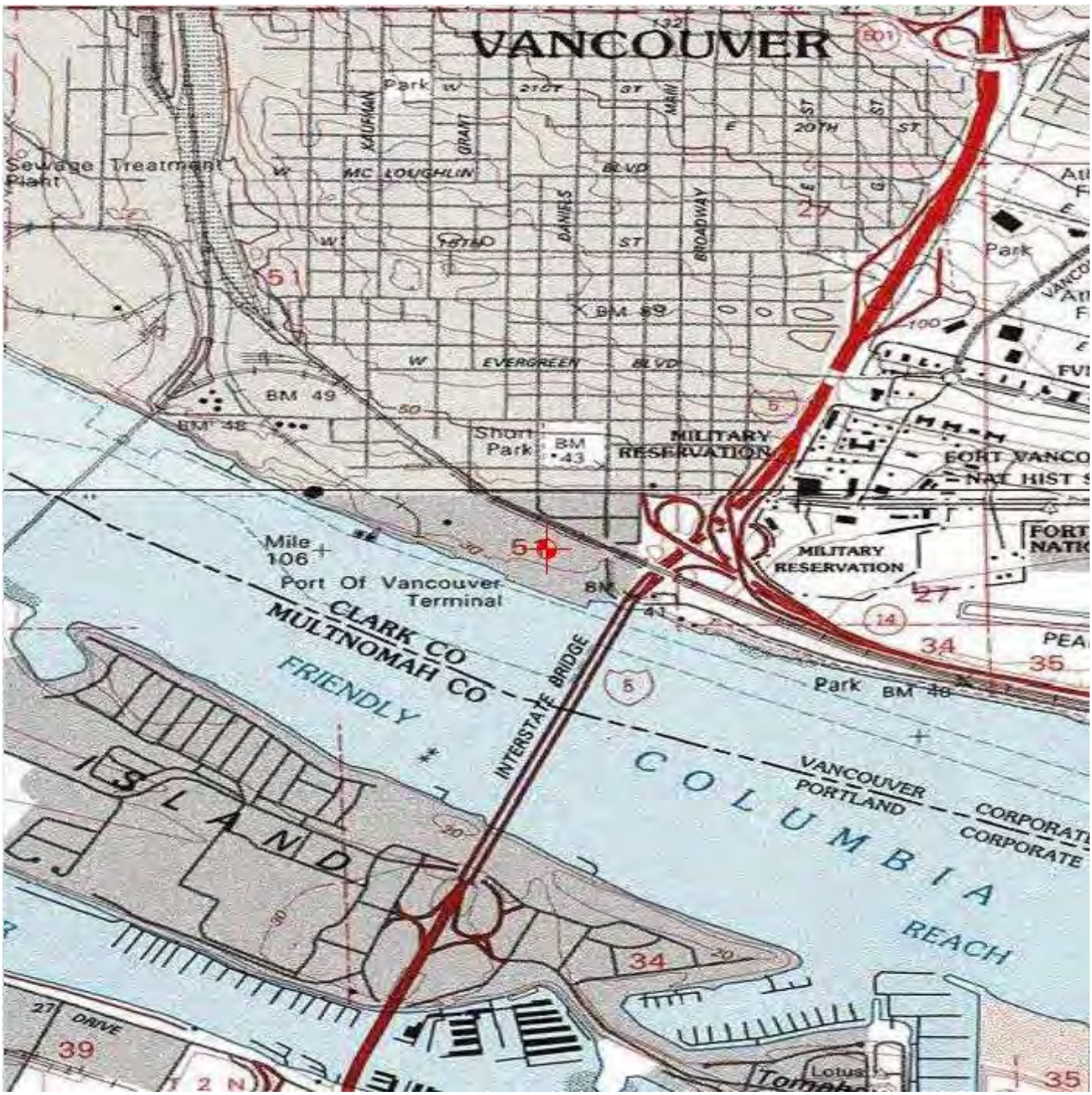
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382374-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West Point 37, Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2740-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West Point 37, Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 24.17'' N
Longitude:	122° 40' 32.08'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