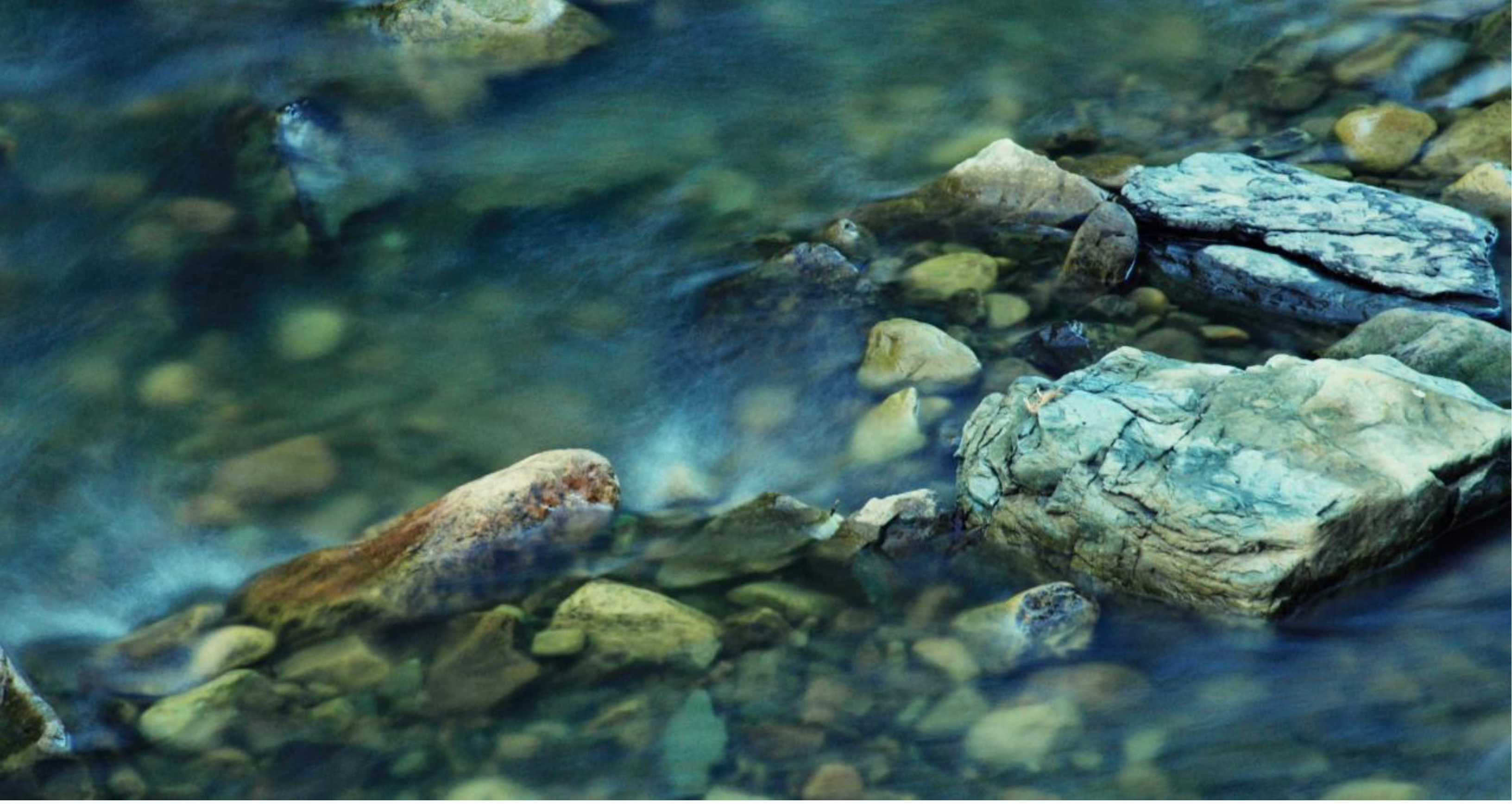
Attachment C

Project Description Technical Report



July 2023
Port of Grays Harbor Terminal 4 Expansion and Redevelopment Project

ANCHOR QEA

Project Description Technical Report

Prepared for Port of Grays Harbor and Ag Processing, Inc.

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ABBREVIATIONS

AGP	Ag Processing, Inc.
AGP Project	Ag Processing, Inc., Operations Expansion at Terminal 4
BMP	best management practice
DNR	Department of Natural Resources
Ecology	Washington State Department of Ecology
F-I	Flex-Industrial
GHG	greenhouse gas
I	Industrial
MARAD	U.S. Maritime Administration
MLLW	mean lower low water
MMT	million metric ton
MSE	mechanically stabilized earth
MT	metric ton
PHFS	Public Highway Freight System
PIR	Port Industrial Road
Port	Port of Grays Harbor
Port Project	Rail Upgrades and Site Improvements, T4A Cargo Yard Relocation and Expansion, and T4 Dock Fender and Stormwater Upgrades
Proposed Project	Port of Grays Harbor Terminal 4 Expansion and Redevelopment Project
PSAP	Puget Sound and Pacific Railroad
rail upgrades	rail upgrades and site improvements
REG	Renewable Energy Group
RORO	roll-on/roll-off
STIP	Statewide State Transportation Improvement Program
SWPPP	Stormwater Pollution Prevention Plan
T1	Terminal 1
T2	Terminal 2
T3	Terminal 3
T4	Terminal 4
T4A	Terminal 4A
T4B	Terminal 4B
U.S. 12	U.S. Route 12
U.S. 101	U.S. Route 101
USACE	U.S. Army Corps of Engineers
WSDOT	Washington State Department of Transportation
WZ	Work Zone

1 Introduction

The Port of Grays Harbor (Port) is proposing the Terminal 4 (T4) Expansion and Redevelopment Project to increase rail and shipping capacity at T4 at the Port located in the cities of Hoquiam and Aberdeen, Washington, to accommodate growth of dry bulk, breakbulk, and roll-on/roll-off (RORO) cargos. This includes the rail upgrades and site improvements (rail upgrades), the Terminal 4A (T4A) cargo yard relocation and expansion, and the T4 dock fender and stormwater upgrades. These project elements would be constructed by the Port and are referred to as the Port Project. It also includes a new export terminal by Ag Processing, Inc. (AGP), at T4. This project element is referred to as the AGP Project. Together, the Port Project and AGP Project are referred to as the Proposed Project. Section 2.1 of this report provides additional detail about all Proposed Project elements.

This report serves as the basis for environmental analysis that will support evaluation of the Proposed Project by local, state, and federal agencies. This includes those with a funding, jurisdictional, or permitting authority over the Proposed Project. At the time of writing this report, the information provided herein is the most up to date information available. Additional refinements will occur as design progresses but are not expected to result in substantive changes. The Port and AGP may also construct project elements in phases, with some elements constructed prior to others. Any major differences in the Proposed Project would be re-evaluated as appropriate.

This report includes the following components and covers activities anticipated to occur within a 20-year time frame:

- Section 1, Introduction, includes a discussion of the location and regional setting and describes the Project Area.
- Section 2, Project Area Conditions, describes the existing conditions within the Project Area, including port operations and vehicle, rail, and vessel operations.
- Section 3, No Action Alternative, describes activities anticipated to occur in the Project Area over the 20-year analysis period without the Proposed Project.
- Section 4, Cumulative Projects, describes projects in progress or that are reasonably expected to happen over the 20-year analysis period that have the potential to result in cumulative impacts when considered along with the Proposed Project.
- Section 5, Proposed Project, which is a comprehensive project description of the construction and operation of the Proposed Project, including a detailed breakdown of all elements of the Proposed Project including conceptual design and construction methods and sequencing. The analysis period for this report covers a 20-year period.
- Section 6, Permits and Approvals, lists the federal, state, and local permits and approvals that will be required by the Proposed Project.

- Section 7, Environmental Commitments, describes standard best management practices (BMPs), avoidance and minimization measures, and compensatory mitigation that will be implemented by the Port and AGP as part of the Proposed Project.
- Section 8, References, lists references cited in this report.

1.1 Location and Regional Setting

Figure 1 shows the location and regional setting of the Port. The Port was founded in 1911 and is located on the Pacific coast of Washington state in the cities of Hoquiam and Aberdeen in Grays Harbor County. The Port is located near where the Chehalis River enters Grays Harbor, approximately 15 miles east from the Pacific Ocean. The Pacific Ocean is accessed from the Port via the Grays Harbor deep-draft federal navigation channel within Grays Harbor. The Proposed Project does not include expanding or deepening the Grays Harbor federal navigation channel. Rennie Island is just south of the Port and is within Grays Harbor. Bowerman Airport is approximately 4 miles west-northwest of the Port.

Figure 1
Project Vicinity Map

1.2 Project Area

The Project Area consists of the area where the proposed facilities would be located, called the On-Site Project Area, and the existing off-site transportation corridors, called the Off-Site Project Area. The On-Site Project Area includes the area that will be directly affected by construction and operation of the Proposed Project. The Off-Site Project Area includes off-site transportation corridors used for rail and vessel transportation. This includes the Puget Sound and Pacific Railroad (PSAP) line from the Port property to the connection with the BNSF Railway and Union Pacific Railroad mainlines in Centralia, Washington, and the Chehalis River and Grays Harbor federal navigation channel from the Port property, through Grays Harbor, to the Pacific Ocean, up to 3 nautical miles offshore from the southern mouth of Grays Harbor. The Proposed Project will likely include rail construction on property owned by others (PSAP or other owners) along the PSAP rail corridor east of West Heron Street. It has not been established whether that rail will be built and owned by the PSAP to serve the site, built and owned by the Port, or some other combination of ownership and leasing. Specific study areas for the analysis of potential impacts of the Proposed Project will be defined in each respective technical study based on potential for effects.

2 Project Area Conditions

2.1 Land Use and Zoning

The Project Area is located in both the cities of Hoquiam and Aberdeen, Washington. The eastern portion located in Aberdeen is zoned as Industrial (I) (City of Aberdeen 2015). According to Aberdeen Municipal Code 17.48.010, the purpose of the I district is to "provide for intensive industrial uses in appropriate locations." According to Aberdeen Municipal Code 17.48.020, permitted uses that are applicable to the Proposed Project include "shipping terminals, truck terminals, materials' movement facilities, and docks, wharfs, marine terminals, and contractors' yards."

The western portion of the Project Area is within the jurisdiction of the City of Hoquiam. This area is zoned by the City of Hoquiam as Industrial District (City of Hoquiam 2010). According to City of Hoquiam Municipal Code 10.03.112, the intent of the Industrial District is "to provide a variety of manufacturing and marine-related uses in limited areas," and uses within the district can include "small-scale manufacturing, processing, fabrication and assembly of products and materials, warehousing, storage, and transport facilities."

Land uses at the project site are primarily related to Port import and export activities. To the north of the Project Area there are various commercial, industrial, and retail uses. Farther north, beyond these uses, are residential tracts. To the east, following the geography of the Chehalis River, there are residential, commercial, and retail uses. To the south, the Chehalis River abuts the Project Area. To the west, following the geography of the Chehalis River, there are various commercial and industrial uses.

2.2 Existing Port Facilities

The Port has facilities in the cities of Aberdeen, Hoquiam, and Westport, Washington and in unincorporated Grays Harbor County. Facilities in unincorporated Grays Harbor County near Montesano include Friends Landing and Sterling Landing and Satsop include Satsop Business Park. The main industrial operations are in Aberdeen and Hoquiam, where the Port operates four deep-water terminals with five berths (Port of Grays Harbor 2022a). Figure 2 depicts the existing conditions at the Project Area. Cargo movements through Grays Harbor include bulk and breakbulk agriculture products, heavy equipment, military equipment, forest products, and liquid bulks, including biodiesel. The Port is the 93rd largest port in the United States by volume and ranks 37th in the nation by export volume (USACE 2020). The Port exports more than 20% of all soybean meal from the United States (Port of Grays Harbor 2022b).

Figure 2
Existing Conditions

2.2.1 Port Terminals

The Port has four industrial terminals. Terminal 1 (T1) is a liquid bulk terminal with adjacent upland storage areas. T1 tenants include Renewable Energy Group (REG) and BWC Terminals. Rail access to T1 is provided by the PSAP rail line that spans from Centralia to Hoquiam. Terminal 2 (T2) operates as a bulk loading facility where AGP is a tenant. Terminal 3 (T3), which is approximately 2.8 miles to the west of T2, offers deep-water access with on-site rail connection (Port of Grays Harbor 2022a). No changes to infrastructure at or operations of T3 are included in the Proposed Project. T4 is the largest of the Port's terminals. It is 1,400 feet long with two deep-water marine berths supported by 100 acres of uplands, warehousing, and rail.

REG and BWC operate bulk transload terminals at T1 of the Port. REG produces up to 100 million gallons of biodiesel per year that can be loaded onto trucks, rail, barge, and deep-water vessels (REG 2022). BWC operations focus primarily on bulk liquid storage and handling of methanol and magnesium oxide (BWC 2022).

AGP currently operates at T2. This terminal is designed to handle mainly agricultural products, with soybean meal as the primary commodity. Other related products that can be or have been handled at T2 include whole grains (e.g., yellow soybeans and yellow corn), distillers' dried grains with solubles, beet pulp pellets, corn gluten meal, and other processed grain products. AGP's current operations at T2 include receiving, loading, and exporting processed meal products, oilseeds, grains, and related products. AGP has been exporting soybean meal and related products through the T2 export terminal for over 18 years and is approaching its capacity leading up to record volumes in 2021. The T2 facility receives product by unit train (100 to 110 railcars per train) and by manifest and single-car loads. Once product is received at T2, it is either directly loaded onto a ship or into storage silos at the site. Product from the silos can be reclaimed and transferred to ship. Product is weighed and sampled to verify quality as it is conveyed to the ship.

T3 contains an existing deep-water berth and on-site utility services (Port of Grays Harbor 2022a). Historic uses at T3 include use a sawmill, a log yard, and a log export facility (WSP 2019). The T3 dock is currently used by Willis Industries, a wood chip facility (WSP 2019). Uses near T3 include wastewater lagoons, a whiskey distillery, and undeveloped or unused upland areas (WSP 2019).

Under existing conditions, T4 contains over 100,000 square feet of warehouse space, two rail loops with on-dock rail access, additional ladder tracks, and 120 acres of paved cargo yard (Port of Grays Harbor 2022a). The existing dock fender system at T4 is a timber-piled fender system that is at the end of its useful life (Port of Grays Harbor 2022b). The existing T4 dock has a lighting system consisting of a line of pole-mounted overhead lights along the back (landward) side of the dock that generally point downward and towards ships at berth.

T4 is the Port's main general cargo terminal. It supports a variety of cargos depending on markets and the flow of goods. T4 is primarily used to move forest products, RORO cargo (primarily cars), breakbulk cargo (primarily logs), oversize cargo, and project cargo. T4 handles both import and export cargo, although most shipments are export. Export cargo typically arrives at the Port by truck or by rail. Logs typically arrive at the Port by truck via U.S. Route 101 (U.S. 101) and U.S. Route 12 (U.S. 12), and roll-on/roll-of cargo typically arrives by rail via the PSAP. Oversize cargo and project cargo can arrive by either truck or rail depending on the location of origin and volume of cargo. Cargos are typically loaded and unloaded using a ship's cranes or driven to and from the dock via a ship's ramp when possible, such as for roll-on/roll-of cargo shipments.

2.2.2 Transit Sheds

The Project Area contains Transit Sheds T4-A, T4-B, and T4-C. These were constructed in the 1990s to accommodate diversified cargo movement through T4. The shed construction included connections to road, rail, and marine traffic. Prior to their construction, cargo moving through T4 was predominantly logs. The sheds provided shelter for weather-sensitive breakbulk cargo moving through T4 such as steel coils, copper cathodes, aluminum ingots, aluminum tees, plywood, lumber, automobiles, oversize equipment, granite blocks, pulp rolls, and pulp bales. Transit Sheds T4-C and T4-A were later converted to automobile processing facilities to support export of automobiles starting in the 2010s. Automobile processing activities included application of anti-corrosive protection, painting, dent repairs, and related tasks to prepare automobiles for export.

In 2018, the Port purchased a 50-acre site immediately east of T4 (Figure 2) with the intent of decommissioning a former pontoon casting basin and returning the property to a useable condition for cargo laydown. It was determined that repurposing the former casting basin was going to be complex, expensive, and time consuming. In the interim, the Port used the space for other purposes while a full analysis was being conducted. In 2020, portions of the site were used for terminal laydown space in support of military operations.

A 2021 site development plan and feasibility analysis (MFA 2021) identified that decommissioning the casting basin and related infrastructure will be needed to efficiently operate a cargo facility at the site. The site development plan also identified the required steps to return the largest number of acres to useable marine terminal space while minimizing environmental impacts and minimizing initial costs. Currently, the cargo yard site is bifurcated by the casting basin footprint, which is approximately 6 acres in size and 25 feet deep.

The casting basin is separated from the water with an existing marine casting basin gate (also referred to as a tide gate). The Port has indicated that the tide gate was not intended for long-term operational life and will eventually need to be decommissioned. The casting basin has a paved parking area. The casting basin has an existing stormwater system including sumps, stormwater ponds, conveyance ditches, and biofiltration swales (MFA 2021). Stormwater management at the casting basin is described in Section 2.6.

2.3 Transportation to and from the Port

This section describes the operational considerations, including existing vehicle operations and traffic volumes for vessels and trains into and out of the Port. Traffic volumes can vary from year to year. Therefore, this section includes an analysis of past data when available to represent the average traffic conditions to serve as the baseline for comparing future changes in the Project Area.

2.3.1 Existing Vessel Operations and Volume

Vessels approach the Project Area via the Chehalis River and Grays Harbor Navigation Channel, which runs east and west from the Pacific Ocean into the Port docks. The navigation channel and turning basin are depicted in Figure 2. The U.S. Army Corps of Engineers (USACE) maintains the 22-mile-long deep-draft federal navigational channel. The federal navigation channel is 350 feet wide, increasing up to 1,000 feet wide over the bar east of Rennie Island, with depths ranging from 32 to 38 feet (USACE 2022). Approximately 1.7 million cubic yards are dredged annually (USACE 2022).

