PORT OF LONGVIEW
MASTER PLAN PHASE I FEASIBILITY STUDY
Executive Summary Report

kpff Engineering Opportunities.

PORT OF LONGVIEW • EST. 1921 •

March 9, 2016

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

1.0 INTRODUCTION

In 2010 the Port of Longview (Port) purchased the 282.5-acre property at Barlow Point for future Port industrial development. The property is located downstream from the current Port facilities at approximately river mile 64 (RM 64), which is on the west side of the City of Longview, Washington (City). In order to better understand the full potential of the Barlow Point site, the Port determined that a comprehensive master planning process was necessary. The first step was to assess the feasibility of developing Barlow Point into a marine terminal. Permit and timing requirements for the first phase of development were also identified.

The study included the following main elements and work tasks in order to determine potential future uses of the site, issues associated with development, and rough order of magnitude costs of development:

- A market analysis and conceptual site planning exercise was performed during late 2014 through early 2015. The market analysis found the Barlow Point site was ideal for the production and/or export of dry or liquid bulk commodities. Specific industry types were identified to be the basis for analyzing potential site layouts and technical requirements. From this process, three conceptual site development options arose, two of which were used to assess the site development opportunities, requirements, and constraints. The third option fits within the assessment criteria of the other two options.
- Technical studies, based on the conceptual plans, were performed to investigate feasibility. This work included investigating land use and zoning, surface transportation, rail infrastructure, civil utilities, stormwater, power, marine infrastructure, dredging, geotechnical conditions, environmental and public access.
- Preliminary assessments of potential environmental and permit requirements were developed using the data gained from these initial technical studies. This work included a preliminary threshold determination of the level of environmental analysis required to permit site development and identification of the anticipated strategy and schedule for developing this material.

This report is comprised of an executive summary with appendices and exhibits. The appendices include conceptual plan exhibits, discipline technical memorandums, and an order of magnitude for development costs. This study was prepared by the KPFF Design Team under the direction of the Port. The Design Team members included:

- KPFF Consulting Engineers
- Martin and Associates
- Hart Crowser
- Mainline Management, Inc.
- Heffron Transportation, Inc.
- CargoVelocity, Inc.
- Anchor QEA
- Ecological Land Services, Inc.
- Sophometrics, Inc.
- Makers Architecture

1.1 SITE DESCRIPTION

The Barlow Point property is an approximately 282.5 acre site located at the west end of the City within Cowlitz County, Washington. The site is located approximately eight miles west of Interstate 5 (I-5), and five miles west of a Class One rail corridor. The property is situated between Washington State Route (SR) 432 to the north and the Columbia River to the south and provides access to approximately 4,000 linear feet waterfront. The Northwest Alloys Inc. property bounds the site to the east while farmland bounds the site to the west. The site is zoned Heavy Industrial and has a matching Comprehensive Plan designation primarily of Heavy Industrial. A small area in the northwest corner of the site has a Comprehensive Plan designation of Mixed Use Residential/Commercial.

The site is considered a Greenfield and has little in the way of existing infrastructure, utilities or other development. The majority of the site is comprised of undeveloped farm land with sparse pockets of trees. Generally, the site drains via agricultural ditches to the north and discharges to large maintained ditches running along the north and east property boundaries. Site stormwater is ultimately discharged to the Columbia River through the main Consolidated Diking Improvement District #1 (CDID#1) lift station to the northwest or through the CDID#1 Reynolds Lift Station which is adjacent to the southeast corner of the site. There are no existing outfalls onsite directly to the Columbia River.

A levee, overseen by the United States Army Corp of Engineers (USACE) and CDID#1, runs along the entire southern boundary and separates the site from the river and provides protection from the 100-year flood. Other prominent site features include the high power Bonneville Power Association (BPA) easement which dominates the eastern edge of the site and the atypical property line along the north site boundary with Mt. Solo Landfill, which is defined by a circuitous drainage slough.