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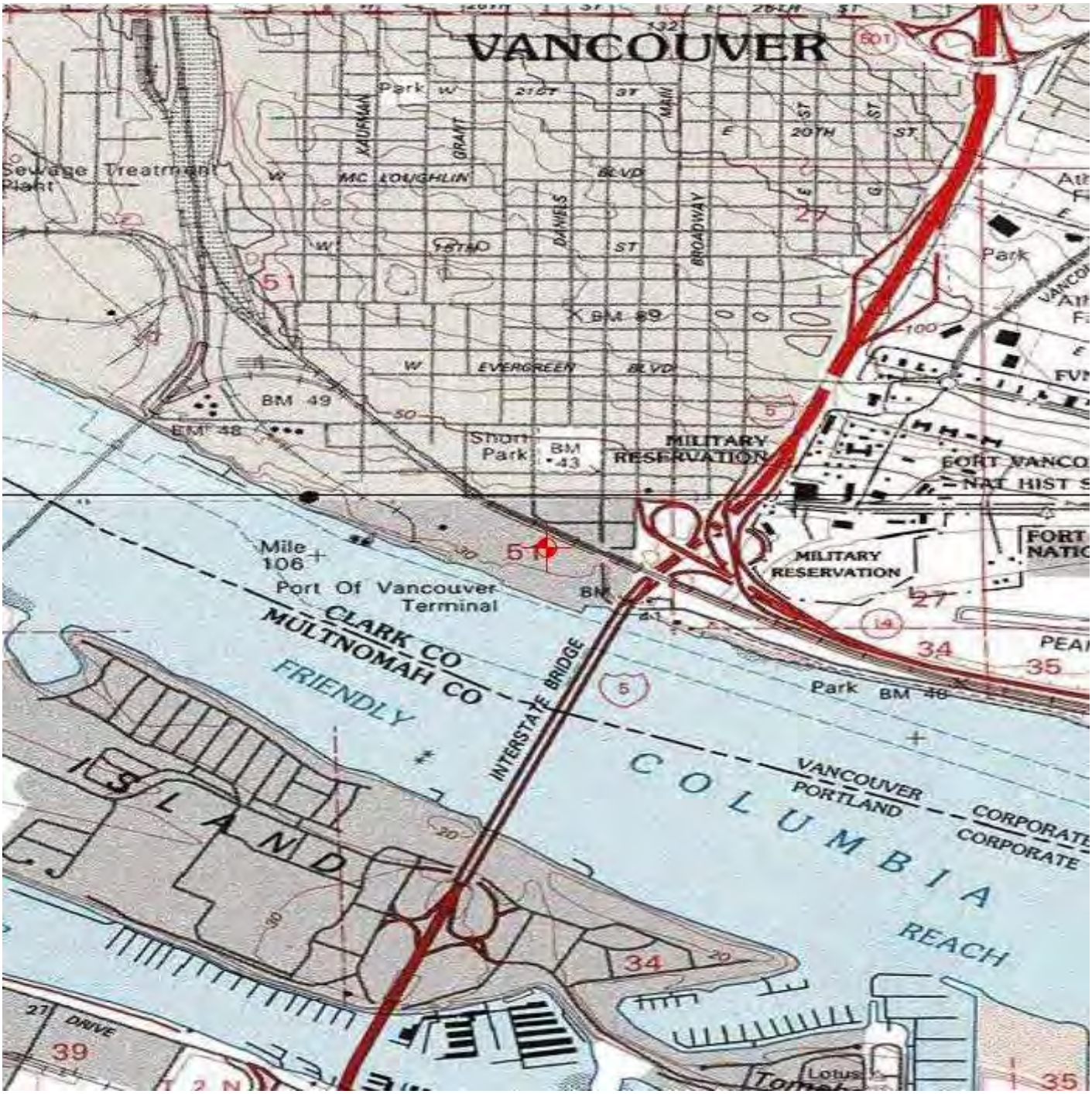
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EVERGREEN BLVD
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GRANT
KAUFMAN
MAIN
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BM 43
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NAT HIST S
Mile 106
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Notice of Proposed Construction or Alteration - Off Airport