Vessels that call on the Port have historically included ships and barges. Available ship and barge records that date back to 1989 show significant fluctuations in traffic volumes over time and from year to year. The recorded annual ship calls during this period range from 8 to 214 annual ship calls and the recorded annual barge calls during this period range from 0 to 179 annual barge calls.

Since 2002, there have been 1,281 recorded ship calls to the Port for an average of approximately 64 ship calls per year and there have been 317 recorded barge calls for an average of approximately 20 barge calls per year.[1] As shown in Figure 3, ship trips through the federal navigation channel to and from the Port historically included four main cargo types. Generally speaking, liquid bulk represents trips to and from T1. Dry bulk includes trips to and from T2. The remaining breakbulk and RORO trips are mainly from T4. In recent years, the RORO cargo has declined as destinations for this cargo, especially automobiles, have shifted elsewhere. Anticipated vessel volumes over the analysis period for the No Action Alternative are discussed under Section 3.

Since 2013 (not including the years affected by the COVID-19 pandemic), the Port saw an annual average of approximately 100 ship calls per year, including a peak of 115 ship calls in 2014. During the pandemic, ship call numbers at the Port dropped to an average of approximately 56 ship calls

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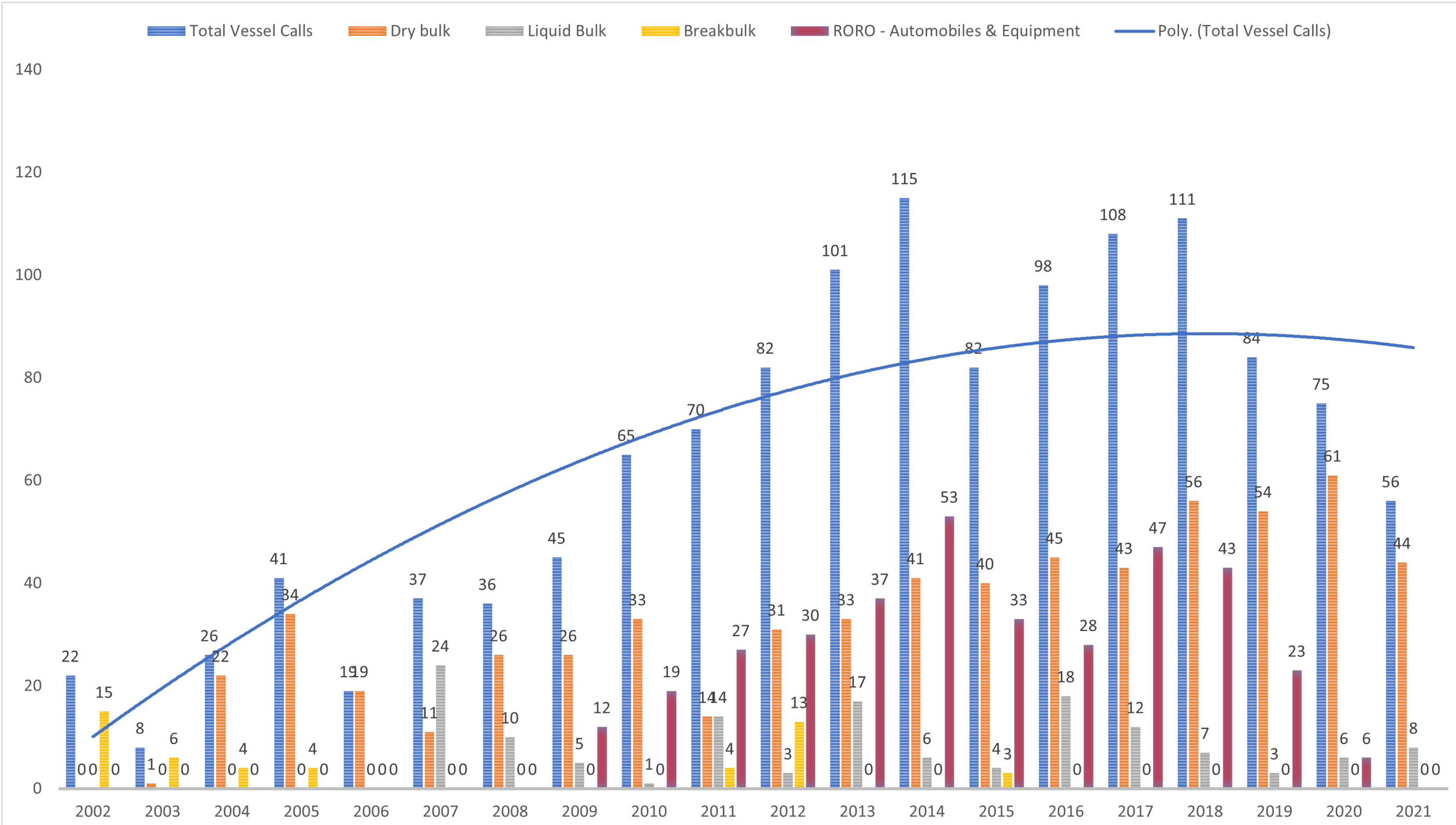
[1] Ship call records include the years 2002 through 2021. Barge call records include the years 2002 through 2017. Barge data was not available for the year 2018 or beyond.

per year. In the years between 2013 and the pandemic, the Port saw an annual average of approximately 16 barge calls per year, including a peak of 31 barge calls in 2013.

For the purposes of environmental analysis, the baseline for comparison is 131 total vessel calls at the Port per year, including 100 ship calls and 31 barge calls.

Figure 3
Ship Calls at the Port



Source: Port of Grays Harbor 2022c

2.3.2 Existing Rail Operations and Volume

As shown in Figure 2, the Port has two rail loops that run through the existing marine terminals complex. Both of these rail loops serve T2, which does not have on-dock rail. One of the rail loops provides on-dock rail access at T4.

The Port is served by a Critical Rural Freight Corridor (designated as a T2 State Highway and an R2 Rail Freight Corridor).[2] Rail service to the marine terminals provides direct access to both Class 1 railroads (BNSF Railway and Union Pacific Railroad) via the PSAP short line railroad. The PSAP short line railroad forms the northern boundary of the Port-owned industrial area.

Trains travelling to or from the Port travel along the PSAP. From the Port to the east, all trains travel along the Harbor subdivision of the PSAP. Near Elma, Washington, the PSAP splits into two subdivisions including the Bangor Subdivision and the Centralia Subdivision. The Harbor and Centralia subdivisions combined cover a distance of approximately 60 miles and generally parallel U.S. 12 between Centralia and Aberdeen and U.S. 101 in Hoquiam. At Centralia, the PSAP short line railroad terminates where it connects to the BNSF Railway and the Union Pacific Railroad mainlines.

The Port receives manifest trains and unit trains. Manifest trains typically include one locomotive and between 20 and 60 railcars. The Port records manifest trains in terms of the number of railcars, so the number of round trips varies depending on the length of each manifest train. Unit trains typically include 100 to 110 railcars and two to three locomotives.

As discussed in the Rail Traffic and Safety Technical Study (KPFF 2023), according to the *Westway Expansion Project Final Environmental Impact Statement* (City of Hoquiam and Ecology 2016), the PSAP was typically operating 3.1 daily train trips between Elma and Aberdeen at the time of the report (2016). That number included 2.0 daily manifest train movements, 0.5 daily auto train movements, and 0.6 daily soybean meal unit train trips.

Port railcar data indicates that in 2017 there were 17,459 soybean meal cars, which would require approximately 175 loaded unit trains and 175 empty unit trains, or approximately 0.96 unit train trips per day. The peak volume for soybean meal cars occurred in 2020, when 27,187 loaded cars were delivered to the Port, the equivalent of approximately 3.03 million tons. Movement of these cars would require approximately 272 round-trip unit trains, or 1.49 unit train trips per day (0.74 loaded and 0.74 empty).

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[2] The Federal Highway Administration defines Critical Rural Freight Corridors as "public roads not in an urbanized area which provide access and connection to the Public Highway Freight System (PHFS) and the Interstate with other important ports, public transportation facilities, or other intermodal freight facilities" (FHWA 2022).

Based on data from 2017 to 2021, the number of annual manifest train round trips during this period could be as low as 70 but could have reached as high as 235 in 2020. For the purposes of environmental analysis, the baseline for comparison is 2.0 daily manifest train movements and 1.49 daily grain unit train movements, totaling 3.49 daily train movements. Anticipated train volumes over the analysis period for the No Action Alternative are discussed under Section 3.

2.3.3 Existing Vehicle Operations

Local road access to the Project Area is provided via Port Industrial Road (PIR). Further access to the Project Area is provided by West Heron Street, East Terminal Road, and West Terminal Way. Both East Terminal Road and West Terminal Way intersect with PIR. Regional highway connections include U.S. 12 and U.S. 101. West Heron Street directly connects to U.S. 101 and is classified as a truck route per Aberdeen Municipal Code Chapter 10.60.

2.4 Fry Creek

Fry Creek is the only inland waterbody within the Project Area considered to be fish-bearing by the Washington Department of Fish and Wildlife that would be affected by the Proposed Project. As shown in Figure 2, Fry Creek is at the western end of the Project Area and empties into Grays Harbor. Fry Creek is a narrow channel passing through many culverts and under roadway crossings. Under existing conditions, two rail tracks cross over Fry Creek within the Project Area and another two rail tracks cross over Fry Creek outside of the Project Area. Fry Creek runs through a 110-foot-long culvert that is 11.5 feet in diameter, which allows the railroad tracks to cross Fry Creek, near its confluence with the Chehalis River. The 28th Street Boat Launch and a public viewing tower is directly next to Fry Creek. Port-owned Warehouse H is adjacent to the two existing rail tracks near Fry Creek.

2.5 Stormwater Management

The entirety of the Project Area is currently developed and consists largely of impervious surfaces. Stormwater in the Project Area mainly discharges via the Port's outfalls to the Chehalis River; however, certain areas are captured separately and may also be routed to existing municipal systems. Separated drainage basins exist at T1 and T2 related to existing tenant use and would not be affected by the Proposed Project.

Stormwater at the T4A cargo yard is handled through an existing sand and gravel permit, involving detention at the existing ponds prior to discharge via separate outfalls to the east of the T4 dock. Stormwater at the T4 dock currently drains to Grays Harbor.

As described in the 2021 site development plan and feasibility analysis (MFA 2021), under existing conditions, stormwater at the casting basin is collected into a sump and then conveyed by pumps to the four northern stormwater ponds. The water is then treated in the stormwater ponds and discharged to the ditch on the west side of the casting basin. This biofiltration swale and ditch then discharges water into a stormwater sediment treatment cell in the southwest corner of the casting basin. From there, stormwater is discharged into the Chehalis River.

On the eastern side of the casting basin, there are several biofiltration swales that collect runoff and discharge to the ponds in the southeastern corner of the casting basin. To the east and west of the parking area there are conveyance ditches, The ditches on the western side of the parking area convey stormwater to the same pond in the southeastern corner of the casting basin. The ditch on the eastern side of the parking area discharges into the Chehalis River.

2.6 Utilities

Existing utilities at the Project Area include domestic water supply, a sewer line, and electrical connection. Water is supplied by a nearby one-inch domestic water line. The existing sewer line is a four-inch gravity service line. Existing connections to the Grays Harbor Public Utility District electrical grid exist at the Project Area.

2.7 Purpose and Need

The purpose of the Proposed Project is to strive toward the Port's mission: "To best utilize our resources to facilitate, enhance and stimulate international trade, economic development and tourism for the betterment of the region" (Port of Grays Harbor 2023). The Proposed Project will support the Port's mission by upgrading the Port's terminal and rail infrastructure, including increasing the capacity of the current rail loop, upgrading the existing T4 dock with new dock fenders and a shiploader, and replacing backland cargo storage capacity lost to the expanded rail footprint by redeveloping the vacant 55-acre industrial site to the east of T4 by filling the casting basin site and returning the property to a viable industrial site to support the marine activities at T4A.

The T4 facility currently is underutilized following a decision by Chrysler Automotive in late 2019 to move their export shipping location from Grays Harbor to Portland, Oregon. The loss of this customer along with the Port's 2018 purchase of the adjacent 55-acre Washington State Department of Transportation pontoon site provides the Port the opportunity to redevelop the area that was previously used to support the auto exports and the pre-casting of bridge pontoons into a robust multimodal terminal for agricultural products, breakbulk, logs, and other cargos needing a coastal marine terminal.

These improvements are needed to support Port economic resiliency and to increase the Port's operational capacity and efficiency to support increased growth, job creation and retention, and economic opportunities related to multimodal port operations, including the expansion of AGP's agricultural export facilities, ship loading productivity, storage capacity, and the efficient movement of goods through the Port (Port of Grays Harbor 2022b).

The Proposed Project will provide a key transportation link to international markets for thousands of U.S. soybean farmers, while creating jobs and economic benefits for the local community, the Port, and current Port tenants in this Historically Disadvantaged Community of Washington State (U.S. Department of Transportation 2023). These investments will provide AGP the infrastructure to accommodate increased throughput of soybean meal and other bulk commodities to meet global market demand.

The Proposed Project will advance economic growth in the region and provide a link between the U.S. and Asian markets to meet demand for high-quality U.S. soybean meal. The increase of export capacity at the Port is also important to support the increased soybean meal production that will be generated at new Midwest soybean processing plants opening in 2025. Currently, U.S. domestic market demand for soybean meal has been reached.

3 No Action Alternative

The No Action Alternative refers to the continuation of existing conditions without the implementation of the Proposed Project as it is described in Section 5 of this technical report. Under the No Action Alternative, the infrastructure proposed by the Port and AGP would not be built and brought online, and potential beneficial or adverse environmental impacts of the Proposed Project would not occur. Additionally, the purpose of the Proposed Project as described in Section 2.7 would not be satisfied under the No Action Alternative.

Under the No Action Alternative, it is anticipated that AGP would maximize its operations at the existing Terminal 2 facility, although the Terminal 2 facility cannot accommodate the increased volume of export cargo intended to flow through Terminal 4, if redeveloped. Thus, the No Action Alternative does not have the capacity to meet the purpose and need of the Proposed Project and Port operation would remain at or near existing conditions under the No Action Alternative.

The Port has included several upgrade and maintenance projects in their approved Capital Budget Plan for 2023 to 2028, including the fender system replacement, pile cap repairs, and repairs to the seawall approaches. Under the No Action Alternative, the Port would continue to pursue implementation of their approved Capital Budget Plan; however, because it is not presently funded or permitted, fender system replacement under the No Action Alternative is not considered to be reasonably foreseeable in the environmental analyses supported by this Project Description Report.

Under the No Action Alternative, the Port would maintain its current role as a working port. The Port will continue to market its facilities to new customers but would not invest in additional infrastructure improvements at this time. The Port would continue to maintain the existing infrastructure and operations and invest in necessary maintenance. The Port would also continue to provide economic benefits to the region as a working port; however, economic activity would be limited to current port infrastructure and terminal capacity limits, and the No Action Alternative would not achieve the higher level of economic growth anticipated under the Proposed Project. The Port would pursue growth opportunities within the existing terminal footprint, which may include expansion of industrial and commercial activities at existing facilities that are not at capacity.

3.1.1 Terminal 1 Operations

Current tenants at T1 include REG and BWC Terminals. T1 provides liquid bulk commodity shipping access (Port of Grays Harbor 2022a). As discussed in Section 2.2.1, REG and BWC operate at T1. BWC's operations at T1 include four aboveground storage tanks, each with a holding capacity of 3.4 million gallons, for a total storage capacity of 13.6 million gallons. BWC's facility at T1 is permitted to handle up to 54.6 million gallons of methanol per year. BWC is permitted to load methanol by rail and tanker truck and to unload methanol vessels and railcars. As of 2016, the facility received approximately 36 million gallons per year and shipped 33.3 million gallons annually, including six vessel calls per year at T1 and 2,700 round trips by tanker trucks (ICF 2016).

REG operates their Grays Harbor Biorefinery at T1. It has a nameplate capacity of approximately 100 million gallons of biodiesel per year and began operation in 2015 (REG 2022). While the refinery can process multiple feedstocks, most of the biodiesel refined here is made from canola oil from British Columbia.

Although both tenants may grow operations over the 20-year analysis period, nothing specific is currently planned. Therefore, this analysis assumes operations at T1 would continue similar to existing conditions. This includes vehicle, rail, and vessel trips described in Section 2.3.

3.1.2 Terminal 2 Operations

T2 operates as a bulk loading facility where AGP is a tenant. As described in Section 2.2.1, operations at T2 include receiving soybean meal, unloading railcars, and then exporting soybean meal as the primary commodity, with a lesser amount of oilseeds, grains, and other products. These products are received by unit train and manifest trains and are either loaded directly onto ships or elevated into storage silos at T2. The terminal is presently approaching its throughput capacity and is not anticipated to have substantial changes to operations over the 20-year analysis period under the No Action Alternative. This includes similar volumes of vehicle, rail, and vessel trips as described in Section 2.3.

3.1.3 Terminal 3 Operations

As described in Section 2.2.1, T3 is not a part of the Project Area. T3 provides deep-water access with connection to nearby rail (Port of Grays Harbor 2022a). T3 is connected to Interstate 5 (I-5) by a four-lane highway. Utilities at T3 include electricity, natural gas, and industrial water and wastewater treatment capacity.

The Port is actively seeking new tenants at T3. Over the next 20 years, new or additional tenants could occupy this terminal and increase operations. However, because there is currently not a proposal to redevelop T3, it is assumed that there would be no changes to existing conditions at T3 as part of the No Action Alternative.

3.1.4 Terminal 4 Operations

As described in Section 2.2.1, T4 is the Port's main general cargo terminal. It supports a variety of cargos depending on markets and the flow of goods. Under the No Action Alternative, it is assumed that operations at T4 would continue similar to existing conditions. Although RORO cargo has declined in recent years, for the purposes of this analysis, it is assumed that there could be other cargo handled at the Port under the No Action Alternative that would result in similar volumes of vehicle, rail, and vessel trips under existing conditions as described in Section 2.3.