2.0 MARKET ANALYSIS AND CONCEPTUAL PLANNING

The conceptual master planning study for Barlow Point started with a preliminary market analysis followed by development of conceptual site layout options. The site capacity, physical features and desired compatibility with existing Port operations suggests Barlow Points lends itself to development of bulk cargo facilities. A review of market trends affecting the Pacific Northwest region was conducted to identify potential cargo types for the Barlow Point site. The resulting list of potential cargos was further refined based on an economic impact analysis and the Port's guidelines. The Port's strategic planning guidelines for the site and cargo use include: marine dependency, highest and best use, maximum financial return per acre, increased assessed value through private investment, maximum employment opportunities, good neighborliness, and meeting or exceeding environmental standards. The market analysis also focused on the cargos and uses that would be new to the Port. This would avoid competition with its existing site uses or moving tenants from existing Port sites to Barlow Point.

The cargos identified by the Market Analysis included: bio-diesel, crude oil, methanol, potash, urea/ammonia and wood chips. Barlow Point's physical properties were studied in conjunction with the handling requirements for the subject cargos identified by a Market Analysis (see Appendix B). Three concepts, the Dry Bulk Option (Option 1), the Liquid Bulk Option (Option 2), and the One Tenant Option (liquid or bulk) (Option 3) were developed for the site. All options share basic infrastructure requirements including rail access, dedicated use pier structures and low volume vehicle access. Option 1 and Option 2 were chosen to be the focus of the technical studies because a site with multiple tenants with varied demands would provide a better range of criteria to analyze the site. To maximize utilization of site acreage, each option includes a high-volume rail facility, medium-volume production/export facility and small-capacity cargo facility. The Dry Bulk Option includes potash (high-volume rail), urea (production/export), and wood chips. The Liquid Bulk Option includes crude oil (high-volume rail), methanol (production/export) and bio-diesel.

After commodities were identified and grouped into the two options, the site planning began with a study of site opportunities and constraints and then incorporated into the options for the site infrastructure. This assessment focused on infrastructure that would be built by the Port, and is referred to as backbone infrastructure herein. The pier structure concepts were located first, suited to the cargo intended. Next, rail track loops were developed that could handle expected rail operations. The rail track options defined cargo footprints, which were then provided access by roadways. Peripheral areas were then identified for site access, public access and utilities. The end result provided a framework that could be used in technical studies to analyze feasibility to develop the site.

3.0 TECHNICAL STUDIES

3.1 LAND USE, ZONING, COMPREHENSIVE PLAN AND EASEMENTS

Land use, zoning, comprehensive plan and existing easements were reviewed as part of evaluating Barlow Point. This information was gathered through publicly available information including the Record of Sale survey, Cowlitz County tax assessor records, Longview Municipal Code (LMC), and easement documentation. Potential new easement requirements associated with development were also investigated.

Development of the Barlow Point site will be subject to the LMC (19.58) zoning requirements. The site is currently zoned Heavy Industrial which allows uses that include marine/port industrial activities, railroad yards and rail service. Properties directly adjacent to Barlow Point, both in Cowlitz County and the City, are also zoned Heavy Industrial. Barlow Point has a Comprehensive Plan designation of Heavy Industrial over a majority of the site. A small area in the northwest corner of the site has a Comprehensive Plan designation of Mixed Use Residential/Commercial. The Port is currently in the process of bringing the Mixed Use Residential/Commercial area into the Heavy Industrial designation to support a site with consistent zoning and Comprehensive Plan designations.

The Port property at Barlow Point consists of 13 separate tax parcels, 11 of which are contiguous. For this feasibility study, it is assumed the individual parcels at Barlow Point will most likely be combined under the regulations of a Type 'A' Binding Site Plan for commercial industrial properties in accordance with LMC Chapter 19.90. The purpose of a binding site plan is to combine the contiguous Port-owned parcels into a single entity. This provides a legal method for the Port to lease land to tenants as well as a mechanism for the City planning department to review development requests by the Port and its tenants. The resulting parcel of land shall follow the guidelines for setbacks and dimensional standards for Heavy Industrial zones, in accordance with the LMC. For example, there are limitations to maximum structure heights and required setbacks from the property boundary for structures. The Technical Study in Appendix C provides more detail on these requirements.