Add a new Case Off Airport - Desk Reference Guide V_2016.3.0

Add a New Case Off Airport for Wind Turbines - Met Towers - Desk Reference Guide V_2016.3.0

Project Name: PORT -000382375-16 **Sponsor:** Port of Vancouver

Details for Case : Building C West Point 38, Mechanical Room

Show Project Summary

Case Status

ASN:	2016-ANM-2741-OE	**Date Accepted:**	08/31/2016
Status:	Work In Progress	**Date Determined:**	
		Letters:	None
		Documents:	None
Public Comments:	None		Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	07/03/2017
Work Schedule - End:	06/30/2019

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Building
Structure Name:	Building C West Point 38, Mechanical Room
FDC NOTAM:	
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	45° 37' 24.35'' N
Longitude:	122° 40' 32.48'' W
Horizontal Datum:	NAD83
Site Elevation (SE):	32 (nearest foot)
Structure Height (AGL):	159 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Minimum Operating Height (AGL): ** For aeronautical study of a crane or construction equipment the maximum height should be listed above as the Structure Height (AGL). Additionally, provide the minimum operating height to avoid delays if impacts are identified that require negotiation to a reduced height. If the Structure Height and minimum operating height are the same enter the same value in both fields.*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	None
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	Vancouver
Nearest State:	Washington
Description of Location: *On the Project Summary page upload any certified survey.*	Port of Vancouver Waterfront Development, Phase II
Description of Proposal:	Four buildings along the waterfront

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit

Specific Frequencies

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VANCOUVER
Sewage Treatment Plant
MC LOUGHLIN BLVD
EVERGREEN BLVD
BM 49
BM 48
Short Park
BM 43
MILITARY RESERVATION
FORT VANCO
NAT HIST
Mile 106
Port Of Vancouver Terminal
CLARK CO
MULTNOMAH CO
FRIENDLY
INTERSTATE BRIDGE
Park BM 46
VANCOUVER
PORTLAND
CORPORATE
ISLAND
COLUMBIA
REACH
DRIVE
Lotus