4 Present and Future Projects and Conditions

This section describes present and future projects and climate conditions that are expected to occur in the Project Area during the analysis period to support evaluation of the Proposed Project.

4.1 Cumulative Projects

A number of other projects are currently in progress or are expected to occur in the foreseeable future, regardless of whether the Port Project or the AGP Project proceeds. The impacts of these projects may have the potential to contribute to a cumulative impact on resources when combined with the impacts of the Proposed Project. As such, these projects are referred to as cumulative projects. Table 1 shows the identified cumulative projects and Figure 4 presents the location of the cumulative projects.

Several transportation improvement projects in the region have been identified by the Washington State Department of Transportation in their Statewide Transportation Improvement Program (STIP). Applicable projects from the STIP are identified in Table 1. Several minor projects from the STIP, such as minor pedestrian or street improvements or signal upgrades, have not been considered as cumulative projects due to their limited nature and due to their distance from the Project Area.

Table 1
Cumulative Projects

Project	Proponent	Location	Description	Schedule/Status
PSAP Annual Maintenance and Improvements	PSAP	Grays Harbor County, Washington	In 2020, the PSAP completed a number of maintenance activities and improvements. This included 50 miles of mainline surfacing, replacing seven curves on the PSAP system with new rail, welding/eliminating 28 joints in the mainline near Central Park, and replacing the Satsop grade crossing.	Past projects completed; however, maintenance is annual and specific projects are planned or under construction.
South Elma Rail Siding Construction	PSAP	Elma, Washington	This project is part of the PSAP Annual Maintenance and Improvements. Through Federal Railroad Administration funds, the PSAP will match funds to construct a 5,000-foot-long siding south of Elma to reduce crossing blockages. The siding will be located between MP 45.26 and MP 46.33 to mitigate crossing blockages in Elma and to support local manifest traffic to and from the northern half of the PSAP.	Estimated to be completed in the third quarter of 2023.

Project	Proponent	Location	Description	Schedule/Status
Blakeslee Junction Track #1 and #2 Expansion Project	PSAP	Lewis County, Washington	This project is part of the PSAP Annual Maintenance and Improvements. The Blakeslee Junction Track #1 and #2 Expansion Project in Lewis County is a National Highway Freight Program grant-funded project to extend tracks #1 and #2 towards the west. The purpose of this project is to mitigate crossing blockages between Blakeslee Junction and Centralia. There will be an additional 4,000 feet of track that will increase capacity of the railroad.	Estimated to be complete by the second quarter of 2024.
Blakeslee Junction Track #4 Project	PSAP	Lewis County, Washington	This project is part of the PSAP Annual Maintenance and Improvements. The Blakeslee Junction Track #4 Project will add up to 7,000 feet of additional capacity at Blakeslee Junction, which will ease congestion and move inbound and outbound traffic more efficiently.	The project is planned but does not have a timeline for completion yet.
Cedar Creek Siding #2 Project	PSAP	Lewis County, Washington	This project is part of the PSAP Annual Maintenance and Improvements. The Cedar Creek Siding #2 Project will add up to 8,000 feet of additional siding capacity to augment the meeting and passing of trains in conjunction with the existing Cedar Creek Siding.	The project is planned but does not have a timeline for completion yet.
North Aberdeen Bridge Replacement	City of Aberdeen	Aberdeen, Washington	This is a project identified in the STIP. This project will replace the existing concrete girder bridge with a three-span concrete girder bridge.	Funded. Preliminary engineering to begin in 2023. Right-of-way work set to begin in 2025. Construction set to begin in 2026.
Aberdeen U.S. 12 Highway-Rail Separation	City of Aberdeen	Aberdeen, Washington	This is a project identified in the STIP. The project involves construction of a grade separation that will improve the flow of freight and people in a rural community in Washington state.	The project is in the 60% design phase, which is currently estimated to be completed in spring 2025, followed by final design and right-of-way acquisition in late 2026. Construction to begin in 2027.
U.S. 12 Heron Street Bridge Rehabilitation	WSDOT	Aberdeen, Washington	Replacement of 72-year-old bridge.	Pre-construction occurred in 2021; currently pending.

Project	Proponent	Location	Description	Schedule/Status
U.S. 101 Fry Creek Culvert Replacement	WSDOT	Aberdeen, Washington	This is a project identified in the STIP. The project involves replacement of two existing culverts on Fry Creek with a reenforced concrete arch bridge. There are two locations where this will occur: along U.S. 101/Sumner Avenue and U.S. 101/Simpson Avenue.	Construction to begin in 2024.
PIR Pavement Preservation Project	Port of Grays Harbor	Aberdeen and Hoquiam, Washington	This is a project identified in the STIP. This project would grind and inlay the pavement on PIR between 29th Street in Hoquiam and West Wishkah Street in Aberdeen. The project would also restripe the roadway to match the existing layout. Utility lids and grates would be adjusted to the new grade.	Preliminary engineering occurred in 2023. Construction to begin in 2024.
Fry Creek Restoration and Pump Station	City of Aberdeen	Aberdeen, Washington	The project aims to restore the creek to a more natural state so the creek can manage heavy rain events and reduce street flooding. Design elements will also include pedestrian improvements to encourage walking and enjoyment of the restored area.	Construction began in fall 2022.
Aberdeen-Hoquiam Flood Protection Project	City of Hoquiam and City of Aberdeen	Aberdeen, Washington, and Hoquiam, Washington	This project includes two critical levees, the North Shore Levee and the North Shore Levee – West Segment. The purpose of the Proposed Project is to reduce flood damage in Aberdeen and Hoquiam. The Proposed Project would construct earthen levees, concrete floodwalls, and raised roads in Aberdeen and Hoquiam. The North Shore Levee will result in a 6.2-mile levee and the North Shore Levee – West Segment will result in a 4.7-mile levee.	The North Shore Levee Project is in the pre-construction phase; the public comment period ended in June 2022. Construction for the North Shore Levee – West Project will be bid-ready by the end of 2023.
Westport Marina Modernization Project	City of Westport	Westport, Washington	The Westport Marina requires modernization (replacement and upgrades) to fulfill its missions and continue to provide critical infrastructure for the economy of Grays Harbor County.	The Westport Marina Modernization Project was accepted by the Port Commission in December 2022. The Port will be receiving $750,000 in federal funding for design of the first phase.

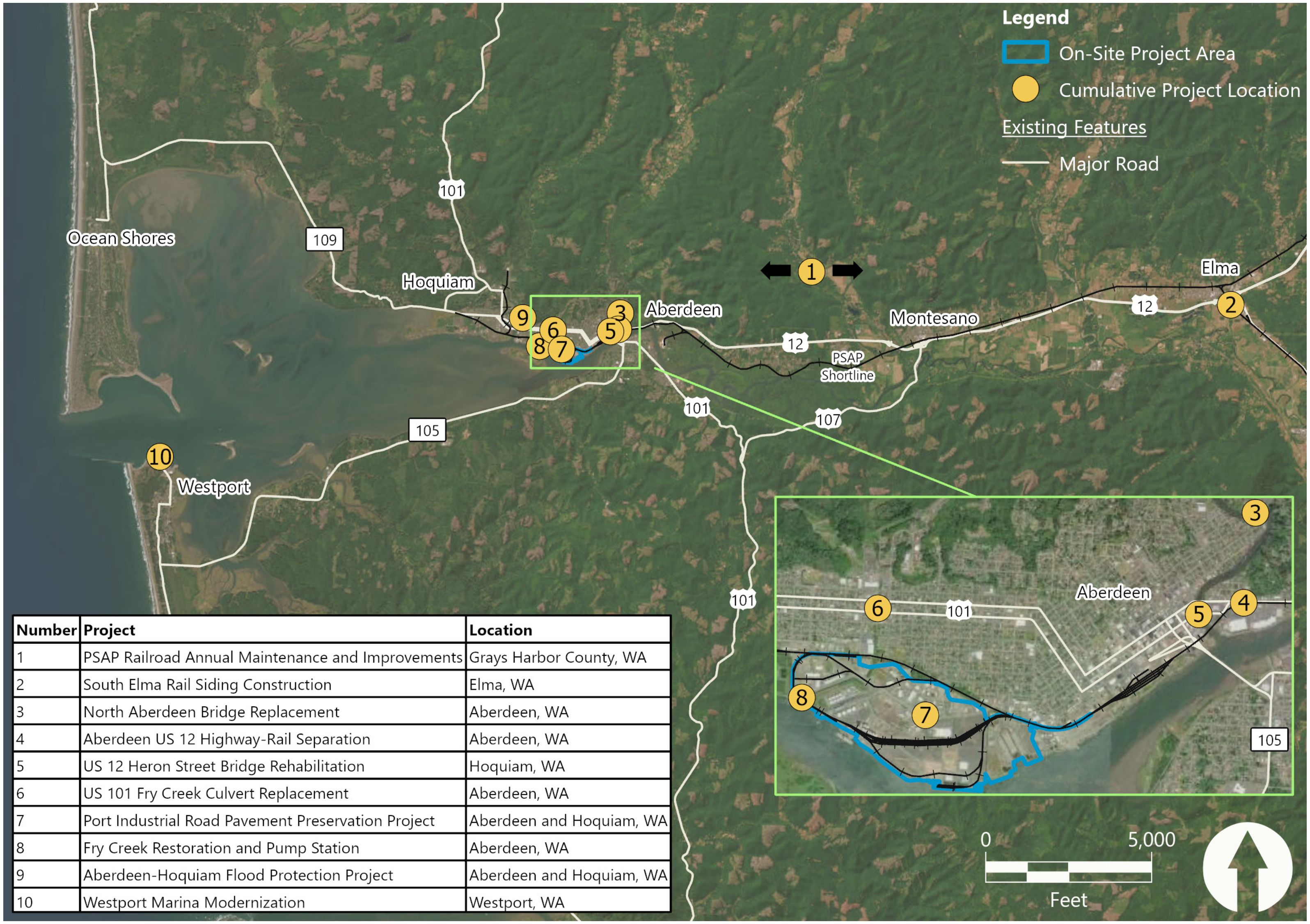
Sources:
City of Aberdeen 2021, 2022a, 2022b

City of Hoquiam 2022
Moffatt & Nichol 2022
Port of Grays Harbor 2022b, 2022d
Sorenson 2022
WSDOT 2021
WSDOT 2023

Another action at the Port is being considered in addition to the cumulative projects identified above that are currently in progress or are expected to occur in the foreseeable future. This includes the potential to remove the tide gate at the T4A casting basin at an undetermined point in the future after the soil berm is constructed inside the existing tide gate and the casting basin is filled. The removal of the tide gate could be coordinated with a future shoreline restoration project; however, no future restoration projects, including removal of the tide gate, are planned or proposed at this time.

The potential action identified above is not in progress nor is expected to occur in the foreseeable future. As such, it is not included in the list of cumulative projects that have the potential to contribute to a cumulative impact on resources when combined with the impacts of the Proposed Project. Furthermore, the Proposed Project could be constructed and operated without the removal of the tide gate.

Figure 4
Cumulative Projects



Number	Project	Location
1	PSAP Railroad Annual Maintenance and Improvements	Grays Harbor County, WA
2	South Elma Rail Siding Construction	Elma, WA
3	North Aberdeen Bridge Replacement	Aberdeen, WA
4	Aberdeen US 12 Highway-Rail Separation	Aberdeen, WA
5	US 12 Heron Street Bridge Rehabilitation	Hoquiam, WA
6	US 101 Fry Creek Culvert Replacement	Aberdeen, WA
7	Port Industrial Road Pavement Preservation Project	Aberdeen and Hoquiam, WA
8	Fry Creek Restoration and Pump Station	Aberdeen, WA
9	Aberdeen-Hoquiam Flood Protection Project	Aberdeen and Hoquiam, WA
10	Westport Marina Modernization	Westport, WA

4.2 Future Climate Conditions

Climate change refers to changes in the weather patterns that define Earth's local, regional, and global climates. These changes are mostly being driven by the burning of fossil fuels and the related release of heat-trapping greenhouse gases (GHGs) and particulate matter. Over time, increases in particulate matter and GHG concentrations in the atmosphere have raised the Earth's air, land, and ocean temperatures. This has affected other climate-related processes, including precipitation and snowfall and the related frequency and extent of flooding, wildfires, and drought.

During the analysis period, it is anticipated that the following climate change conditions could occur.

- **Temperature:** The regional setting surrounding the Project Area is typically characterized as having relatively cool winters and moderately warm summers. Over the last century (1901 to 2000), both annual average maximum (i.e., daytime high) and the annual average minimum (i.e., nighttime low) temperatures in the Pacific Northwest have increased (Vose et al. 2017). Under climate change, the trend of increasing annual average temperatures is expected to continue in the region, which is expected to experience warmer winters and hotter summers in the future.
- **Flooding:** Future climate variability may bring more frequent and intense atmospheric river events to the western United States, potentially exacerbating flood risks in the region (Dettinger 2011; Warner et al. 2015; Gao et al. 2015). In addition, projected increases in winter temperatures may increase the fraction of precipitation falling as rain rather than snow and the frequency of rain on snow events, which can also increase flood potential (Wehner et al. 2017). Extreme runoff contributing to flooding may increase substantially during fall and winter (Collins et al. 2013).
- **Sea Level Rise:** During the period between 1993 and 2015, sea levels in the Pacific Ocean along the Washington coast have risen approximately 0.5 inch per decade (Sweet et al. 2017) or about 1 inch over approximately 20 years. With the predicted effects of future climate change, the coast in Aberdeen may experience 0.6 feet of sea level rise by the year 2060 and 1.6 feet by 2100 under the RCP 8.5[3] GHG scenario (Washington Coastal Network, 2020). Increased sea levels can contribute to increases in coastal flooding.

Over the course of the analysis period, changes in climate could affect resources in the Project Area. These changes could have consequences for human health, communities and infrastructure, water

[3] Representative Concentration Pathway (RCP) 8.5 is a greenhouse gas concentration trajectory adopted by the International Panel on Climate Change for climate modeling and research. RCP 8.5 represents the "business as usual" scenario in which emissions continue to rise throughout the twenty-first century.

supply, and the natural environment (Ecology 2012). Climate change could also affect the impacts of the Proposed Project over time.

The Port has considered climate change in the engineering design. The focus has been to ensure the proposed facilities would continue to operate as needed in light of potential changes in temperature, flooding, and sea level rise. For example, as noted previously, the sea level near the On-Site Project Area is expected to rise by 1.6 feet in the next 75 years. All Proposed Project facilities at the Port would be situated well above the elevation at which sea level rise is expected to reach under this scenario.

Any unmitigated impacts of the Proposed Project could combine with the effects of climate change to be greater. The impacts of the Proposed Project are described in the various technical studies. Over the analysis period, the Proposed Project would result in increased traffic to and from the Port, increased air emissions, and operational noise. The Port and AGP will implement mitigation commitments and BMPs as discussed further in Section 7. Therefore, the Proposed Project is not expected to result in any cumulatively substantial impacts.

5 Proposed Project

5.1 Project Elements

As noted in Section 1, the Proposed Project consists of Port-led improvements and the AGP Project. The Port improvements include the following: 1) rail upgrades; 2) T4 cargo yard relocation and expansion; and 3) dock fender and stormwater upgrades. These elements can be considered components of the Port's program to upgrade infrastructure and may be constructed in phases, with some elements constructed prior to others. For example, the cargo yard relocation and expansion could occur at a later time after the other project elements are operational. AGP's project consists of constructing a new export terminal at T4 to accommodate an increase in exports through the Port. Figure 5 presents the configuration of all elements of the Proposed Project identified above and described in detail in the following sections.

Figure 5
Project Elements

5.1.1 Rail Upgrades and Site Improvements

The rail upgrades will increase the efficiency of the movement of goods through the Port. The rail upgrades will increase efficiency of unit train offloading, railcar storage, and unit train assembly. The rail upgrades will increase capacity for all port users and will ensure that each terminal could operate unimpeded by unit trains on neighboring loops. The proposed rail upgrades are shown in Figures 6A, 6B, and 6C and are described in greater detail in the following sections.

5.1.1.1 Components

The rail upgrades involve construction of up to 50,245 linear feet of new rail at the Port's existing loop track facility. The upgrades include the following:

- **New Rail Loop Route Through Terminal:** A new Port-owned rail loop route through the site would be built, consisting of sections of single and double track with connections to the PSAP.
- **New Storage Tracks:** Four new storage tracks will be constructed with connections to the Port-owned lead tracks and the PSAP.
- **Modification of Existing Storage Tracks:** Nine existing storage tracks will be extended and aligned with the four new storage tracks, with connections to both Port- and PSAP-owned lead tracks.
- **New Fencing and Security Guard Station:** A new fence will be installed along the northern boundary of the Project site to separate the PSAP mainline from Port property and tracks. A security guard station will be built at the easternmost point of entry.
- **Rail bridge:** A new rail bridge will be installed at Fry Creek that accommodates a third track over the creek to replace an existing culvert.
- **Rail crossing modifications:** There would be five at-grade crossings modified as part of the Port Project. The locations of the proposed rail crossing modifications are depicted in Figures 6A, 6B, and 6C and are described in the following sections.
- **Access roads and secure site access:** Unpaved access roads will be paved. Secured site access and roadway improvements will be constructed for the safe, secure, and efficient flow of vehicles into and through the project site.
- **Stormwater improvements:** Stormwater drainage systems will be constructed to accommodate rail upgrades and new construction.