Current vehicular access to the Barlow Point site is not directly adjacent to a public roadway or state route. The Property is accessed through the Mt. Solo Landfill property to the north with a combination of fee-simple ownership by the Port and two existing driveway access easements located off SR 432. The location of a potential new site access would be directly off of SR 432 which will likely require a new access and utility easement across Ditch #10 which belongs to CDID#1. The termination point of the utility easements, whether at the property boundary or further into the site, depends on the utility provider and whether the main access road will be considered private or public.

Rail access to the site will need to be extended from the termination of an existing lead ½ mile east of the site. Due to the layout of the parcels for Burlington Northern Santa Fe (BNSF), Barlow Point, CDID#1 and adjacent land owners at the east end of the site, an access easement will likely be required to extend rail from the termination of the Reynolds lead to the site. Rail access to the site will cross perpendicularly (approximately) to the 900' wide easement held by Bonneville Power Administration (BPA). Crossing the BPA easement for access to the site with rail and road is an allowed site use according to the easement documentation provided by the Port.

In summary, the land use identified for Barlow Point is consistent with the zoning code and Port parcels will need to be brought together under a binding site plan to develop the site. There are number of existing site easements but they do not preclude development of the site and a number of new easements will be required to access the site.

3.2 ENVIRONMENTAL AND OTHER CONSIDERATIONS

Environmental regulations and current environmental (habitat) conditions associated with the Barlow Point site were reviewed in light of the proposed development concepts (see Appendix D). The intent of this review was to gain an initial understanding of the regulatory issues and potential impacts to existing habitat from the conceptual facility layouts. This initial assessment was based on review of publicly-available data, discussions with Port staff and comparison to other recently permitted regional shoreline development projects.

3.2.1 WETLANDS, STREAMS, AND HABITAT

Based on preliminary evaluation, it is estimated there are approximately 28 acres of low quality wetlands on Barlow Point with the potential of higher quality wetlands located waterward of the levee which are not located on Port property.

Two adjacent large drainage ditches at the edge of the property are designated as fish bearing (Type F) by the Washington Department of Natural Resources (WDNR): one is located north of the site, identified as a private drainage facility (PDF) by the City of Longview, and the second is located to the east, identified as Ditch 14, which is owned and maintained by Consolidated Diking and Improvement District #1 (CDID #1). PDF and Ditch 14 are slow-moving, warm waters that do not provide suitable habitat for steelhead, salmonids, or other anadromous fish, and do not support such fish. PDF, Ditch 14, and man-made ditches on site have connectivity to one another by culverts. There is no connectivity between PDF, Ditch 14, or man-made ditches on site and the Columbia River except artificially. Waters on site and adjacent to the Site reach the Columbia River through pump stations maintained by CDID #1. Fish located in PDF or Ditch 14 cannot pass through the pump station into the Columbia River, and fish from the Columbia River cannot reach the project Site.

The Columbia River is habitat for many listed fish species. However, based on an initial consideration of the two potential site design concepts, including any related mitigation measures; there do not appear to be any aspects of the project that would lead to a jeopardy/adverse modification determination under the Endangered Species Act (ESA). Therefore, issues related to ESA-listed fish or upland species will likely not prevent development of the Barlow Point site.

There are no protected plants or animal species known to be present at Barlow Point and the site does not contain designated critical habitat for any protected upland species. As maintained farmland, most of the upland portion of the site offers minimal habitat value to terrestrial species.

Unavoidable impacts to any wetlands, streams or habitat onsite from project development could reasonably be assumed to be mitigated through design features or compensatory mitigation although alternatives must be evaluated to show maximum avoidance.

3.2.2 MITIGATION

There are several options the Port may utilize for wetland and in-water habitat mitigation. Currently, the Port is in the process of permitting an advance wetland mitigation site on 76 acres of Port owned property. Additionally the Port has completed advance mitigation for in-water habitat impacts that may be applied to Barlow Point future over water structures. Barlow Point is also within the service area of a wetland mitigation and habitat conservation bank and credits should be available at time of development.

3.2.3 OTHER CONSIDERATIONS

- Archaeological sites may be present on the property, however, discovery of a site is unlikely to cause a fatal flaw for any potential development. Impacts to sites can be mitigated under federal or state cultural resources laws. Early coordination with the State Historical Preservation Office,

tribes, and federal agencies (if any) can reduce risk and uncertainty associated with developing mitigation measures for impacts to archaeological sites.