T1 Trees - Minus early Demo, Street Trees, and Trees Outside Boundary			
Tree ID No.	Species	Diameter	Tree Units
0	True cedar (Cedrus sp)	26	8
1	True cedar (Cedrus sp)	22	6
2	Lodgepole pine (Pinus contorta)	12	1.5
3	Lodgepole pine (Pinus contorta)	12	1.5
6	unknown (ornamental species)	14	2
7	Ornamental apple/plum (Prunus sp.)	12	1.5
8	Ornamental apple/plum (Prunus sp.)	13.5	2
9	Ornamental apple/plum (Prunus sp.)	12	1.5
10	Ornamental apple/plum (Prunus sp.)	13.5	2
11	unknown (ornamental species)	12.8	2
12	unknown (ornamental species)	13.6	2
14	Ornamental apple/plum (Prunus sp.)	13.4	2
15	unknown (ornamental species)	12.9	2
16	Ornamental apple/plum (Prunus sp.)	12.3	2
17	Douglas-fir (Pseudotsuga menziesii)	17.4	4
18	Douglas-fir (Pseudotsuga menziesii)	14.3	3
19	Douglas-fir (Pseudotsuga menziesii)	18	4
20	Ornamental apple/plum (Prunus sp.)	11.8	1.5
21	Ornamental apple/plum (Prunus sp.)	12.3	2
22	unknown (ornamental species)	15	3
23	Juglans nigra (Black walnut)	58.6	20
24	unknown (ornamental species)	16.2	4
25	unknown (ornamental species)	6.8	1.5
26	unknown (ornamental species)	13.7	2
27	unknown (ornamental species)	16	3
28	Ornamental apple/plum (Prunus sp.)	8.3	1.5
55	Ornamental apple/plum (Prunus sp.)	12.4	2
56	Ornamental apple/plum (Prunus sp.)	12.1	2
57	Ornamental apple/plum (Prunus sp.)	12.8	2
58	Ornamental apple/plum (Prunus sp.)	10.3	1.5
59	Ornamental apple/plum (Prunus sp.)	12.5	2
60	Ornamental apple/plum (Prunus sp.)	12.3	2
61	Ornamental apple/plum (Prunus sp.)	12.1	2
62	Gingko biloba (Gingko biloba)	7.9	1.5
63	Juglans nigra (Black walnut)	8.1	1.5
64	Juglans nigra (Black walnut)	12.8	2
65	Juglans nigra (Black walnut)	11	1.5
66	Juglans nigra (Black walnut)	10	1.5
68	Juglans nigra (Black walnut)	8.5	1.5
70	Mountain ash (Sorbus sp.)	8	1.5
73	Ornamental apple/plum (Prunus sp.)	11	1.5
74	Ornamental apple/plum (Prunus sp.)	12.2	2
75	Ornamental apple/plum (Prunus sp.)	11.6	1.5
76	Ornamental apple/plum (Prunus sp.)	12.8	2
77	unknown (ornamental species)	13.5	2
78	unknown (ornamental species)	12.3	2
79	unknown (ornamental species)	13.5	2
80	unknown (ornamental species)	11.2	1.5
81	unknown (ornamental species)	8.3	1.5
111	True cedar (Cedrus sp)	18.4	5
112	True cedar (Cedrus sp)	24	7
113	True cedar (Cedrus sp)	21.4	6
114	True cedar (Cedrus sp)	20.4	6
115	True cedar (Cedrus sp)	17.6	4
116	True cedar (Cedrus sp)	23	7
117	True cedar (Cedrus sp)	17	4
118	True cedar (Cedrus sp)	21.3	6
119	Lodgepole pine (Pinus contorta)	24	7
120	big-leaf maple (Acer macrophyllum)	20	5
122	Lodgepole pine (Pinus contorta)	14.5	3
133	True cedar (Cedrus sp)	23	7
134	True cedar (Cedrus sp)	16.3	4
	Total Tree Units		**197**

Early Demo Trees			
Tree ID No.	Species	Diameter	Tree Units
82	Maple sp. (Acer sp.)	16.1	4
83	Maple sp. (Acer sp.)	15.3	3
94	Ornamental Maple sp. (Acer sp.)	16.4	3
95	Ornamental Birch sp (Betula sp.)	10.8	1.5
96	Ornamental Birch sp (Betula sp.)	7	1.5
99	Ornamental Birch sp (Betula sp.)	8.1	1.5
101	Ornamental Birch sp (Betula sp.)	8.2	1.5
102	Ornamental Birch sp (Betula sp.)	9.1	1.5
104	unknown (ornamental species)	9.7	1.5
105	unknown (ornamental species)	13	2
106	unknown (ornamental species)	14	2
107	unknown (ornamental species)	8.5	1.5
108	Juniper (Juniperus sp.)	7.4	1.5
109	Juniper (Juniperus sp.)	6.4	1.5
110	Juniper (Juniperus sp.)	10	1.5
	Total Tree Units		**29**