Figure 6A
Proposed Rail Upgrades and Site Improvements

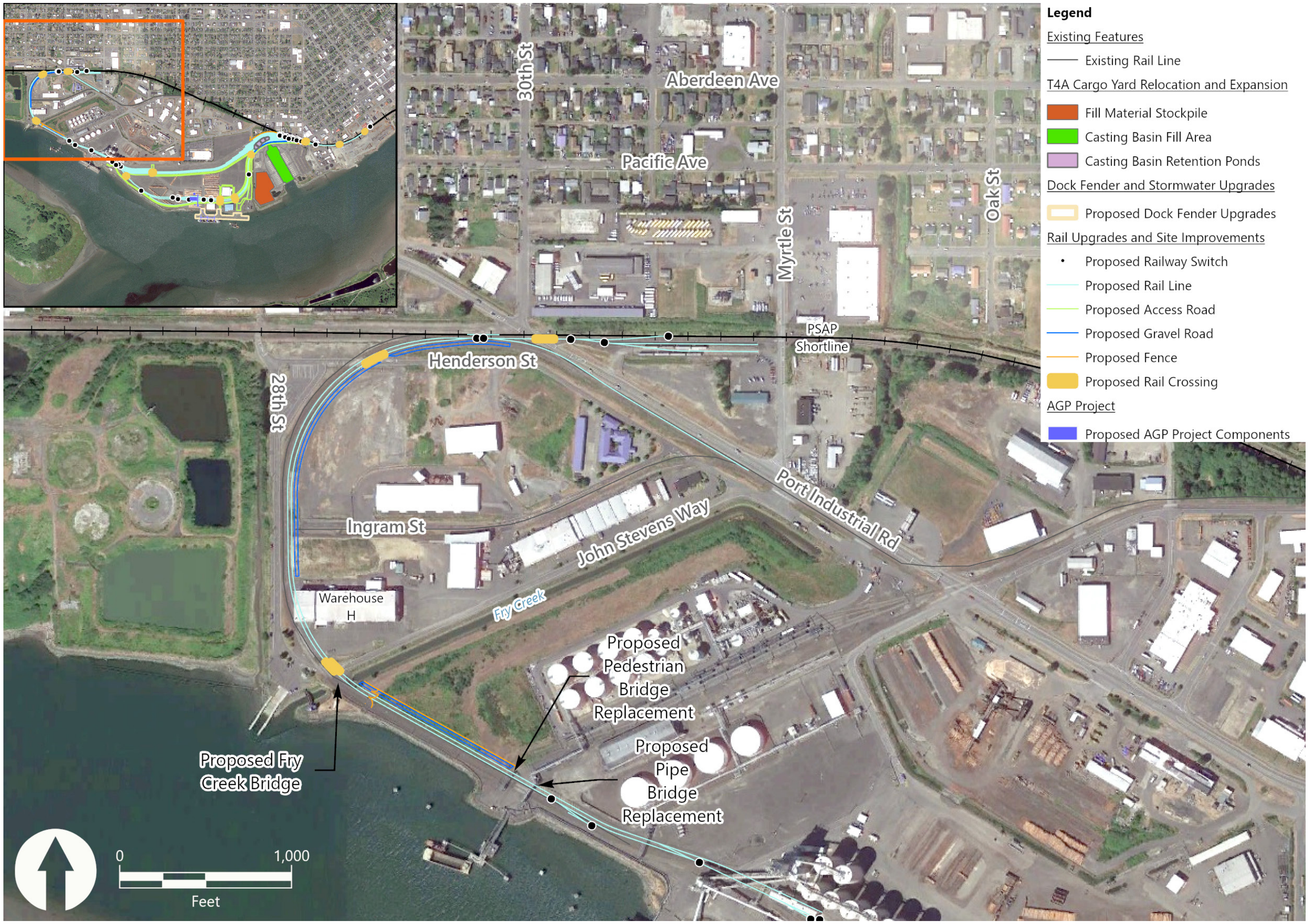


Figure 6B
Proposed Rail Upgrades and Site Improvements

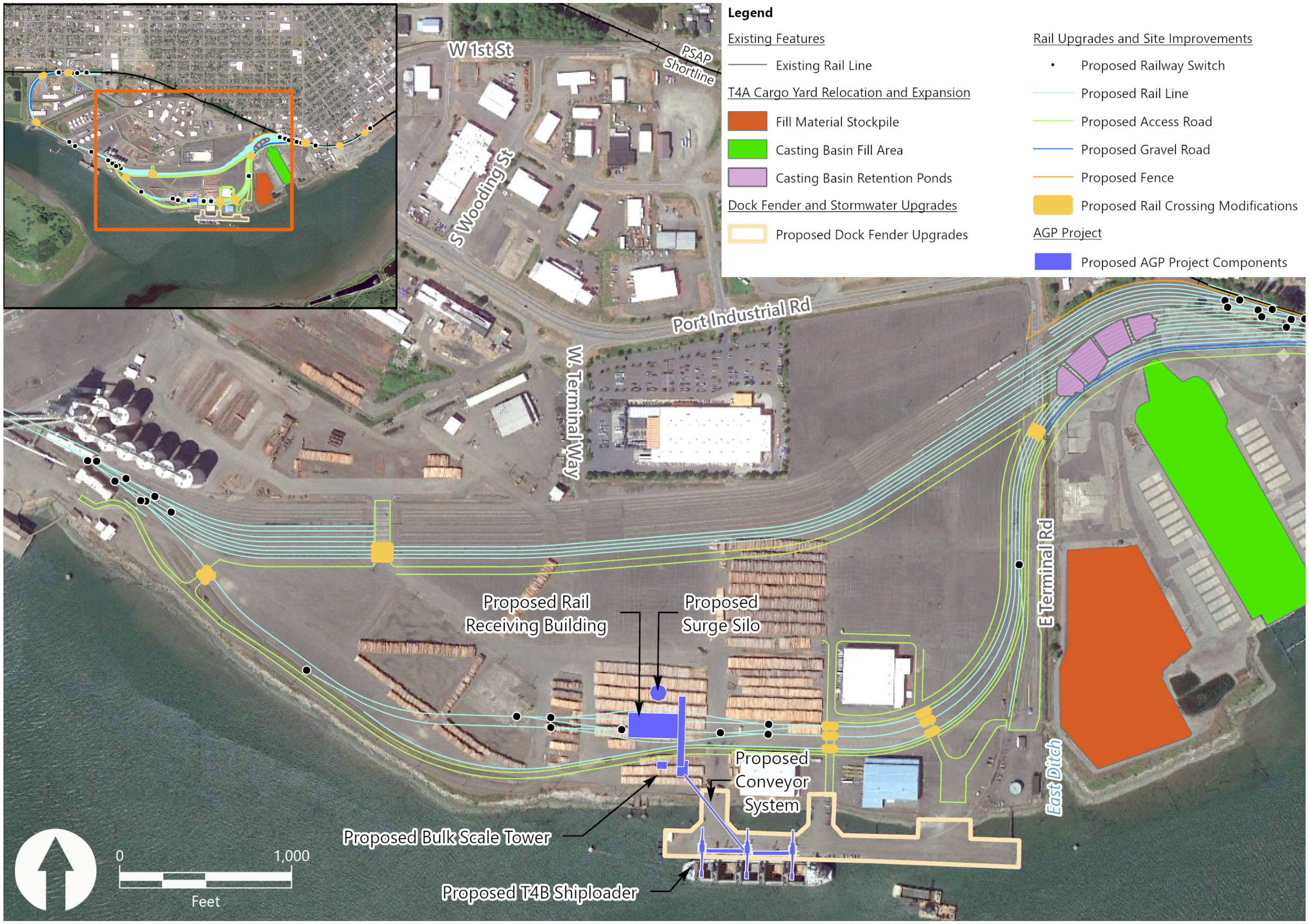
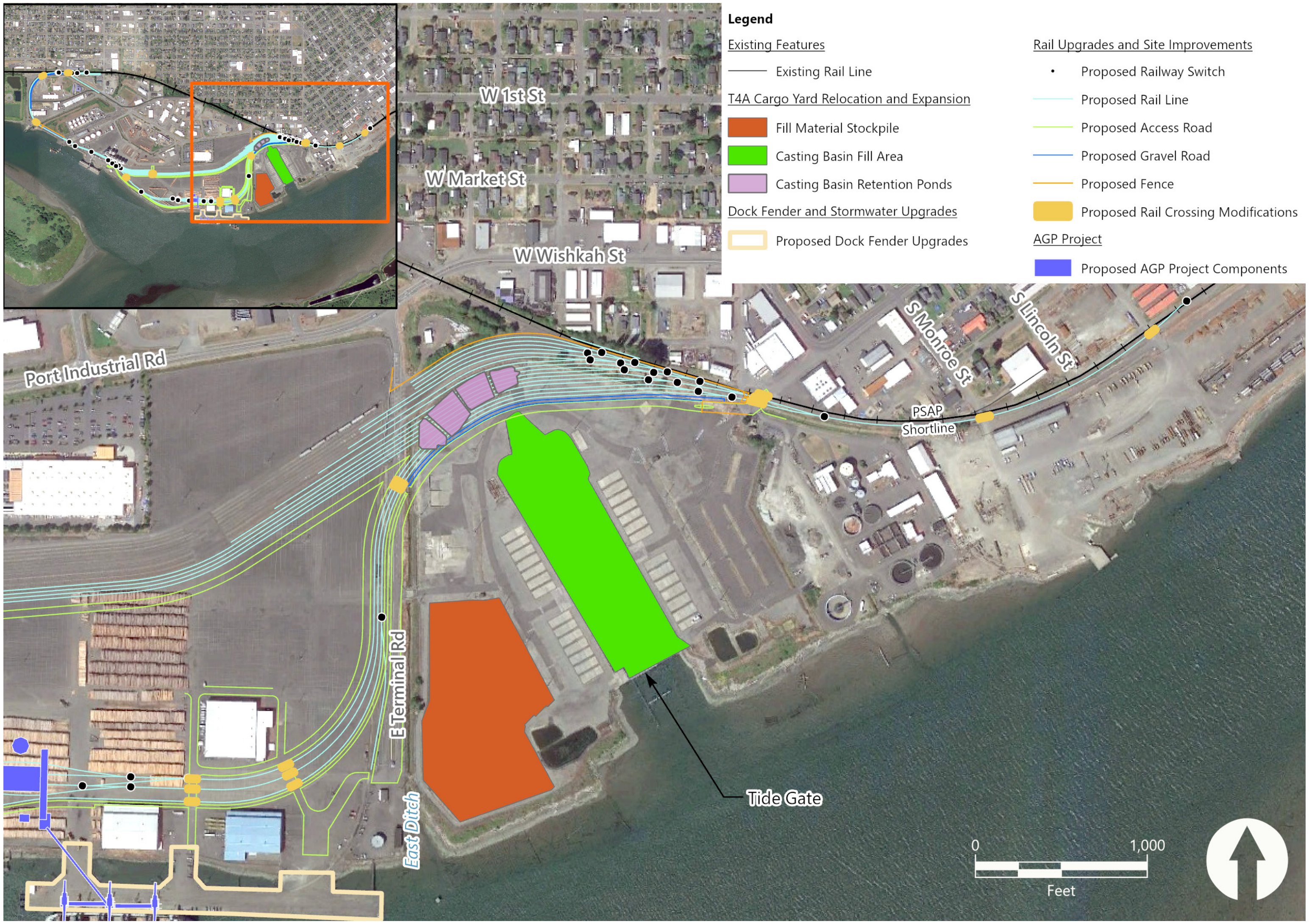


Figure 6C
Proposed Rail Upgrades and Site Improvements



The rail upgrades will allow for the sequenced throughput of an inbound unit train from the time the loaded train arrives to the Port until the time that the empty train departs the Port. This will improve the operational efficiency of rail operations at the Port. The model unit train for purposes of design and planning is one 110-car train, which would be broken into two 55-car strings upon arrival at the Port to complete the unloading operations proposed by AGP at the new Terminal 4B (T4B) facility. These operations are described in greater detail in Section 5.1.4.

Work associated with the new rail upgrades includes a new rail bridge at Fry Creek that will replace an existing culvert, road-rail crossing signal updates, and the extension of three existing culverts within the ditch that is parallel to the East Terminal Way, known as East Ditch. The rail upgrades and improvements at Fry Creek will include the addition of a third track. Further, the existing inner track will be realigned, and the track will be raised 1.5 feet at the proposed bridge crossing. The Fry Creek modifications will be designed to maintain adequate vehicle clearance to allow operational and maintenance access to the area.

The culverts within East Ditch would be extended approximately 350 feet in length to a total length of 500 feet. The addition in this area will result in additional land coverage by new tracks. The culverts will be extended to maintain the flow of water through the ditch as necessary.

There are two signalized at-grade crossings near the Project Area where existing roads cross the PSAP mainline located at PIR and West Heron Street. The rail upgrades and improvements will include adding additional tracks across the roadway at the West Heron Street crossing and relocating the railroad crossing signal equipment. Additional signal components will be added within the signal house to accommodate the additional tracks. There will also be improvements made at several unsignalized rail crossings of Henderson Street, John Stevens Way, South Division Street, South Monroe Street and South Washington Street where new track will be added. The improvements at these intersections would include laying additional track adjacent to the existing track.

Additional railroad crossing modifications will occur internally within Port property. However, these crossing modifications are not accessible to the public. These internal railroad crossing modifications are depicted in Figure 6B.

An internal, private access road will be built starting at the point where the public portion of West Heron Street terminates. This access road will extend beyond the existing and proposed tracks intersection with West Heron Street and will lead into the expanded T4A site. This access road will roughly parallel the proposed rail tracks through the expanded T4A site. Upon implementation of the rail upgrades, East Terminal Road will be shortened to end at the storage tracks at East Terminal Road.

Vehicle access between T4A and T4B will be maintained, with potential pavement upgrades, and will not be impeded by the rail line. Redundant internal circulation routes will provide multiple routes of ingress and egress at T4. Routes will lead to either the existing T2 security checkpoint or a new T4 security checkpoint located on the east side of the Project Area at West Heron Street. If a route is blocked, alternative routes will be available.

The site will be improved to enhance multimodal transportation flow between T4A and the expanded cargo laydown area. Port entry access points on the eastern border of the site will be relocated and secured. Changes to access points and security measures related to site access will be implemented in accordance with Department of Homeland Security requirements and will be documented in the Homeland Security Port Security Plan.

5.1.1.2 Construction

The main goal during the construction of the rail upgrades described above will be minimizing the impacts to the existing Port operations. Generally, as much of the new track as possible will be constructed without affecting the existing tracks. Several cutovers are anticipated to complete the phased construction.[4] The bridge over Fry Creek will be a main focus of the phasing and will require at least two cutovers. The track naming convention refers to the side (direction) of the track as related to the dumper building it serves. For example, West Lead 2 is the track that is west of the existing dumper building No.2. There are two existing dumper buildings at T2; dumper building No.1 is a single-track, single-car dumper located closest to the dock/water, and dumper building No.2 is a single-track, two-car dumper building adjacent to the storage silos. Dumper building No.3 is the new (proposed) building near T4.

The components of each phase of the construction are as follows:

- **Phase 1: Grading and Drainage**
  - Retrofit Warehouse H building by removing a portion of the building to provide clearance for construction of new rail.
  - Remove and replace pedestrian bridge at T1.
  - Remove and replace pipe bridge at T1.
  - Remove existing pavement. Maintain all at-grade crossings until surrounding areas are restored.
  - Reconstruct at-grade crossings over weekend closures to minimize impacts to public traffic.
  - Construct drainage improvements including new stormwater pipes, catch basins, and manholes.
  - Construct subgrade and ditches, then place subballast.
  - Construct new track and turnouts not in conflict with existing tracks.

[4] A cutover describes where new tracks are connected to existing tracks allowing operations to begin on the new tracks.

- **Phase 2: Fry Creek Bridge**
  - Install temporary turnout east of Fry Creek.
  - Remove existing West Lead 2 track and the north half of existing 13-foot arch pipe.
  - Construct north half of Fry Creek Bridge.
  - Construct new West Leads 2 and 3 tracks.
  - Remove temporary turnout from West Lead 1 to West Lead 2.
  - Cutover tracks to new West Leads 2 and 3.
  - Remove West Lead 1 and remaining portion of existing 13-foot arch pipe.
  - Construct south half of Fry Creek Bridge.
  - Construct West Lead 1 and match into existing track.
- **Phase 3: PIR**
  - Remove existing track and turnouts to team tracks near PIR.
  - Construct subgrade, grading, and ditching on each side of PIR.
  - Install subballast.
  - Construct tracks and turnouts on each side of PIR.
  - During a weekend, close PIR and construct the new at-grade crossing including tracks, pavement restoration, and modifications to the existing signal system.
- **Phase 4: East Port Lead**
  - Construct subgrade, grading, and subballast for the East Port Lead track.
  - Construct the East Port Lead track, including all turnouts and tracks.
  - Do not construct tracks through existing the at-grade crossings at John Stevens Way and Henderson, South Division, South Washington, South Monroe, and West Heron Streets.
- **Phase 5: John Stevens Way, Henderson Street, South Division Street, West Heron Street, South Monroe Street, and South Washington Street**
  - Repeat the process for Phase 3 at John Stevens Way, and Henderson, South Division Washington, South Monroe, and West Heron Streets and connect to new East Port Lead track.
- **Phase 6: East End Connections**
  - Remove existing turnouts from PSAP main line.
  - Connect/cutover new storage track connections to East Port Lead.
- **Phase 7: Storage Track Connections**
  - Cutover storage track connections to new/existing storage tracks east of existing rail receiving building.

5.1.1.3 Operation

A unit train shipped by a Class I railroad is typically 110 railcars. To unload a unit train in a time efficient manner, the train should be handled as one unit or broken in half.

Once the rail upgrades are operational, loaded trains will enter T4 from the east or west, and may either be put onto storage tracks for later unloading or staged at the new rail receiving building for immediate unloading. The corresponding operational scenarios can generally be described as follows. The specific operational scenario used for an inbound train will depend on multiple factors such as vessel schedule, inbound train arrival time, and operations inside of the new rail receiving building.

Inbound to Storage for Later Unloading, Entering from West. A 110-car unit train enters the Port from the PSAP rail line on the west side of the Port's marine terminals and industrial properties area near PIR and 30th Street. The train travels along the Port's internal loop route towards the storage track area. The train enters an empty storage track heading east. The rear 55 cars from the train are parked and the remaining 55 cars are pulled east to clear the storage track switches on the east end of the Project Area. In order to clear the switches, the head of the train with 55 cars must pull into PSAP's Poyner Rail Yard before reversing and pushing these 55 cars into place onto an open storage track. The train then backs into an empty storage track and the remaining 55 cars are parked.