- Water rights are available via both Port and City-held permits, with some potential modifications to permits or new infrastructure required; the availability of sufficient water is somewhat dependent upon the proposed development option selected.
- USACE Section 408 review may require development of substantial engineering information related to the impact of the proposed development at Barlow Point on the levee or federal channel. Any impacts to the CDID#1 levee or federal channel may be allowed, but must be addressed through mitigating measures developed during the design phase through Section 408 coordination with the USACE and CDID#1.
- Expanding the Port Management Agreement (PMA) to include Barlow Point would provide greater certainty to the Port as to the nature and types of allowable activities within the PMA, reduce overall WDNR approvals timeframes, and provide the Port with the ability and flexibility to directly manage these areas.

In summary, there are potential impacts from development to each of the various environmental topics addressed in this report. However, no environmental impacts have been identified that could not be mitigated through design or implementation of compensatory mitigation actions.

3.3 GEOTECHNICAL

Preliminary geotechnical analysis was performed for the Barlow Point property (see Appendix F). This included reviewing existing published geotechnical information and geological maps as well as performing field investigations comprised of a series of test pit explorations and cone penetration test probes (CPT). Following the initial investigation, limited engineering analysis was performed including seismic design, liquefaction hazard analysis, riverfront seismic stability, and estimating areal settlement due to potential mass fills.

The Barlow Point site is underlain by thick deposits of alluvial soils which are generally weak and compressible. Groundwater is found at shallow depths and will likely reach the ground surface on occasion. Due the presence of shallow groundwater and fine-grained soils near the ground surface, the ability to use infiltration facilities to discharge stormwater will be limited.

The alluvium is somewhat heterogeneous though typically consists of interbedded loose- to medium-dense sands and soft to stiff silts. There are also localized zones of soft organic-rich soils near the ground surface. Relatively dense sands and gravels are not encountered until depths of 125 feet to 150 feet and beyond. Due to their weak nature, the upper soils are subject to seismically induced liquefaction, strength loss and settlement.

The presence of these weak alluvial soils will have significant impact on the geotechnical development of the site. Ground settlement will be induced by the placement of fills and the construction of buildings. The use of surcharge fills, deep foundations and/or ground improvements will likely be required to alleviate or accommodate the ground settlement. Heavily loaded structures will also likely need to be founded on

deep foundations (e.g., driven piles) to reduce settlement and carry structural loads.

Limited investigation of the river bank slope stability was performed in parallel with the investigation of the marine infrastructure and dredging alternatives discussed in Section 3.4 and 3.5. Preliminary results show that the existing river bank is marginally stable in a static condition but, in its current state, will likely be unstable in a seismic event. Significant ground improvement measures will likely be required to stabilize the river bank and in-water structures.

In summary, the high ground water, weak existing soils and existing river bank stability will be significant drivers for the site design at Barlow Point, but do not prohibit development from a geotechnical standpoint. Further geotechnical analysis will be needed to determine the full extent of the design impacts based on the geotechnical issues identified.

3.4 MARINE ENVIRONMENTAL AND PERMITTING

Physical site conditions and regulatory requirements were reviewed to help inform the siting of the proposed marine infrastructure associated with the Barlow Point development options (see Appendix E). Specifically, this review investigated wind, water level, and river current data near Barlow Point; potential wind wave and wake conditions; permitting of capital construction actions and ongoing maintenance dredging; and other related considerations with the potential to impact development.

A general summary of findings include the following:

- Water levels and currents in the Columbia River at Barlow Point are dependent on both tides and flows from upstream. Water level and current velocities due to flood events can be significantly higher than typical daily conditions due to tides.
- The average direction of the currents is expected to be at an angle to the dock face due to location of site on the bend in the river.
- Typical daily river currents are not expected to induce significant scour around piling at the proposed piers. However, extreme flood events (i.e., 10-year or 100-year flood) could result in significant scour in the local vicinity of these piles.
- Dredging projects in the Columbia River to create and maintain berthing areas requires obtaining a suite of local, state and federal permits as well as characterizing sediment to identify dredge material placement options. Existing information suggests sediment in the vicinity of Barlow Point is generally clean sediment, with minimal to no measured contaminants present. As such, open water disposal may be a likely option, but characterization of the sediment would still be required to verify this assumption.
- The ultimate siting of marine infrastructure will include consideration of the balance between capital construction costs (marine structures, dredging and ground improvements) versus maintenance dredging costs and frequency.