Street Trees			
Tree ID No.	Species	Diameter	Tree Units
38	Gingko biloba (Gingko biloba)	1	1
34	Gingko biloba (Gingko biloba)	2	1
36	Gingko biloba (Gingko biloba)	2	1
37	Gingko biloba (Gingko biloba)	2	1
39	Gingko biloba (Gingko biloba)	2	1
84	Maple sp. (Acer sp.)	2	1
85	Maple sp. (Acer sp.)	2	1
86	Maple sp. (Acer sp.)	2	1
87	Maple sp. (Acer sp.)	2	1
88	Maple sp. (Acer sp.)	2	1
89	Maple sp. (Acer sp.)	2	1
90	Maple sp. (Acer sp.)	2	1
91	Maple sp. (Acer sp.)	2	1
98	Maple sp. (Acer sp.)	2	1
100	Maple sp. (Acer sp.)	2	1
103	Maple sp. (Acer sp.)	2	1
135	Maple sp. (Acer sp.)	2	1
137	Maple sp. (Acer sp.)	2	1
141	Maple sp. (Acer sp.)	2	1
151	Maple sp. (Acer sp.)	2	1
29	Maple sp. (Acer sp.)	2.5	1
30	Maple sp. (Acer sp.)	2.5	1
31	Maple sp. (Acer sp.)	2.5	1
32	Maple sp. (Acer sp.)	2.5	1
33	Maple sp. (Acer sp.)	2.5	1
35	Gingko biloba (Gingko biloba)	2.5	1
40	Gingko biloba (Gingko biloba)	2.5	1
41	Maple sp. (Acer sp.)	2.5	1
42	Maple sp. (Acer sp.)	2.5	1
43	Maple sp. (Acer sp.)	2.5	1
44	Maple sp. (Acer sp.)	2.5	1
46	Maple sp. (Acer sp.)	2.5	1
47	Maple sp. (Acer sp.)	2.5	1
136	Maple sp. (Acer sp.)	2.5	1
139	Maple sp. (Acer sp.)	2.5	1
142	Maple sp. (Acer sp.)	2.5	1
144	Maple sp. (Acer sp.)	2.5	1
145	Maple sp. (Acer sp.)	2.5	1
148	Maple sp. (Acer sp.)	2.5	1
149	Maple sp. (Acer sp.)	2.5	1
150	Maple sp. (Acer sp.)	2.5	1
97	Maple sp. (Acer sp.)	3	1
140	Maple sp. (Acer sp.)	3	1
143	Maple sp. (Acer sp.)	3	1
146	Maple sp. (Acer sp.)	3	1
147	Maple sp. (Acer sp.)	3	1
45	Maple sp. (Acer sp.)	3.5	1
92	Maple sp. (Acer sp.)	3.5	1
93	Maple sp. (Acer sp.)	3.5	1
138	Maple sp. (Acer sp.)	3.5	1
152	Maple sp. (Acer sp.)	3.5	1
	Total Tree Units		51

Outside Site Boundary			
Tree ID No.	Species	Diameter	Tree Units
48	unknown (ornamental species)	12.6	2
49	unknown (ornamental species)	7.3	1.5
50	unknown (ornamental species)	9.4	1.5
51	Ornamental apple/plum (Prunus sp.)	11.1	1.5
52	Ornamental apple/plum (Prunus sp.)	9.3	1.5
53	Ornamental apple/plum (Prunus sp.)	10.4	1.5
54	Ornamental apple/plum (Prunus sp.)	9.6	1.5
71	Oregon ash (Fraxinus latifolia)	8	1.5
72	Oregon ash (Fraxinus latifolia)	8	1.5
121	big-leaf maple (Acer macrophyllum)	32	11
123	Lodgepole pine (Pinus contorta)	15.1	3
124	unknown (ornamental species)	8.9	1.5
125	Maple sp. (Acer sp.)	18.6	5
126	Lodgepole pine (Pinus contorta)	8.6	1.5
127	Lodgepole pine (Pinus contorta)	8.7	1.5
128	Lodgepole pine (Pinus contorta)	14.3	3
129	Oregon white oak (Quercus garryana)	14.5	3
130	Lodgepole pine (Pinus contorta)	14.3	3
131	Ornamental apple/plum (Prunus sp.)	12.5	2
132	Lodgepole pine (Pinus contorta)	18.3	5
	Total Tree Units		53.5

Trees within Site Boundary but <6in DBH			
Tree ID No.	Species	Diameter	Tree Units
67	Juglans nigra (Black walnut)	2.5	1
4	Spruce (Picea sp.)	3	1
5	Spruce (Picea sp.)	3	1
13	vine maple (Acer circinatum)	3	1
69	Juglans nigra (Black walnut)	5	1
	Total Tree Units		5