Inbound to Storage for Later Unloading, Entering from East. A 110-car unit train enters the Port from the PSAP short line railroad on the east side of the Port's marine terminals and industrial properties area near West Heron Street. The train travels west into an empty storage track until the rear of the train clears the storage track switches. The rear 55 cars from the train are parked and the remaining 55 cars are pulled west to clear the storage track switches near T2. In order to clear the switches, the head of the train with 55 cars must pull up near Henderson Street on Port property. The train then backs into an empty storage track and the remaining 55 cars are parked.

Inbound for Immediate Unloading Entering from West. A 110-car unit train enters the Port from the PSAP short line railroad on the west side of the Port's marine terminals and industrial properties area near PIR and 30th Street. The train travels along the Port's internal loop route towards the new rail receiving building. The train travels eastward either through or around the rail receiving building. The rear 55 cars from the train are staged on one of two parallel tracks running through the rail receiving building. The remaining 55 cars are pulled east to clear the loop track switches on the east end of the Project Area. In order to clear the switches, the head of the train with 55 cars must pull into the PSAP's Poyner Rail Yard. The train then backs into the second of two parallel tracking running through the rail receiving building, and the remaining 55 cars are staged for unloading.

Inbound for Immediate Unloading Entering from East. A 110-car unit train enters the Port from the PSAP short line railroad on the east side of the Port's marine terminals and industrial properties area near West Heron Street. The train travels west along the Port's internal loop route towards the new rail receiving building. The rear 55 cars from the train are staged at the east side of the rail receiving building on one of two parallel tracks running through the building. The remaining 55 cars are pulled west to clear a switch on the west side of the rail receiving building, then is backed east onto the second of two parallel tracks running through the rail receiving building and is staged for unloading.

In order to move loaded 55-car strings from storage to the new rail receiving building, a locomotive will connect to the west side of the 55-car string and travel west until the rear of the train is clear of the switches near T2. To clear the switches, the head of the train with 55 cars would be on Port property near Henderson Street. The train would then be backed east along the Port's internal loop route to be staged on the east side of the rail receiving building. Once a unit train is staged for unloading at the new rail receiving building, railcar indexers, locomotives, or trackmobiles could move the two 55-car strings through the rail receiving building from east to west during the unloading process. Once unloading is complete, the head end of each string will extend just past T2 to the west.

After unloading is complete from east to west, the 55-car strings are located on the west side of the rail receiving building on parallel tracks. A locomotive will couple to the first string of empty cars and place them in storage tracks on Port property. After positioning the first string, the locomotive will move to the second empty string and position it in an empty storage track. These movements will not require locomotives to leave Port property or cross a public roadway. The locomotives will be staged in a designated location for PSAP crews.

To move empty 55-car strings out of storage for outbound travel away from the Port, one of the "inbound to storage" scenarios described above will be reversed.

5.1.1.4 Alternatives Evaluation

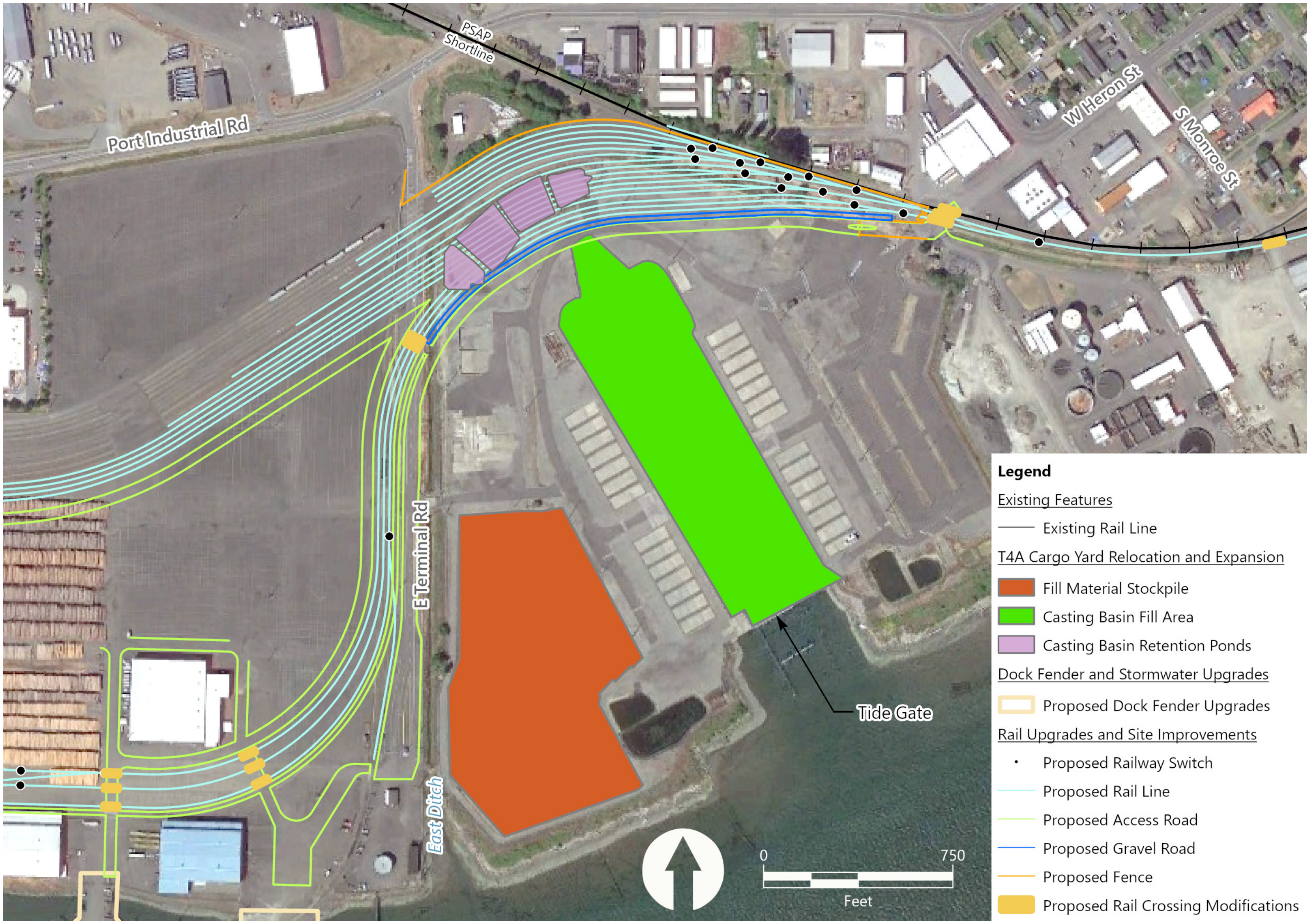
The rail upgrades were designed to meet specific design criteria and operational requirements. The BNSF Railway provides guidelines for unit train facilities. These guidelines are found in BNSF's *Design Guidelines for Industrial Trackwork Projects* (BNSF Railway Company 2018). Their design guidelines include maximum degree of horizontal curvature (9°30') and maximum vertical grade (0.5%) for the tracks where a unit train will be handled. Designs must provide clear capacity for 55 to 62 railcars on the operational (loaded/unloaded) tracks and all storage tracks. Clear capacity means that cars stored on a track do not block any other track or turnout (switch). Design alternatives for the rail upgrades were constrained by these requirements.

Additionally, the Port requires that the storage of railcars will not block their internal access roadway where log stackers typically operate and that the new rail operations must not interfere with the existing operations of Pit No. 2 at T2. Furthermore, the tracks on the west end over Fry Creek must be raised 1.5 feet in order to construct a new bridge that meets regulatory requirements for fish passage and freeboard. The Port determined that there were no other design alternatives for the rail upgrade and site improvements that would meet these design and operational requirements.

5.1.2 T4A Cargo Yard Relocation and Expansion

As part of the Proposed Project, the cargo laydown area at T4A could also be redeveloped to further optimize port operations. The 50-acre former casting basin would be repurposed into a cargo yard, where breakbulk and RORO cargos will be relocated (Figure 7). It is possible that the T4A cargo yard could also be leased to a tenant by the Port. However, a tenant has not been identified at this time, and any potential changes that a future tenant would make at the T4A cargo yard would be subject to a separate environmental review and permitting process.

Figure 7
Proposed T4A Cargo Yard Relocation and Expansion



5.1.2.1 Components

The work to be performed at the T4A site includes filling the former casting basin and upgrading surface treatments and drainage as necessary to create a cargo laydown yard with a combination of paved and gravel surfaces. After the improvements are made, the site will be suitable for breakbulk and RORO cargo storage. Some fencing at the T4A cargo yard area will be replaced to meet Department of Homeland Security requirements. Additionally, access to T4A may be modified and secured. A guard shack will be constructed at the T4A cargo yard.

The first step of the T4A cargo yard relocation and expansion involves filling the former casting basin by utilizing the entirety of the existing material stockpiled on the southwest corner of the T4A site during casting basing construction. The intent is to maintain the majority of the existing asphalt and concrete surfaces from the former casting basin facility (previously used for material laydown and vehicle parking). New crushed rock gravel fill will be placed over the casting basin footprint, as well as at the former stockpile footprint.

Filling the casting basin will require up to 290,000 cubic yards of material to return the basin to a flat topographic relief. It is anticipated that the existing stockpile material will constitute approximately 200,000 cubic yards of the required fill material specified above. The on-site stockpile material (that was removed to construct the original casting basin) is generally of relatively poor geotechnical quality. It is anticipated that the stockpiled material will be used in lower sections of the proposed fill, with higher-quality import fill material placed closer to the surface and used for the closure berm.

The remainder of the required fill material will be imported to the site by truck. It will be the responsibility of the contractor to legally procure fill material as part of their contract, including surfacing and ballast, and to legally dispose of any material to leave the site. The details of the origin of imported material and the destination of exported material will not be known until bids are opened.

The tide gate that separates the casting basin from the harbor consists of three 50-ton gate pieces. Each section is 110 feet long, 10 feet tall, and 10 feet thick. This tide gate was designed to withstand water loading from the outside, but not soil loading from the inside. As such, a new soil berm or mechanically stabilized earth (MSE) wall will be developed just inside of the existing tide gate to allow filling of the majority of the casting basin. Constructing this berm will not place new loads on the existing tide gate and will not require the tide gate to remain watertight. The outside face of the closure berm will be designed to allow full exposure to the river/marine environment. This facing of the closure berm may consist of armor rock or concrete facia. The work to construct the closure berm will be completed within the existing casting basin and will not require in-water work.

In the future, the Port could consider removal of the existing tide gate, potentially coordinated with a future shoreline restoration project. At this time, no future shoreline restoration projects are planned or proposed.

In addition to filling the casting basin, drainage at the T4A site will be modified as necessary to meet City of Aberdeen stormwater management requirements. Construction stormwater management BMPs will be defined and installed at the beginning of the Proposed Project to account for the anticipated soft and wet fill soils.

Initial work is also anticipated to include demolition and decommissioning of existing drainage infrastructure that will need to be relocated such as the proposed rail tracks that will require removal of existing drainage features. The Proposed Project will utilize the existing stormwater infrastructure, including existing infiltration facilities/stormwater management ponds on the south and east sides of the facility, to the maximum extent practical.

There is a small swale that runs along the north side of the casting basin to Heron Street and a small ditch along the west between the ponds and entrance road. These areas that drain into the northern ponds to be demolished will need to have new drainage infrastructure developed to convey that water to the West Ditch or to existing outfalls to the river.

The existing outfalls will be maintained, as all water will either infiltrate or drain to either the East or West Ditch or to Grays Harbor to the south. The existing north stormwater management ponds (to be demolished) currently drain into the West Ditch. If additional stormwater management ponds are required, it is anticipated that they will discharge to existing outfalls to Grays Harbor or to the West Ditch.

It is anticipated that following construction completion, stormwater management for cargo storage operations will be covered under the City of Aberdeen Municipal Stormwater National Pollutant Discharge Elimination System Permit.

5.1.2.2 Construction

The work will focus on filling the casting basin, which first requires constructing the new soil berm or MSE wall just inside of the existing tide gate. All work will be upland of the gate. No work is proposed in the water below the high tide line. The intent is to maintain most of the existing asphalt and concrete surfaces from the former casting basin facility. These asphalt and concrete surfaces were previously used for material laydown and vehicle parking during pontoon construction activities.

Preparation work will include some initial demolition within the existing casting basin, including concrete crane rail beams on each side of the basin. There may also be minor structural preparation and demolition required at the interface between the existing concrete basin floor slab and the proposed closure berm. The existing waterside marine structures associated with the casting basin (sea walls, bulkheads, and jamb structures along the perimeter of the existing tide gate) will remain in place. The casting basin fill will require demolition of the concrete crane rail beams running along the east and west sides of the existing basin (including the concrete tie beams between the crane rails). The riprap side slopes between the raised concrete beams will remain within the existing casting basin and will be buried when the casting basin is filled.

Typical upland earthwork construction methods will be utilized to place fill behind the closure berm. This will involve placing material from the on-site stockpile within the casting basin, as well as placing imported material for the top portion of the fill. New crushed rock gravel fill will be placed over the casting basin footprint, as well as at the former stockpile footprint, as a new surface for storage of breakbulk and RORO cargo. It is anticipated that the footprint of the casting basin will be filled above the existing ground surface to allow for some settlement of the fill material. It is anticipated this area will be finished with a top surface of crushed rock gravel and crowned slightly to ensure that rainwater drains to an appropriate stormwater management system.

Filling of the casting basin is anticipated to take place in the summer dry months to minimize impacts of moisture with the placement of the existing on-site stockpile material. It is anticipated that the work will start in May and run through September or October to minimize saturation levels of the existing soils.

Most of the construction work and permanent disturbance will be within the footprints of the existing casting basin and stockpile. The bottom of the existing casting basin slab is located approximately 27 feet below existing grade (to approximately elevation -9 feet mean lower low water [MLLW]) and covers approximately 306,000 square feet of total footprint area. The existing stockpile is currently located at grade at an approximate elevation of +18 feet MLLW and extends a maximum of 20 feet above existing grade. The stockpile area covers approximately 300,000 square feet of total area.

It is anticipated that most of the material (over two-thirds of the total quantity) used to fill the existing casting basin will come from the existing stockpile located on site and that material will be used first (deeper in the fill). Equipment details are as follows:

- **On-Site Trucks:** The transport/hauling of that on-site material will potentially involve larger-capacity off-road trucks (potentially 20 to 25 cubic yards of capacity each). It is anticipated that up to eight of these on-site trucks will circulate between the stockpile and the basin within the site.
- **Excavators:** There will likely be up to six excavators to load the stockpiled material onto the trucks, with another excavator or two located within the basin.
- **Bulldozers:** There will likely be up to four bulldozers/graders located within the basin to spread the material.

- **Rollers/Compaction Equipment:** There will also likely be compaction equipment for the upper layers of the fill, so it is anticipated that up to two rollers will be used.

Similarly, bulldozers and compactors may be required to finish the former stockpile footprint area with gravel following removal of the material into the basin.

The off-site import material, including structural fill, base course, and/or quarry spalls (up to 90,000 cubic yards), will be brought to the site with on-road trucks towing a trailer (capable of transporting 28 cubic yards per truck) using the public roadway system and accessing the site via Heron Street. Based on the capacity of a typical dump truck, it is anticipated that up to 3,500 total truck trips will be required to import the fill material.

The Proposed Project will require no in-water work as all work will be conducted behind (upland of) the existing tide gate as described previously. Additionally, construction will implement traditional construction stormwater management BMPs to minimize impact to the river, West Ditch, or other existing riparian vegetated areas located on-site. The specific requirements for these BMPs will be documented in the Construction Stormwater General Permit Stormwater Pollution Prevention Plan (SWPPP) associated with this work. The construction will only reconfigure drainage infrastructure in areas where existing infrastructure needs to be relocated based on other proposed program construction (i.e., rail lines being built over the existing north ponds).

Construction is anticipated to require a maximum crew of 30 on-site staff including operators, laborers, and support staff such as foremen and project managers.

5.1.2.3 Operation

The 50-acre former casting basin will be repurposed and used as a cargo yard for laydown and storage of breakbulk and RORO cargos to optimize port operations that need to be relocated to accommodate the AGP Project. Fueling, vehicle maintenance, or equipment cleaning at the casting basin are not planned at this time and any potential changes that a future tenant would make at the cargo yard would be subject to a separate environmental review and permitting process.

5.1.2.4 Alternatives Evaluation

The Port considered an alternative concept for filling of the casting basin utilizing a soil/rock berm construction to the waterside (south) of the existing tide gate in the approach channel to the casting basin. After the in-water berm was constructed, then the existing tide gate could be removed and fill placed behind the berm. This alternative would be considered in-water work and would require substantial in-water permitting, as well as requiring more expensive in-water barge mounted equipment for berm construction.

Instead, it was decided that leaving the existing tide gate in place would allow the filling of the casting basin to be completely performed in the dry, with the existing gate serving as a secondary containment to prevent any impacts to the marine environment. Allowing the entirety of the casting basin fill to be constructed in the dry reduces potential environmental impacts. The preferred concept of building the casting basin fill behind the existing tide gate also allows the Port the opportunity to save redevelopment of the shoreline area to be considered for potential future mitigation action in the long term.

The tide gate was not intended for a long operational life. Under existing conditions, the tide gate has begun to leak. Adding fill to the casting basin will not affect the leakage, but it will negate the purpose of the gate and remove its function.

5.1.3 T4 Dock Fender and Stormwater Upgrades (Port)

The Port is proposing to upgrade the dock fender and stormwater systems at T4. This is referred to as the T4 dock fender and stormwater upgrades. The proposed upgrades by AGP at T4B will support existing and future uses at T4A and will help to minimize in-water obstructions.

The fender system design will continue to accommodate the mix of vessels that currently call on the terminal, and that mix will be expanded to include the bulk ships that soybean meal will be loaded into. The existing timber- and steel-piled fender system will be replaced with a modern pile-supported panel system at Berth A and a modern suspended panel system at Berth B where the shiploader will be located. Berths A and B have distinctly different structural systems, necessitating piles to support the fender system at Berth A but not at Berth B. Existing fender piles will be removed at the new fender panel locations but maintained between these locations to continue protecting the existing jet array system from river debris and similar sources of potential damage.