Based on the results of this evaluation, no significant impacts were identified that would preclude riverfront access or development of marine infrastructure at the site. Additional design considerations

associated with vessel mooring and operational requirements will need to be incorporated in future designs to evaluate and address site-specific wind, wave, current, mooring, berthing and passing vessel forces. However, none of these design considerations are anticipated to be of a magnitude that they could not be reasonably mitigated through design.

3.5 MARINE STRUCTURAL AND DREDGING

Pier types, layouts, structural codes, dredging and seismic requirements were also assessed for the riverfront improvements to inform potential development of Barlow Point (see Appendix L). This information, combined with the initial geotechnical assessment (Section 3.3), and site conditions and permitting review (Section 3.4) was used inform the pier types and location options. The marine structures are anticipated to be purpose-built pier structures for use with Dry Bulk (Option 1) or Liquid Bulk (Option 2) cargo with as many as three marine structures for each option (the Single Tenant Option will likely only require a single pier structure).

The distance from the face of the pier structures to the federal navigational channel line will affect the amount of initial dredging, extent of river bank stabilization and the capital cost of the structures. The distance is also related to the amount of force a moored vessel is subject to from a ship passing through the channel. Based on the site constraints, environmental considerations, geotechnical evaluation and dredging analysis, two alternatives were developed for the marine structure locations. The first alternative has the pier structures located in deep water with minimum clearance to the federal navigation channel line (Long Pier Option) and the second alternative has the piers located closer to the levee (Short Pier Option). In both cases, dredging will be required to reach the federal navigation channel depth of -43 CRD (Columbia River Datum) with required dredging increasing as the structures get closer to the levee. The USACE maintains the navigation channel with annual dredging, while the Port maintains depths at its terminals. Increased initial dredging for the development of Barlow Point will likely translate to increased maintenance dredging volumes and frequency.

Localized ground improvements around the marine structures are anticipated to support the structures from down-drag forces on the pile during a seismic event. Some level of global ground improvement of the river bank is also anticipated to help stabilize the river bank against a global failure during a seismic Operational Level Event (OLE) or larger event (see Section 3.3 and Appendix F). Even though pier structures will be more expensive for the Long Pier Option, the decreased dredging, maintenance dredging and ground improvements will likely make the Long Pier Option the preferred alternative.

In this portion of the analysis, no significant impacts were identified that would preclude riverfront access or development of marine infrastructure.

3.6 TRANSPORTATION (VEHICULAR)

Vehicular traffic, truck traffic and site access needs were evaluated for the potential development at Barlow Point (see Appendix G). The analysis effort included collection of new 72-hour traffic volume counts, speed and classification data on SR 432 at the location of the likely new access roadway

intersection. Traffic forecasts, projecting to year 2020, were developed for SR 432 and trip generation estimates were developed for the range of possible development identified in the market analysis. The dry-bulk development option (Option 1) was estimated to have the highest potential trip generation with up to 385 employees and 100 truck trips per day. It was estimated to generate 286 morning peak hour trips (238 in, 48 out) and 366 afternoon peak hour trips (83 in, 283 out), including 26 truck trips (13 in, 13 out) during each of those hours.

Based on guidelines published by the Washington State Department of Transportation (WSDOT), the site access roadway on SR 432 is expected to operate as a stop-sign-controlled intersection. It is expected to require widening of SR 432 to provide a center-left-turn pocket, a right-turn pocket, and tapers in both directions from the access roadway, and driveway width and radii to accommodate at WB-67 size truck. The total affected length of widening on SR 432 is estimated between 950 and 1,000 feet.