As the design process progresses, it is possible that the fender design could be refined to include upgrades at T4A that would allow for the dock to accommodate barges. If implemented, this refinement would require the modification of up to three of the proposed fenders along the dock. The three fenders would be lengthened and reinforced, allowing barges to dock.

Stormwater from T4 currently discharges to the Chehalis River via dock drains on T4 and catch basins in the adjacent upland area with corresponding outfalls. The Port proposes to install a stormwater treatment and conveyance system at the T4 dock and portions of the upland drainage area. T4B will have a new outfall discharging stormwater to the Chehalis River. The proposed system has been designed to provide stormwater runoff treatment meeting the pollutant benchmark values established under the Industrial Stormwater General Permit, part of the National Pollutant Discharge Elimination System administered by the Washington State Department of Ecology (Ecology). The site will have coverage under the Industrial Stormwater General Permit and will proactively install stormwater treatment to meet permit requirements.

5.1.3.1 Components

The T4 dock fender and stormwater upgrades include the following components:

- Removal and replacement of portions of the fender system along the T4 dock
- Implement site improvements for stormwater conveyance at the T4 dock

Portions of the existing fender system will be removed along the entire 1,400-foot length of T4. Vertical elements of the fender system, consisting of treated timber and composite plastic fender piles, will be removed at locations where new fender panels will be installed. New steel fender panels with rubber fenders will be placed at a maximum spacing of 40 feet along the dock, with tighter spacing (20 feet maximum) at multiple locations along the dock. At the three shiploader tower foundation locations, new steel pipe fender piles will be added between the fender panels to restore protection to the existing jet array system from debris in the river. Existing fender piles between other locations of new fender panels will remain in place to provide continued protection from damage to the existing jet array system caused by debris in the river. Horizontal treated timber elements of the existing fender system (continuous timber walers and chocks between fender piles) and rubber fender elements will be modified and removed in some locations.

The new fender system will consist of a series of steel fender panels, each supported by one or more steel pipe piles at each fender location along Berth A and supported by the existing deck only along Berth B. Lateral support will be provided by the existing deck for the steel fender panels at both berths. Existing fender piles located at or near proposed locations for the steel fender panels/steel support piles will be removed, with the remaining fender piles left in place and attached to the existing concrete deck and some new steel pipe fender piles installed between panels at the three shiploader tower foundation locations.

The existing T4 dock surface includes steel crane rails, steel railroad rails, and treated timber ties embedded into the ballasted deck (gravel covered by asphalt topping) above the concrete deck. The rails and ties will be removed. Existing asphaltic concrete paving will also be removed, and the gravel ballasted deck will be regraded and selectively removed before repaving with asphaltic concrete.

The stormwater upgrades include the following three components:

- A new upland stormwater conveyance system adjacent to T4A and T4B
- Demolition and regrading of T4A and T4B dock surfaces and construction of new gravity conveyance pipe and rain system attached to the face of the dock
- A new stormwater treatment facility near T4B

The planned upgrades to the T4 dock fender and stormwater system would not result in a net change in the area of overwater structures.

5.1.3.2 Construction

Construction activities for the T4 dock fender and stormwater upgrades will have different timelines, durations, and start dates.

For the fender system, work must be coordinated with construction of the new foundations for the AGP shiploader and associated towers to be installed at T4B. As described in Section 5.1.4.2, to provide space for the three new shiploader foundations along the dock, portions of the dock and pre-stressed concrete support piles will be removed. The waterside face of each foundation will be in line with the waterside face of the existing dock. The fender system upgrades will be installed along the existing dock including the waterside face of each new foundation, providing a continuous fender system along T4. It is anticipated that a minimum of three stages of construction will be required as follows:

- **Stage 1:** Preparatory work, including removal of the fender system at the three proposed shiploader tower foundation locations (work performed by the contractor constructing the AGP Project at T4 or the contractor constructing the T4 dock fender upgrades)
- **Stage 2:** Removal of the remaining fender system along the portion of T4 Berth B used by AGP and installation of a new fender system along the entire AGP portion (work performed by the contractor constructing the T4 dock fender upgrades)
- **Stage 3:** Removal and installation of a new fender system along the remaining portion of T4 Berth B and the entire T4 Berth A by the same contractor as for Stage 2

The need for additional stages will be contingent on Port planning for the work, including planned cargo handling activities at T4A.

The in-water work window is defined in Table 2. Table 2 presents information about in-water pile installation and removal associated with the Port Project. It is anticipated that Stages 1 and 2 will be completed in a maximum duration of 12 months, starting in 2024. However, duration will also be contingent on completion of the shiploader tower foundations and could require more time for completion. It is anticipated that Stage 3 will be completed in a duration of 15 months, starting in June 2024. If the alternate fender design that would allow for barge docking at T4A is constructed, it is not expected that the extent of the in-water work would change.

Table 2
Port Proposed T4 Dock Upgrades: In-Water Pile Installation and Removal

Location	Pile Type and Size	Activity	Installation Method and Pile Orientation	Number of Piles	Estimated Dates of Activity	Total Days of Operation	Piles Per Day	Vibratory: Hours per Pile	Impact: Strikes per Pile
Permanent Piles									
T4A and T4B	Up to 18-inch timber piles	Removal	Vibratory hammer or direct pull, cut at mudline	Up to 50	In-water work window (July 16 to February 14)	Up to 12	Up to 10	Up to 0.5	None
T4B	18-inch steel pipe pile	Installation	Vibratory hammer	Up to 15	In-water work window (July 16 to February 14)	Up to 6	Up to 6	Up to 0.5	None
T4A	Up to 30-inch steel pipe pile	Installation	Vibratory hammer	Up to 24	In-water work window (July 16 to February 14)	Up to 18	Up to 6	Up to 1	None
Temporary Piles – None									

Notes:
1. Existing treated timber fender piles and composite (fiberglass and/or plastic) will remain over a larger portion of T4 and be reattached to the face of the dock as the new fender system is installed.
2. Based on substrate conditions at the site, it is anticipated that most of the existing timber piles will be removed by direct pull. Composite piles will likely be removed by vibratory methods.
3. It is conservatively assumed that the duration of vibratory pile removal will be roughly the same as for vibratory pile installation (i.e., up to 1 hour).
4. Vibratory pile installation will likely be intermittent and involve multiple starts and stops, as opposed to 1 continuous hour of use.
5. Fender panels for the barge berthing/mooring portion of Berth A will require vertical support due to panel weight and deck structure limitations. Number of piles shown (24- to 30-inch steel pipe piles) is based an assumed panel spacing that varies between 20 and 40 feet.

Construction stormwater permits will be procured from Ecology and City of Aberdeen as appropriate for all phases of construction. Required SWPPPs will be prepared, and appropriate stormwater erosion and sediment control BMPs will be implemented.

To construct the new upland stormwater conveyance system adjacent to T4A and T4B, stormwater pipe, manholes, catch basins, lift stations, and a new outfall will be installed using an excavator and appropriate shoring (such as a trench box and temporary sheet pile wall). The depths of the excavations will range between +0.90 and +9.90 feet MLLW. The excavation will be dewatered as required utilizing a sump or trash pump. Dewatering water will be managed or disposed in accordance with applicable regulations. Installation of the new T4B 15-inch-diameter outfall will be performed with an upland based excavator. The T4A lift station will include an overflow to the existing drainage system. The procedure for installing each outfall will be performed generally as follows:

- A trench will be excavated along the alignment of the proposed outfall.
- The riprap removal and trench excavation limits will be minimized. The trench will not be overexcavated and will only be as deep and wide as necessary to install temporary shoring and properly execute the work.
- A 6-inch minimum pipe bedding zone consisting of sand or other equivalent material will be installed around the outfall. The pipe bedding material will be brought to grade along the entire length of the outfall to fully support and encase the pipe except for a minor portion at the end of the pipe where the outfall is exposed.
- Prior to installing the outfall pipe, a coating system will be applied to the pipe to protect it against exposure to weathering elements.
- Minimal dewatering is anticipated to be necessary because the outfall installation and pipe bedding work will be performed above mean high water and anticipated groundwater. Regardless, the contractor will be required to perform all work associated with the outfall installation in the dry and keep the excavation free of water.
- After installation of the pipe and pipe bedding material, engineered backfill material will be installed up to the bottom of the final riprap layer.
- The riprap previously removed will be neatly replaced along the water’s edge, providing sufficient weight to secure the outfall pipe in place. The riprap already below the outfall will provide energy dissipation for stormwater discharges.
- Pipe anchors and/or headwalls are not anticipated to be necessary.

To construct the new gravity conveyance pipe and attach it to the dock face, the existing pavement, rails, and ties will be removed from the dock surface using an excavator or similar equipment. Existing dock surface drains will be plugged. Existing subgrade and ballast will be salvaged to the extent feasible, regraded, and repaved to slope towards new dock drains located along the inland bull rail. From the dock or a working skiff, 6- to 10-inch pipe will be attached to the landward side of the dock using stainless steel straps and routed to the upland conveyance system.

To construct the new stormwater treatment facility near T4B, cast-in-place stormwater treatment basins, conveyance piping, and internal components will be installed on the western side of the T4B approach. This will be done using an excavator and appropriate shoring (such as a trench box and temporary sheet pile wall). The depths of the excavation will be between +3.90 and +7.90 feet MLLW. The excavation will be dewatered as required utilizing a sump or trash pump. Dewatering water will then be managed or disposed of in accordance with applicable regulations.

5.1.3.3 Operation

Upgrades to the fender system will allow larger ships to use to facility by providing an increased capacity to resist the larger berthing forces generated by these vessels. The increased capacity of the new fender systems along the entire T4 wharf will reduce the potential of damage to the dock.

The upgraded stormwater system should not impact operational activities related to the wharf, but it is intended to assist the terminal operators' ability to achieve ongoing compliance with Washington state water quality requirements.

5.1.3.4 Alternatives Evaluation

The existing timber fender pile system was developed for smaller vessels (primarily ocean-going ships) and lacks both the energy-absorbing capability from vessel berthing demands and structural strength to resist berthing forces from vessels currently used in the marine transportation industry today. A new fender system with the capability to absorb the higher berthing energies and resist the larger related berthing forces is needed. This new fender system also must be adaptable to attach to the current dock configuration, which varies for each berth at T4.

Two different activities will be conducted on the wharf as described previously. Upgrades to impervious surfaces trigger municipal stormwater treatment requirements that will influence design of stormwater improvements. Additionally, the distinct water transportation activities may trigger the need for the terminal operators to procure state-specified industrial stormwater permits that will apply to their operations once facility improvements are in place. The stormwater design will address both the industrial and municipal governing regulations. Existing wharf drainage is directed to the river through vertical drainage elements in the wharf or through horizontal scupper drains. No treatment of runoff from the wharf is currently employed. Various alternatives to collect wharf runoff and convey flows inland for treatment were considered, including but not limited to regrading the wharf surface to enhance surface flow towards the landside, piping flows from existing vertical drainage elements beneath the wharf structure, and using pumping systems to deliver flows to inland treatment locations located on either or both ends of the wharf. The Port decided upon the configuration described in Sections 5.1.3.1 and 5.1.3.3.

5.1.4 AGP Project

The AGP Project at T4B involves the construction of facilities to support a new commodity transload facility. These facilities will be integrated with the Port's planned infrastructure improvements to maximize AGP's operational efficiency at T4B and may be constructed in phases. The main components of the AGP Project include rail receiving facilities, a new shiploader, and a soybean meal storage structure (referred to as a surge silo). Installation of the shiploader will require additional improvements to the T4B dock, which are also described further in the following section. The AGP Project is depicted in greater detail in Figure 8.

Figure 8
Proposed AGP Project

5.1.4.1 Components

AGP is proposing to construct the following facilities and improvements:

- **Rail Receiving Facility:** A new rail receiving building with two receiving pits will be constructed.
- **Shiploader:** A new three-tower shiploader with three spouts at the T4B dock will be constructed and will require related dock upgrades.
- **Surge Silo:** A storage structure will be constructed adjacent to the rail receiving building.
- **Support Structures:** Several support structures will be constructed, including a landside motor control center, dock side motor control center, and a bulk scale tower.
- **Utilities:** Water, sewer, and electrical system upgrades will be completed.
- **Lighting:** On-site lighting will be modified.

The AGP Project includes a dual-track commodity transload facility to receive product via railcar and load this product directly to ship. The rail receiving building consists of two receiving tracks, each equipped with a receiving pit and dedicated conveyance for transfer to the ship. The two lead tracks into the building will hold up to 55 railcars. The rail receiving building will also include bypass tracks on the north and south sides to allow railcars to bypass the rail receiving building.

Existing lighting will be maintained along T4A. At T4B, the new shiploader's overhead structure will block the path of light from several of the existing light poles. New lighting will be included as part of the shiploader design to provide safe conditions for ship crews, longshoremen, and supporting staff.

Steel structures for the rail receiving building, Bulk Scale Tower, and Shiploader will be constructed upon driven pile systems. Pile and foundation systems will be installed utilizing driven pipe pile and reinforced concrete. Construction of the piling and foundation systems for constructed structures will last approximately 18 months. More information about the installation of piles can be found in Section 5.1.4.2.

AGP will install a new three-tower shiploader with three loading spouts on the T4B dock. Conveyor systems will be installed to convey product from the rail receiving building dump pits to the shiploader. The shiploader will be up to 140 feet tall. More information about the operational aspects of the shiploader are included in Section 5.1.4.3.

AGP will construct a surge silo on the north side of the rail receiving building that will provide up to 8,500 metric tons of soybean meal storage, allowing for operational flexibility with respect to the rail receiving and ship loading functions of the AGP Project. The surge silo will limit possible delays and provide an operational buffer. The surge silo will have an approximate diameter of 72 to 75 feet and a height of approximately 133 to 135 feet. Associated conveyance structures would add additional height estimated to be in the range of 170 to 190 feet above grade. More information about the operational aspects of the surge silo is included in Section 5.1.4.3.

The existing dock structure lacks both the vertical load capacity and the lateral load capacity to support weight demands from the three towers for the new shiploader and a tower for the conveyor system proposed for the ship loading facility. To address this issue, AGP will support the vertical weight of each shiploader tower with four vertical legs, exceeding the vertical load-carrying capacity of the existing dock structure at each tower location.

In addition, the existing dock was designed for lateral seismic forces based on a mass equal to 5% of the self-weight of the dock, using 1960s vintage building codes, and does not include the design live loads or equipment loads (such as the shiploader towers and conveyor system) on the dock as part of the mass. Current design codes and standards require designing for lateral seismic forces at least an order of magnitude larger than the 1960s vintage building codes and inclusion of equipment loads, such the shiploader towers. It is not feasible to attach the new tower foundations to the existing structure as this would require a structural upgrade of the entire dock structure to include the towers and their foundations. Instead, the shiploader tower foundations and the conveyor system foundation will be isolated from the existing dock structure.

One conveyor system foundation is also proposed within the existing dock structure. At this location, only local removal of gravel ballast and asphalt concrete paving will occur, followed by saw cutting the existing prestressed concrete deck panels. Approximately 200 square feet of deck system will be removed at this location. Gravel ballast and asphalt concrete paving above the concrete deck will be removed along with the deck elements.

AGP’s proposed facility and improvements would not result in a net change in the area of overwater structures.

5.1.4.2 Construction

Construction limits will be contained within the existing T4B and Berth 4B areas. The area of construction is owned entirely by the Port and is currently used for shipping activities. Work will be coordinated closely with the Port to minimize impacts to existing shipping activities. All new construction area preparation will consist of removing existing asphalt paving prior to construction activities.

Construction excavations will be completed with track excavator loading directly to dump trucks. Only asphalt surfaces within the construction limits will be removed. Storage of all materials, equipment and temporary facility will be staged on existing asphalt surfaces. Some excavation and pile spoils could be relocated on site to balance project cut and fill profiles, as determined by quality and need. Any excess excavated materials will be hauled directly off site and disposed of. Upon completion of construction, all removed asphalt surfaces will be replaced around the new structures. Foundation excavations will be limited to the extent as required by the final design and Occupational Safety and Health Administration trenching and safety standards.

Minimal water use will be required during construction activities. The largest water consumption will be required for concrete materials provided from off-site material suppliers. Water will also be utilized for cleaning concrete trucks prior to leaving the site. This water will be contained and dealt with in accordance with an approved construction SWPPP.

The estimated number of vehicle trips required to support construction activities will be approximately 50 trips for individual workers and 15 trips for material deliveries per day. Access routes will be through the existing roadway system with access to the Port provided by PIR or Heron Street, depending on construction phasing.

From a commodity transfer operational perspective, all equipment will be aspirated for dust control from the receiving pits out to the shiploader. In addition, each shiploader tower will be equipped with a loadout spout, which will minimize the distance product will drop, slow the product velocity, and provide aspiration to control dust emissions from the open hatch of the ship. Aspiration will be accomplished utilizing negative air systems comprising fans, bag filters, and an associated bag cleaning and dust handling system.

Upland work associated with the AGP Project includes construction of the rail receiving building, conveyor system, and surge silo. Construction of the dumphouse will require subgrade excavation and backfill. It will also require the installation a pile-supported foundation. Construction of the surge silo will include the installation of a steel and reinforced concrete pile-supported foundation system and pile cap structure. Silo walls will consist of a reinforced concrete wall that would be placed utilizing concrete slip forming techniques.

It is assumed there will be one floating derrick barge and up to two material barges accompanied by one ocean-going tug. The derrick barge will vary from 60 to 90 feet in width and from 200 to 300 feet in length and will include a fixed revolving crane or crawler crane. The crane will have a capacity that could exceed 1,000,000 pounds depending on the crane and boom configurations and the boom radius from the center of crane to lifted load.

Material barges, which will transport in-water piling and other construction materials, will vary in size from 40 to 50 feet in width and 150 to 200 feet in length. During construction, the derrick will be temporarily held in position typically by a combination of up to three “spuds,” consisting of a closed steel shape extended down from the deck level into and below the mudline, and mooring lines to temporary anchors set at locations on the bottom away from the derrick barge.

AGP's proposed dock upgrades will require the following construction steps:

- Demolish and replace portions of the existing dock at four locations (three shiploader towers and one conveyor support) in T4 Berth B with new pile-supported foundations.
- Construct a new pile support foundation for the conveyor system immediately adjacent to the downstream approach trestle to the T4 dock.
- Add two pairs of steel pipe batter piles[5] to the existing dock structure to replace existing prestressed concrete batter piles that are removed when portions of the existing dock are demolished to allow construction of the new pile-supported foundations. Adding these pairs of batter piles will result in no net loss of lateral force capacity for the existing dock.

The existing jet array system located below the soffit of the concrete deck includes a continuous waterline running along the dock. Located just inside of the face of the dock, the waterline pipe is supported on a continuous steel platform surrounded by a protective steel fabric fencing. The fencing along with the existing fender piles along the face of the dock protect the waterline and mechanical connections from damage caused by debris in the river.

The first step in the demolition of the existing dock at the shiploader tower foundation locations will involve shutting down the jet array system and removing portions of that system (including pipe, steel platform and steel pile support system, and delivery system at discrete locations along the waterside face of dock). At a minimum, portions of the existing timber pile-supported fender system will also need to be removed at each proposed tower foundation location.

Dock demolition at each of the three shiploader tower foundation locations will occur at the waterside face of the dock. Demolition at each location will be approximately 36 feet wide (parallel to the face of dock) and 45 feet long (transverse to the face of dock). Gravel ballast (nominally 15 inches thick) and asphalt concrete paving (thickness varies) will be locally removed at each tower foundation location, following by saw cutting and removing the concrete deck system (prestressed concrete deck panels and cast-in-place reinforced concrete pile caps). Existing prestressed concrete plumb and batter piles will be separated from the deck system by the pile cap removal. These piles will be broken off below mudline and removed. Approximately 1,600 square feet of concrete deck system will be removed at each location, supported by seven 16.5-inch octagonal prestressed concrete piles (plumb and batter piles, varies by tower location). Gravel ballast and asphalt concrete paving above the concrete deck system will be removed along with the deck elements and piles.

A pile-supported concrete tower foundation to support the shiploader with three individual towers and three individual spouts will be constructed at three locations within the footprint of the existing

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[5] Batter piles are piles driven at an angle with the vertical to resist a lateral force.

dock. Each foundation will be cast-in-place reinforced concrete, approximately 5 feet thick by 32 feet wide by 42.5 feet long and supported by fifteen 36-inch-diameter steel pipe piles (plumb and battered). Two additional sections of existing concrete dock will be removed within the interior of the dock. Each section will contain approximately 30 square feet of concrete dock and will include removal of gravel ballast and asphaltic concrete paving above the concrete deck along with the deck elements.

A pile-supported concrete foundation will also be constructed within the existing dock at one location to support the conveyor system. This foundation will consist of a cast-in-place reinforced concrete pile cap approximately 5 feet thick with maximum plan dimensions of 20 feet by 26 feet and supported by four 36-inch-diameter steel pipe piles. Local strengthening of the remaining concrete dock will be required around the perimeter of the existing deck demolition, consisting of reinforced concrete elements constructed below the existing deck soffit.

An additional pile-supported concrete foundation for the conveyor system support will also be provided immediately west of the downstream trestle at T4 Berth B. This foundation will consist of a cast-in-place reinforced concrete pile cap approximately 3 feet thick with maximum plan dimensions of 10 feet by 23 feet and supported by eight 24-inch-diameter steel pipe piles.

Two 24-inch-diameter battered steel pipe piles will be installed at two locations within the existing Berth B concrete deck system. At each location these piles will be attached to the existing deck with a cast-in-place reinforced concrete element approximately 5 feet thick by 4 feet wide by 8 feet long.

Table 3 presents information about landward pile installation that would be part of the AGP Project. All landward piles would be permanent. Landward piles would be transported to the site by truck, and it is assumed that landward work has no restrictions regarding time of year that work may be performed.

Table 4 presents additional details about in-water pile installation and removal associated with AGP's proposed dock upgrades. The assumed in-water work window is defined in Table 4.

Table 3
AGP Proposed Landward Pile Installation

Location	Pile Type and Size	Activity	Installation Method and Pile Orientation	Number of Piles	Estimated Dates of Activity	Total Days of Operation	Vibratory: Hours per Pile	Impact: Strikes per Pile
Indexer and bag house foundations	New 18-inch-diameter steel pipe sections	Installation	Vibratory and impact hammers, plumb orientation	76	No restrictions	15	1	300, not all piles will be impact driven
Rail receiving building – at railroad tracks	New 18-inch-diameter steel pipe sections	Installation	Vibratory and impact hammers, plumb orientation	324	No restrictions	50	1	300, not all piles will be impact driven
Surge Silo	New 18-inch-diameter steel pipe sections	Installation	Vibratory and impact hammers, plumb orientation	Up to 170	No restrictions	Up to 27	1	300, not all piles will be impact driven
Upland Motor Control Center	New 18-inch-diameter steel pipe sections	Installation	Vibratory and impact hammers, plumb orientation	12	No restrictions	3	1	300, not all piles will be impact driven
Tunnel from rail receiving building to scale tower	New 18-inch-diameter steel pipe sections	Installation	Vibratory and impact hammers, plumb orientation	60	No restrictions	15	1	300, not all piles will be impact driven
Scale tower	New 18-inch-diameter steel pipe sections	Installation	Vibratory and impact hammers, plumb and batter orientation	22	No restrictions	5	1	300, not all piles will be impact driven

Table 4
AGP Proposed T4 Dock Upgrades: In-Water Pile Installation and Removal

Location	Pile Type and Size	Activity	Installation Method and Pile Orientation	Number of Piles	Estimated Dates of Activity	Total Days of Operation	Piles per Day	Vibratory: Hours per Pile	Impact: Strikes per Pile
Permanent Piles									
T4B	36-inch-diameter steel pipe sections	Installation	Vibratory and impact hammers	Up to 50	In-water work window (July 16 to February 14)	Up to 30	Up to 4	Up to 1.5	Up to 600
T4B	12-inch steel H-sections	Removal	Vibratory hammer or direct pull	Up to 6	In-water work window (July 16 to February 14)	Up to 3	Up to 3	Up to 0.5	None
T4B	16.5-inch concrete octagonal pile	Removal	Vibratory hammer, direct pull, cut at mudline	Up to 27	In-water work window (July 16 to February 14)	Up to 9	Up to 8	Up to 1.0	None
T4B	New 24-inch steel pipe sections	Installation	Vibratory and impact hammers	Up to 24	In-water work window (July 16 to February 14)	Up to 12	Up to 4	Up to 1.5	Up to 500
T4B	12-inch steel H-sections	Installation	Vibratory hammer	Up to 6	In-water work window (July 16 to February 14)	Up to 3	Up to 3	Up to 0.5	None
Temporary Piles									
T4B	24-inch steel pipe sections	Installation	Vibratory hammer	Up to 24	In-water work window (July 16 to February 14)	Up to 6	Up to 8	Up to 0.5	None
T4B	24-inch steel pipe sections	Removal	Vibratory hammer, plumb or batter orientation	Up to 24	In-water work window (July 16 to February 14)	Up to 6	Up to 8	Up to 0.5	None

Notes:

1. It is conservatively assumed that the duration of vibratory pile removal will be roughly the same as for vibratory pile installation (i.e., up to 1 hour).
2. Each steel pipe pile supporting the shiploader towers, conveyor, or existing deck system will be installed with both vibratory and impact hammers due to the nature of the substrate.
3. Vibratory pile installation will likely be intermittent and involve multiple starts and stops, as opposed to 1 continuous hour of use.
4. It is likely that impact installation will require fewer than 1,000 impact hammer strikes per day; however, a conservative estimate has been provided for the National Marine Fisheries Service evaluation of Endangered Species Act-listed fish.
5. A dolphin for an upstream mooring point may be required within the exiting deck, to be constructed similar to the existing downstream dolphin.

Piles will be installed with a combination of vibratory hammer(s) to set the piles and for initial driving and diesel impact hammer(s) for final driving to design tip elevations and required pile capacities. The vibratory hammer will be powered by a nominal 1,000-horsepower unit, and the impact hammer will be driven by fuel combustion producing variable energy ranging from approximately 80,000- to 210,000-foot pounds. As a minimum, duration of mobile sources of air emissions will match the total time required for pile driving and dock reconstruction, plus additional time for removal and redriving of some piles, testing of a select number of piles, equipment start-up, equipment idling between pile-driving activities, and equipment maintenance operations.

Depending on contractor means and methods, a steel template made up of structural steel sections (a combination of wide flanges, angles, channels, pipes, hollow structural tubes, and/or plates) will be provided to guide the piles during driving, especially batter piles that must be "threaded" through existing piles. This template may be placed on the deck of the existing structure and may also require vertical and/or lateral support from temporary steel pipe piles installed using a vibratory hammer.

5.1.4.3 Operation

AGP operations at T2 and T4 will be operated independently. There will be no cross operation of meal storage, rail receiving, or shiploader systems at each terminal.

Rail activities will involve receiving unit trains of product from the local short line railroad (PSAP). A unit train normally consists of 100 to 110 railcars. There are instances where this could be up to 120 railcars. The length of tracks being constructed with additional railcar storage tracks will increase the efficiency of handling unit trains.

Railcars will arrive at the site and be positioned to index through the rail receiving building on each of the two receiving tracks. The railcars will be moved through the rail receiving building utilizing fixed railcar indexers, locomotives, or trackmobiles. As the cars are spotted over the receiving pit, the railcar gates are opened and the railcars are vibrated to induce flow from the railcars. Once the railcar is verified empty, the gates are closed and the string of railcars is moved forward. Once the string of cars is unloaded, the empty cars are moved to storage tracks in the Port's railyard. A new string of full cars will then be staged at the entrance of the rail receiving building and the process repeated.

The two 55-car strings will be staged on the east side of a new rail receiving building on the T4 property. There will be two parallel operating tracks through the new rail receiving building with sufficient length to queue two 55-car strings for unloading while providing clearance at the east end of the line for the operation of rail switches. AGP anticipates that railcar indexers installed east of the building may be used to move railcars through the building from east to west; however, other methods of railcar sequencing may also be used. After the last car is unloaded, the empty railcars will then be put onto the proposed storage tracks using a railroad locomotive. Empty cars may also be assembled into built trains and leave the site immediately without going into storage. Grade crossings will not be blocked by railcars parked for storage.

After railcars are emptied into the receiving pits, the soybean meal could be routed two different ways. The first option would transfer the soybean meal directly from the receiving building pits to the ship. To do this, independent and dedicated conveyor systems will reclaim product from each of the receiving pits. The conveyance will move the product to a scale tower, where the product will be weighed and sampled for quality testing. Additional conveyors will elevate and transfer the product to the shiploader. Product is conveyed from each of the receiving pits by a series of dedicated drag conveyors, belt conveyors, and bucket elevators to the scale tower. The received product is weighed in an enclosed bulk scale and sampled. Representative samples are tested and retained to demonstrate product quality. The balance of the product is transferred to the shiploader. It is anticipated that the majority of soybean meal unloaded from the railcars would be handled in this manner.

The second option would transfer the soybean meal from the receiving building pits to the surge silo, which would be loaded onto ships at a later time. Silo loading will be completed via conveyance from the rail receiving building and enter the top of the silo. Silo unloading will be complete via conveyance and would discharge from the bottom of the silo. The operational flexibility afforded by the surge silo would allow for a buffer that would help to accommodate any rail receiving delays. In one operational scenario, the surge silo could be utilized to complete ship loading without having to move manifest or full unit trains to finish loading. In another operational scenario, soybean meal could be transferred to the surge silo rather than moving cars to storage tracks and then moving them back to receiving on the next ship.

The three-tower shiploader will be operated on the T4B berth, which will be upgraded as part of the Port's Proposed Project. The shiploader will be located at T4B and will include three loading spouts, each with a capacity of 2,000 metric tons (MT) per hour of dry bulk agricultural product. This will require reinforcement and modification of the existing dock structure. A photograph of a representative shiploader is provided as Figure 9.

The shiploader is configured with three individual support towers and three individual booms or spouts. Each tower is equipped with a boom that is capable of extending/retracting and slewing (rotating). Each receiving line feeds a three-way diverter to allow feeding any of three ship loading towers. The ship loading towers can only take product from one of the receiving lines at any one time. Both rail receiving lines cannot feed a single ship loading tower.

Each ship loading tower will be controlled by operators to load the ship in accordance with the stowage plan. This will include selecting which ship loading towers are in operation and controlling the placement of the loadout spout in the ship hatch. Soybean meal export is non-seasonal and not harvest-dependent. An average of five additional export vessels per month, or 60 vessels per year, will be expected at the new commodity transfer facility at T4. Typical vessels will be Panamax- or Handymax-sized vessels that will be at berth approximately 3 to 5 days. This will vary based on vessel size and weather conditions. The loading process will be directly from the new rail receiving building (Rail Receiving Pit 3 and Pit 4) to the vessel via the ship loading system. The shiploader is equipped with individual dust filters, covered conveyance and retractable discharge spouts. Upon completion of vessel loading, the vessel will typically depart for its destination port. It is anticipated that the bulk of the vessels will be destined for Southeast Asian ports.

This increased capacity will result in an anticipated doubling of the annual throughput of soybean meal through the Port, with increases in rail and vessel traffic. The increased capacity is anticipated to add up to an additional 60 vessel round trips per year. Each ship has an approximate capacity of 50,000 MT per ship, which results in 3,000,000 MT in exports per year. The Port anticipates that the shiploader will accommodate this additional 3,000,000 MT of soybean meal to ship through the new direct rail-to-ship transload facility planned for T4B. This will effectively double AGP's ship loading volume to 6,000,000 MT per year.

The increased capacity afforded by the Port's rail improvements and the AGP Project will also result in the ability to increase the number of railcars that can be handled at the Port. As the result of their expansion, AGP plans to handle 30,000 total railcars per year at the new T4B facilities. This is approximately 300 unit train round trips per year, which equals an average of 5.8 additional round-trip unit trains per week above what would otherwise be handled at the Port.

Figure 9
Representative Shiploader

5.1.4.4 Alternatives Evaluation

Many factors were considered in the decision to increase AGP's export capabilities at the Port. These included the anticipated soybean processing capacity in the midwestern United States, increased soybean meal demand in Southeast Asia, and transportation from the Midwest to the Port and from the Port to the soybean meal markets.

The United States soybean processing industry currently produces approximately 47 million metric tons (MMT) of soybean meal annually. Of the soybean meal produced, approximately 34.5 MMT is consumed domestically, with the remaining 12.5 MMT being exported. Currently 20% of all U.S. soybean meal exports, or 2.5 MMT, are through the Pacific Northwest, with 93% of the Pacific Northwest soybean meal exports, or 2.25 MMT, through the Port at AGP's T2 facility. Soybean oil is also produced during the processing of soybeans. This is equally used in the food industry and as a feedstock for other renewable fuels. The Pacific Northwest also accounts for 30% of the water bound exports of soybean meal. The T2 facility is currently operating at or near capacity.

Due to the growth in feedstock demand from the renewable fuels sector (e.g., renewable diesel, sustainable aviation fuel), the construction or significant expansion of 15 soybean processing plants are scheduled to begin operations over the next five years (Port of Grays Harbor 2022b). When built, these will result in a 30% increase in soybean processing capacity and an additional 13.7 MMT of soybean meal production. With only a marginal increase in domestic demand, an additional 11.7 MMT of soybean meal will need to be exported.

With increased soybean meal production, soybean meal exports through the Pacific Northwest will be more competitive and export will grow. The anticipated growth will be in Southeast Asia, where the United States currently has 17% of the market.

The Port has several transportation advantages to serve this export market. These advantages are as follows:

1. The Port is served by the PSAP. The PSAP has direct access to both BNSF Railway and Union Pacific Railroad. Most of the planned soybean meal production increases will be served by one of these two railroads.
2. The Port is located 2 to 3 hours from open water at speeds typically travelled by cargo vessels. This is a significant advantage over Columbia River terminals, which may be closer to 12 hours from open water.
3. Ocean transit times from the Port to Southeast Asia are in the range of 24 days, as compared to 38 days from Argentina and 45 days from ports in the Gulf of Mexico. This provides a significant advantage in shipping costs.

As options were reviewed for the location of the new export facility capacity, these transportation advantages were taken under consideration. In addition, the Port also has the following general advantages:

1. The Port is the current site of the existing export facility. This provides some savings in facility maintenance and management.
2. The Port has existing facilities that can be retrofitted and/or expanded (e.g., rail infrastructure, T4 dock facility) and utilized for the new facilities. Utilization of existing facilities and infrastructure is environmentally friendly relative to a greenfield facility at another location.

The impact of not building the expanded export facilities at T4 depends on the actual expansion of the soybean processing facilities in the United States. In the unlikely event that these facilities are not brought into operation, the export volume of soybean meal will remain as they are currently. Without the additional export volume, the facilities at T2 may be adequate. However, building the T4 facility also provides some redundancy in operations to account for maintenance downtime, equipment issues, and the like that occur from time to time with industrial facilities.

When the expected expansion of the soybean processing facilities is brought into operation, there will be an excess of soybean meal production beyond what the current domestic and export markets can absorb. Therefore, other uses for the soybean meal will need to be developed, other export facilities will need to be developed (i.e., potentially by others or at different locations), or the meal will be disposed of in some fashion.

5.2 Overall Project Considerations

This section clarifies assumptions specific to the construction and operation of the Port after implementation of the Proposed Project.