With the required channelization, all movements at the access roadway intersection are projected to operate at level of service (LOS) D or better, which would meet minimum acceptable standards for the local jurisdictions. The site access roadway would require a minimum intersection sight distance of about 1,015 feet in both directions. Based on the conceptual layout and expected access location, there is generally only one point that can provide adequate sight distance. The location is at the apex of the horizontal curve about 140 feet west of an existing gravel drive (centerline-to-centerline) on the south side of SR 432. Due to the curvature of SR 432, the access roadway intersection may be able to be located further west of that point by up to 50 feet (or about 190 feet west of the existing gravel drive). In addition, a possible emergency-only access (gated and closed except for emergency vehicle access) could be provided at the southwest corner of the site with a short extension of Barlow Point Road. Barlow Point Road could also serve as a public access point to a public viewing area with a small parking area.

3.7 RAIL

Due to Barlow Point's location to a Class One rail corridor five miles east and proximity to an existing rail lead ½ mile east, the property is an advantageous location to be a rail-served facility. To address this, specific rail dependent commodities were chosen to analyze the site. The two options identified in Section 2.0 each include a single rail heavy user and site layout capable of handling full unit trains.

Potential rail operations and capacity implications were reviewed based on these options. This review included analysis of unit train operation, incremental car loading traffic and capacity issues on the facility for the access/egress route(s) serving the facility by rail. Also reviewed were potential conflicts with other Port and Greater Longview Industrial Area rail served customers including implications for BNSF main line capacity and operations for the Longview industrial area, and rail impacts of other proposed developments near the Barlow Point property. In addition, the review took into account the evolving routing protocol for unit bulk trains in the State of Washington that BNSF introduced in 2012 and its implications for bulk unit train service to/from Barlow Point (see Appendix H).

The development of Barlow Point would be dependent upon train volumes serving the facility as well as potential rail infrastructure developments including improvements to the Reynolds Lead, and increases in

rail capacity on the Port's Industrial Rail Corridor. In addition, expansions to the single track Cowlitz River rail bridge may be required, although it is unclear at what point increased rail operations over the bridge will trigger that need. The development of Barlow Point as a rail-served facility is feasible but rail capacity would be dependent upon potential rail infrastructure developments, some of which the Port has prepared designs.

Finally, access to BNSF's main lines at Longview Junction would likely experience increased congestion as a result of expanded unit train operations and may require some level of remediation. The Port has a working relationship with BNSF and UPRR to assist with accommodating rail service to Barlow Point.

3.8 STORMWATER

Stormwater requirements were evaluated for the potential development of Barlow Point (see Appendix I). This included investigation of the existing site, identifying initial permitting and stakeholder requirements, and a high-level analysis of critical stormwater components based on the conceptual site layouts and requirements.

The stormwater requirements for the City, Cowlitz County, WSDOT and the Industrial Stormwater General Permit (ISGP) will be applicable to various parts of the potential development. The City and Cowlitz County stormwater requirements are based on the Department of Ecology's Stormwater Management Manual of Western Washington (SWMMWW). Site development will also need to comply with CDID#1 requirement to discharge to the ditch network.

Due to the size and nature of the improvements, the potential development will likely be subject to all nine Minimum Requirements of the SWMMWW. This includes the requirements for Low Impact Development, stormwater quality (treatment) and flow control (detention).

Areas where industrial activities take place like the rail corridor and tenant lease holds will likely be subject to Industrial Stormwater General Permit (ISGP) requirements. The ISGP water quality requirements, unlike the municipal permit requirements, are demonstrative and require sampling proof that discharge limits are being met. Typical municipal stormwater treatment methods are generally not adequate to meet the requirements of the ISGP.

Development at Barlow Point will be subject to flow control requirements. Meeting the flow control requirements for the development of a Greenfield site will likely require large volumes of detention (e.g., large ponds). To reduce the size of the detention required on site, new outfalls could be installed to discharge stormwater to the Columbia River (which is flow control exempt) and the Port could purchase detention storage in the Regional Detention Pond located downstream of the site. In addition, there is an opportunity to partner with CDID#1 to utilize the Reynolds lift station as a potential outfall to the Columbia River.

Lastly, Barlow Point is located within the City which is covered under a Phase II municipal stormwater permit. The Port, as a public entity and designated as a special purpose district, may be required to apply for coverage as a co-permitee or secondary permitee since the backbone infrastructure for storm will be

owned and operated by the Port.