5.2.1 Construction Sequencing

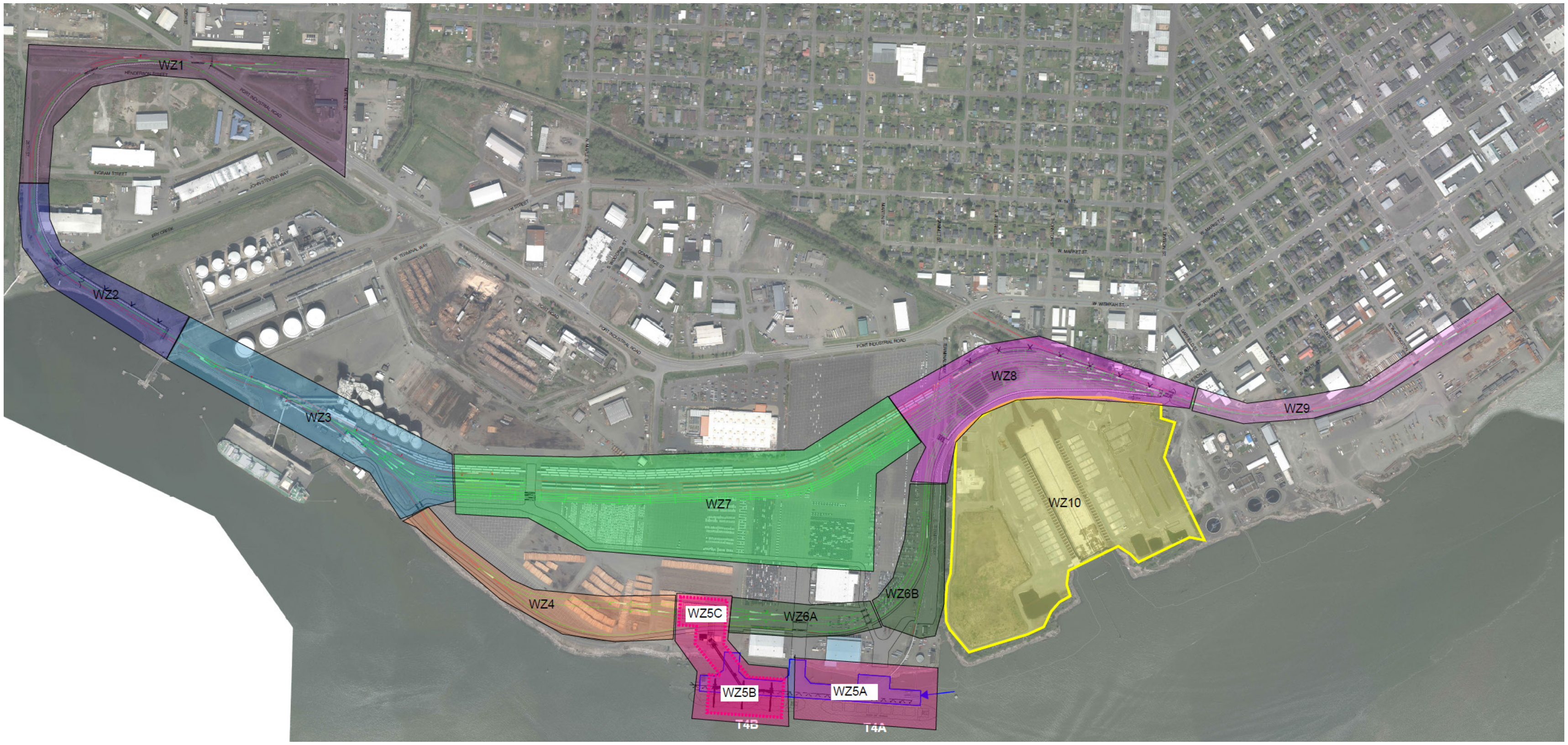
Construction of the Proposed Project would be sequenced in a manner that allows rail traffic to continue throughout the construction timeline, and to find the most efficient way of construction moving forward. Construction sequencing assumes all project elements would be constructed in the first year. However, it is possible that the Port or AGP may elect to construct some elements at a future date. Other general assumptions about construction include the following:

- Contractor(s) has full workforce and materials to start all work that is available.
- Design and permitting are complete in all 10 work zones.
- All current tenants and Port business have been moved/terminated in work location.

As large construction projects commence, there is always a lead time for workforce and equipment. Weather plays a large factor in the work as well, along with in-water work windows. These two items will dictate the shiploader substructure and fender system construction timeline. These considerations are not included in this narrative but will be referenced once the staging schedule progresses in the future. This will lessen float and potentially extend duration for certain items.

The Project Area has been broken down into work zones, to allow clarity in communication and scheduling. Work will be coordinated between work zones to minimize conflicts, with work related to site access, long construction duration, and critical path scheduling prioritized. Figure 10 depicts the work zones.

Figure 10
Work Zones



5.2.1.1 Work Zone 1

WZ 1, WZ 2, and WZ 3 are dependent on each other. As previously mentioned, the main goal of this phasing is to keep rail traffic entering and leaving the T2 area as seamless as possible. There will be times that certain components will have to be installed during a shutdown, which should not last more than a couple of days. Critical items in WZ 1 are as follows:

- The PIR crossing must be installed during a weekend shutdown of traffic on the roadway. This is a major throughfare for Port tenants. The Port does not want to move major traffic to arterial streets inside Port property or within the City of Hoquiam if possible. Maintenance of traffic plans will be designed with this thought in mind.
- The proposed switch connecting the new third loop to the current existing track entering the facility must be installed during a shutdown. This will likely be done concurrently with the switch located in WZ 3. These are crucial to bounce rail traffic from existing infrastructure to new infrastructure, which will allow the completion of the bridge in WZ 2.
- Rail storage must be installed during a shut down as well, to ensure the ability for the storage tenant in this location to have as much access as possible during construction. Tenants will be notified beforehand to remove railcars. It is assumed these tenants' railcars may contain hazardous materials and cannot be moved to another location.

5.2.1.2 Work Zone 2

Construction in this work zone is dependent on the demolition and renovation of the western portion of Warehouse H. Once this is completed, subballast installation and grading can commence, and rail strings can be pulled through the work zone. It is assumed that bridge construction of the northern portion will be concurrent with the demolition of Warehouse H. This will allow track construction crews to work linearly without interruption. The bridge and the building will be completed concurrently.

Once the northside of the bridge is completed, and all new rail and additional switches are installed, rail traffic can be swapped as explained in the narrative for WZ 1. Once that work has commenced, the southside of the rail bridge can be constructed, which involves removal of the existing track and culvert, construction of the bridge, and reinstallation of the track.

Critical items in WZ 2 are as follows:

- Tenants located in Warehouse H must have 6 months' notice prior to construction.
- Spill response materials are located in the area and must be accessible at all times.
- The 28th Street Boat Launch must be accessible at all times to allow the facilitation of spill response.
- Stormwater structures must be temporarily and permanently moved for Warehouse H parking lots. All of the sheet flow for this parking lot enters the areas that will be used for future rail construction of the third loop.

Special consideration should be given to vehicular traffic and emergency access to this area. Construction contractors should look into closing the crossings located on the corner of 28th Street and John Stevens Way. The area is congested under existing conditions. Emergency access should be given through the area or through the Warehouse H parking lot.

During the construction of the south side of the bridge, construction access for the crane can be given with Port notice. This will allow faster construction and egress for this side of the bridge.

5.2.1.3 Work Zone 3

WZ 3 is the busiest work zone in the marine terminals area that is not geared towards construction. Access to this work zone is a priority in this location because T1 and T2 are a major portion of business for the Port. The International Longshore and Warehouse Union and Port must always have access to these terminals. Emergency access should be provided as well.

Critical items in WZ 3 are as follows:

- The proposed extended pedestrian bridge at T1 must be constructed before demolition of the existing pedestrian bridge. Grading of the proposed third loop, along with movement of security fencing should be done at the same time to allow for linear construction of rail.
- Installation of the switches west of Dumphouse 2 will allow the switching of track from the existing track to the third loop. These switches will have to be installed during the aforementioned shutdown. This will happen once the rail has been constructed.
- Access road and crossings near the southwest side of marine terminal area will have to be installed beforehand to keep constant vehicle access to the terminals. This dictates the installation of the proposed center track between Dumphouses 1 and 2. Once construction starts for this center track, the crossing near Dumphouse 2 will be closed.

5.2.1.4 Work Zone 4

The work that will be conducted in WZ 4 will be more flexible than work conducted in other work zones. The construction of the new dumphouse will cut off all rail access to existing track in this area. This will allow for schedule flexibility for this area.

The sequence of work in WZ 4 will go as follows:

- Grade and install stormwater for access road
- Pave access road
- Grade and install new loop track
- Grade and install bypass track

5.2.1.5 Work Zones 5 and 6

The schedule in WZ 5 and WZ 6 is based on the construction of the dumphouse, conveyor, shiploader foundations, and surge silo. These components will have the longest construction duration. If these components were to start at the same time, the duration could last up to 10 months. The dumphouse will require a large open cut to get down to subgrade of the building. The surge silo and associated infrastructure will require pile welding and pile driving. The loader will require saw cutting and demolition of the existing T4B deck and installation of shafts/piling.

As the subgrade work associated with these components finishes, and work begins on the surface level, the work for the fender system will commence at T4A. This work will progress linearly, working from east to west. By the time the shiploader erection is complete, the fender system work will follow. It is assumed that this work will not happen concurrently at T4B in order to eliminate trade stacking.[6]

Once the dumphouse reaches the superstructure level of construction, the area around the outside of the building can be backfilled. It is assumed that this will happen at the same time as superstructure construction. This will eliminate the waiting of the follow along work, such as installation of rail. Construction of the dumphouse and surge silo will occur concurrently. Rail corridor construction can begin prior or concurrent to surge silo construction.

Access will need to be left open at the center approach of the terminal. During construction of the shiploader and dumphouse, access will be congested at the west side of the terminal approach.

Once these structures reach the mechanical installation and commissioning phases, construction on the rail corridor between Transit Sheds A, B, and C will commence. This work must be phased in order to maintain access between the construction staging area north of the terminal and the terminal itself.

Depending on the design of the stormwater system, most of this work will be the last remaining work on the terminal itself. Final landscaping and construction of the stormwater treatment facilities, upland conveyance, and lift stations will be completed after construction of the conveyor system. Repaving of the deck will be done after major construction to minimize the risk of the potential for damage to the new surface.

5.2.1.6 Work Zone 7

The work in WZ 7 is not dependent on other work zones, besides connection of rail through WZ 3 and WZ 8. Within WZ 7, it will be imperative to maintain access from north to south. As such, the crossing installation should be staggered to minimize traffic interruptions. The longest duration will

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[6] Trade stacking is when too many workers or different types of trades have been scheduled to work in a given area simultaneously (myComply 2022).

be installation of the track, but it should be noted that excavation and grading could have longer durations as well.

5.2.1.7 Work Zone 8

The most critical path component of the Proposed Project is located in this area. Critical path components include de-commissioning and rerouting stormwater from ponds, along with grading and installation of the rail in WZ 8. This work allows the grading and paving of the access road to T4, secured access to the casting basin, and rail switch installation to progress from south to north.

Construction in this work zone will commence with southern switches and ladder track installation, as rail traffic could potentially need to be swapped to these lines to allow further switch installation on the existing track. This work will be broken down in a much more specific description and schedule at a later time to allow for the most efficiency. Work in WZ 8 will have to be done one switch at a time, to eliminate conflicts with rail traffic.

5.2.1.8 Work Zone 9

Work in WZ 9 could occur before or after the work in WZ 8 depending on additional crew availability. The work in WZ 9 will be linear, either working from east to west or the opposite.

Special attention must be given to the crossing installation, along with additional switch installation for the new line. Access must be provided to nearby tenant Quigg Bros. to enter their yard, so the crossings must be installed at separate times.

5.2.1.9 Work Zone 10

As stated in Section 5.2.1.7 regarding WZ 8, the start of construction in this area is based off of the rerouting of stormwater in the northern portion of the site. Once stormwater is moved and the access road is installed, backfill of the basin can start.

5.2.2 Operational Traffic Volume Assumptions

The Proposed Project will improve operational efficiencies within the Port and provide for AGP's new export terminal. As described previously, this would result in additional vehicle, rail, and vessel trips to and from the Port; however, the increase in vehicle trips to the Port during operation of the Proposed Project would be limited to employees commuting to the site and would be a negligible increase. Table 5 summarizes the assumptions for the number of round trips to and from the Port.

Table 5
Operational Traffic Volume Assumptions

Transportation Type	Baseline Round Trips	Future Round Trips	
		Without Proposed Project	With Proposed Project
Vessel[1]	131	131	191
Rail[2]	637	637	937

Notes:

1. Includes annual ships and barge trips
2. Includes annual unit trains and manifest trains

6 Permits and Approvals

In addition to environmental review to be completed by the Port and the U.S. Maritime Administration (MARAD), the Proposed Project is also expected to require the local, state, and federal approvals in Table 6. It is assumed that standard construction and operation BMPs will be adhered to in accordance with permit and regulatory requirements.

Table 6
Anticipated Permits and Approvals

Anticipated Permits and Approvals
Federal Permits and Approvals
Section 7 of the Endangered Species Act consultation for the U.S. Fish and Wildlife Service and the National Marine Fisheries Service
Marine Mammal Protection Act as administered by the National Marine Fisheries Service and U.S. Fish and Wildlife Service
Section 106 of the National Historic Preservation Act consultation for the Washington Department of Historic Preservation, affected Native American tribes, and other interested parties
Section 404 of the Clean Water Act authorization from USACE
Section 10 of the Rivers and Harbors Act permit from USACE
Section 4(f) of the U.S. Department of Transportation Act compliance overseen by MARAD
Aviation evaluation for the Federal Aviation Administration (anticipated to require coordination but not a permit)
State Permits and Approvals
Coastal Zone Management Act, which is administered by Ecology and requires a certification of consistency
Section 401 Clean Water Act authorization from Ecology
Hydraulic Project Approval application package for the Washington Department of Fish and Wildlife
Aquatic Use Authorization for State-Owned Aquatic Land from the Washington Department of Natural Resources (anticipated to require consistency with the existing Port Management Agreement and will require coordination with DNR but will not require a permit)
Port of Grays Harbor State Environmental Policy Act Determination
National Pollutant Discharge Elimination System permitting for construction and operations
Local Permits and Approvals
Notice of Construction Approval for the Olympic Region Clean Air Agency
Critical Areas Permit or Statement of Exemption for the City of Hoquiam and the City of Aberdeen
Shoreline and Land Use Approvals for the City of Hoquiam and the City of Aberdeen
City of Hoquiam and Aberdeen Building and Development Permits (as described in Appendix A)

7 Environmental Commitments

The Port and AGP will implement BMPs and adhere to the standards of care as required by the permits and approvals listed in Section 6. This includes but is not limited to the requirements listed in Appendix A.

In addition, the Port and AGP will implement mitigation measures for in-water construction as outlined in the *Port of Grays Harbor Terminal 4 Expansion and Redevelopment Project Biological Assessment* (Anchor QEA 2023).

The Port and AGP continue to refine design elements to avoid and minimize impacts to wetlands and other waters. However, not all impacts will be able to be avoided and the Port and AGP will implement the following measures:

- Compensatory wetland mitigation
- Derelict pile removal

Additional measures to avoid, minimize, reduce, or compensate for impacts have been identified during the preparation of environmental analyses for the Proposed Project.

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Appendix A
Permits, Approvals, and Related Requirements and Standards

Appendix A: Permits, Approvals, and Related Requirements and Standards

The Proposed Project is expected to require several local, state, and federal approvals, which will involve completion of permit applications, coordination with regulatory agencies, and assistance with revisions or the provision of additional information as requested throughout the permitting process.

Federal Approvals and Permits

- U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS) consultation and approval under Section 7 of the Federal Endangered Species Act
- NMFS Marine Mammal Protection Act Incidental Harassment Authorization
- Section 106 of the National Historic Preservation Act consultation for the Washington Department of Historic Preservation, affected Native American tribes, and other interested parties
- U.S. Army Corps of Engineers (USACE) Section 404 Clean Water Act authorization
- USACE Section 10 Rivers and Harbors Act Permit
- Compliance with Section 4(f) of the U.S. Department of Transportation Act
  - The project is subject to review due to U.S. Maritime Administration (MARAD) funding but is not anticipated to require an "Individual Evaluation" under Section 4(f).
- Federal Aviation Administration evaluation
  - The project is anticipated to require coordination but not a permit.

State and Regional Approvals and Permits

- Washington State Department of Ecology (Ecology) a certification of consistency under the Coastal Zone Management Act
- Ecology Authorization under Clean Water Act Section 401
- Ecology and USACE Joint Aquatic Resources Permit Application
- Washington State Department of Fish and Wildlife Hydraulic Project Approval package
- Washington State Department of Natural Resources Aquatic Use Authorization for state-owned land
- Ecology National Pollutant Discharge Elimination System Construction Stormwater General Permit
- Ecology National Pollutant Discharge Elimination System Industrial Stormwater Permit
- Port of Grays Harbor State Environmental Policy Act (SEPA) Determination
- Olympic Region Clean Air Agency Notice of Construction
  - This would include enforceable requirements specifying emission limits, reporting, and recordkeeping requirements for on-site stationary sources. Air emissions would be controlled using best available control technology as required by the agency.

Local Approvals and Permits

- City of Hoquiam and City of Aberdeen Shoreline Substantial Development Permits
  - Consistency with the Shoreline Management Master Program for the protection of shoreline resources and functions.
- City of Aberdeen Site Development Permit
- City of Hoquiam and City of Aberdeen Critical Areas Reviews
  - Critical area review report
  - Buffer establishment and protection requirements
  - Buffer mitigation and monitoring requirements
  - Buffer activity limits and restrictions
- City of Hoquiam and City of Aberdeen Building Permits
  - Requirement for compliance with American Society of Civil Engineers 7 design and construction standards, including climatic and geologic loading requirements
  - Permits the proposed action as compliant with 2021 International Building Codes
  - Erosion control plan
  - Geotechnical report
  - Shoreline substantial development permit
  - Critical areas review report
- City of Hoquiam and City of Aberdeen Grade and Fill Permit
  - Permits the proposed action as compliant with city practices to prevent flood damage
- City of Hoquiam and City of Aberdeen Landscaping Requirements
  - Comply with Hoquiam Municipal Code 10.05.065 requiring the preparation of a landscape plan and planting trees to offset construction impacts.
  - Comply with Aberdeen Municipal Code Chapter 17.88. If a conditional land use permit is required, landscaping may be a requirement of the permit.
- City of Hoquiam Demolition Permit
  - Permits the proposed action as compliant with city practices for demolition.
- City of Aberdeen Utility Services Agreement
  - Communication and coordination