While the stormwater considerations needed for the development of Barlow Point will be significant, there are enough alternatives to accommodate development.

3.9 UTILITY DEMAND, ACCESSIBILITY AND CAPACITY

Potential utility demands were reviewed for the conceptual dry and liquid bulk development options for Barlow Point. These utilities include water (domestic, fire suppression and process), sanitary sewer, natural gas (heating and process), communications and power. These demands were compared against existing utility accessibility and capacity. There are currently no significant utilities on site that can be utilized for the proposed development. Development of the site will require new utility infrastructure to be constructed from their off-site service connection points and routed along SR 432 to the site. Currently, there is availability/capacity from the local purveyors for each analyzed utility with the exception of process water.

3.9.1 WATER

An existing water main located adjacent to the site in SR 432 provides easy access to fire and domestic water. It is recommended that these systems be separated and routed around the site in a loop system to provide a reliable, flexible water system. Fire/domestic water demand will be relatively small compared to the process water demand for the process tenants.

The dry and liquid bulk options each contain a process oriented tenant (urea or methanol) that has a high water demand for their industrial process. It is anticipated that a secondary source, in addition to the existing water main in SR 432, is needed to supply sufficient process water to these high-use industries. Available sources for this additional water supply include surface water intake from the Columbia River, groundwater intake on-site and groundwater pumped from the Mint Farm Groundwater Intake. Process water could be obtained either through Port groundwater rights or City groundwater rights (see Appendix D).

3.9.2 SANITIARY SEWER

The nearest connection point for sanitary sewer is approximately 1.3 miles east of the site along SR 432. Due to the elevation of Barlow Point and the proximity to existing infrastructure, sanitary sewer will likely need to be pumped to its connection point with the City system. This system could include individual pump stations for each tenant that combine to a single pump station to discharge off site. Including the above, there are three possible connection points to the sanitary sewer system that have been identified. Further design and discussion with the City is required to identify a preferred alternative.

3.9.3 NATURAL GAS

The nearest connection point for natural gas is approximately ½ mile east of the site along SR 432. Due to the relatively low demand for gas for non-process requirements, it would likely be more economically

practical to use electricity for non-process needs (see Appendix K). Similar to process water demand, process tenants will require a high volume of natural gas as a feedstock for their production process and this demand would need to be supplied by a new large diameter gas main. It is anticipated that the regulatory and construction process for this new infrastructure would be the responsibility of the process tenant (see Appendix D).

3.9.4 COMMUNICATIONS

Existing copper and fiber optic communications lines run adjacent to the site along SR 432 providing easy access to these utilities. Multiple providers for internet and telephone are available but fiber optic service is currently only available through Cascade Networks, Inc. who also serves the existing Port facilities. Cascade Networks can furnish a dedicated fiber line to Barlow Point, which would provide the Port increased control of the security between their existing facilities and Barlow Point. An economic analysis is needed to compare the cost of installing and maintaining a direct fiber optic line versus the cost of network services from a service provider.

3.9.5 POWER

Similar to process water and process natural gas, the potential process tenants (urea or methanol) will define the maximum power demand for the site. Unlike process water and gas, power will be provided to the site through a single system.

Cowlitz Public Utilities District (PUD) will likely be the provider for electric power at the property. Based on the estimated range of electrical demands for the development options, Cowlitz PUD has sufficient capacity to serve the site and the likely service connection point for the site would be the existing Mint Farm Substation. However, there is a capacity threshold that drives the development schedule and cost of power. If a single tenant requires a load of more than 10 average megawatts (aMW) and implements the entire load in one 12-month period, then the power service connection is classified as a New Large Single Load (NLSL) by Bonneville Power Administration (BPA).

The NLSL designation triggers BPA involvement prior to connecting a new electric service through the Cowlitz PUD. BPA involvement will increase the planning process by approximately 14 months to allow BPA time to complete a load study and the NLSL designation also renders the cost of energy less predictable. In contrast to the power requirements of the process tenants, the power required for general site services is small compared to the NLSL limit. Port electric services like lighting, building power, pump stations, etc. will be a small part of the overall electrical demand.

Based on the research and findings in this report, there appears to be no issues associated with utility accessibility and capacity to prevent the potential development of Barlow Point. See Appendix J and Appendix K for further details on the utilities analysis.

3.10 PUBLIC ACCESS

In addition to industrial operations, the development of Barlow Point has potential for public access

features which will be required by local Shorelines regulations. In relation to the sites potential industrial development and existing shoreline character, the preferred location for public access is in the site's northwest corner. This location could potentially be accessed through Barlow Point Road which would separate public traffic from industrial traffic and provides an opportunity for a connection to the Columbia River over the levee. This connection to the river is located adjacent to the property on the river owned by Barlow Point Land Company and is currently planned as a mitigation site for a third party.

Other factors that were considered in the public access conceptual plan include the City's Draft Shoreline Master Program (SMP), the City's Parks and Recreation Plan, and the Cowlitz County Regional Trails Plan. Other possible public access facilities include pathways, trails, picnic areas, waterfront outlook/promenade and cultural /educational features. Careful site design of the public access features will be important at Barlow Point. Visitor safety, impacts on industrial work zones and compatibility of shoreline uses will be evaluated when developing the public access areas (see Appendix M).

4.0 CONCEPTUAL COST ESTIMATE

A conceptual cost estimate was developed based on the two development options investigated for Barlow Point. The estimate focuses on potential infrastructure to be developed most reasonably by the Port which is referred to as "backbone" infrastructure. Costs were generated from general metrics based on experience from similar development types. Potential tenants for Barlow Point are currently speculative so conceptual backbone infrastructure proposed was based on best available information, input from the Port, stakeholders, and engineering judgment. Actual infrastructure required will likely vary as potential tenants are chosen and more accurate information about tenant utility demands and site requirements becomes available. Due to this variability, the conceptual costs are reported as a range. See Table 1 for a summary of the potential costs.

Table 1 – Conceptual Cost Estimate Summary

Option	Low Range (Million $)	High Range (Million $)
Option 1 – Dry Bulk Development[1]	$170	$205
Option 2 – Liquid Bulk Development[1]	$230	$275

[1] *Conceptual costs reported have been rounded up to the nearest $5 million. See Appendix N.*

5.0 PRELIMINARY ENVIRONMENTAL ASSESSMENT

The Port anticipates, based on the conceptual site uses and findings of the technical assessments, that development at Barlow Point will warrant an Environmental Impact Statement (EIS) process. An EIS is a document that outlines the anticipated environmental impacts of a project or action and also includes associated measures to mitigate identified impacts. An EIS can be prepared under the National Environment Policy Act (NEPA), State Environmental Policy Act (SEPA), or both depending on the agencies with jurisdiction in a project. An EIS contains information about the impacts of alternative actions or proposals considered for the project, including consideration of a "no action" alternative detailing impacts that would occur if the project was not completed. A full description of the EIS process can be found in Section 197-11 Part of the Washington Administrative Code.

Development of an EIS for the conceptual developments discussed herein is anticipated to take between 18 and 24 months. The first step in that process, known as Scoping, is used to identify the critical impacts to study and the alternatives to be analyzed. The Scoping process also serves to provide notice to the public and other public agencies of the Port's intent. This work would include preparing preliminary engineering plans in order to fully understand likely infrastructure requirements and potential environmental impacts. Completing the EIS process would be a significant milestone, as it is the most time-consuming review process. This would allow the Port to move forward with formal lease agreements with potential site tenants and would allow projects to focus on project-specific permitting and review.

6.0 CONCLUSION

The Barlow Point property is in a prime location and of sufficient size to represent an ideal opportunity for development as a rail-served, marine cargo terminal. Initial market research confirms that there is sufficient demand by several potential cargo types and potential tenants to support the development of the property. Further, initial investigations indicate that while significant engineering and permit challenges exist, it is anticipated that all such challenges can be adequately addressed through engineering design, planning and mitigating measures.

It is recommended that the project move forward to the next phase of planning. This could include further discussions with regulatory agencies and project stakeholders, additional design and ultimately initiation of EIS Scoping activities in advance of environmental documentation.

This Page Intentionally Left Blank